Orange & Rockland

Distributed System Implementation Plan

Case No. 14-M-0101
Case No. 16-M-0411

June 30, 2025

Table of Contents

2025 Distributed System Implementation Plan

Executive Summary

Introduction

Orange and Rockland Utilities, Inc. ("O&R" or the "Company") continues to modernize its grid and expand access to clean energy guided by its role as a Distributed Service Provider ("DSP") and builder and manager of a flexible, dynamic grid envisioned for the future. This fifth edition of the Company's Distributed System Implementation Plan ("DSIP") details recent progress and outlines future initiatives in planning, grid operations, customer engagement, and market enablement. It highlights investments in smarter infrastructure, improved forecasting, and integrated planning—laying the groundwork for a more dynamic, distributed grid that empowers customers and supports decarbonization goals in collaboration with partner utilities.

In alignment with New York State's ("NYS") clean energy objectives—set by the landmark 2019 Climate Leadership and Community Protection Act ("CLCPA")[1] and expanded in the 2022 Scoping Plan—O&R is preparing for increased Distributed Energy Resource ("DER") integration, future DER aggregation under the Federal Energy Regulatory Commission's ("FERC") Order 2222,[2] and broader participation in non-wires alternatives ("NWAs"), storage markets, and customer programs. Through innovative tools and initiatives such as the Distributed Energy Resource Management System ("DERMS"), SmartCharge NY, Statewide Solar for All, and the Innovative Storage Business Model ("ISBM"), O&R is building a platform that is flexible, accessible, and resilient.

This DSIP functions as both a report and a roadmap, demonstrating how O&R is aligning with NYS goals while enabling customers and communities to help shape the more flexible, capable, and connected Grid of the Future.

Building and Operating a Reliable and Resilient Energy Grid

To meet changing system demands, O&R is reinforcing the resilience and reliability of its grid through **integrated planning**, climate-adjusted forecasting, and operational modernization. Participation in the Coordinated Grid Planning Process ("CGPP"),[3] along with the Company's Climate Change Vulnerability Study ("CCVS") and subsequent Climate Change Resilience Plan ("CCRP"), has helped the Company as it anticipates future infrastructure needs based on extreme weather projections, increased electrification led by clean heat and EV integration, and increased DER penetration on O&R's electric delivery system. **Advanced forecasting** methodologies that model circuit-level load changes like those brought about by EVs and heat pumps have contributed to deeper insights which are leveraged to improve grid reliability by giving planners and operators earlier insight into system constraints and enabling timely, cost-effective upgrades. As electrification and clean energy adoption accelerates, DSP investments will prioritize flexibility, interoperability, and dependable DERs that complement system operations.

On the **grid operations** front, O&R continues the deployment of its Advanced Distribution Management System ("ADMS") with its newly developed DERMS platform, which supports real-time visibility, situational awareness, and DER coordination tools that are essential to managing bidirectional power flows and maintaining grid stability. These systems are informed using data collected from O&R's

---

[1] New York State Senate Bill S6599 Climate Leadership and Community Protection Act https://www.nysenate.gov/legislation/bills/2019/S6599.

[2] FERC, Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators (RM18-9-000; Order No. 2222) (issued September 17, 2020).

[3] Case 20-E-0197, *Proceeding on Motion of the Commission to Implement Transmission Planning Pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act*, Order Approving a Coordinated Grid Planning Process (issued August 17, 2023).

advanced metering infrastructure ("AMI") and supported by continued enhancements to smart grid technologies and communication infrastructures. The Company is also scaling up **energy storage** integration as a critical reliability resource, providing dispatchable capacity and localized relief in constrained areas. As these capabilities become embedded in day-to-day operations, they will not only support today's reliability and resilience needs but also lay the foundation for a Grid of the Future that is inherently more flexible and able to adapt dynamically to changing conditions, integrate a variety of new resources, and respond to diverse customer needs in real time.

Maintaining Affordability and Managing Costs

O&R's strategy for affordability balances clean energy investments with cost-effective planning and targeted resource deployment. Flexible resources like **energy storage**, **clean heat** technologies, and demand response and **energy efficiency** programs help reduce the need for large infrastructure projects and manage system costs over time. Innovative solutions like the ISBM virtual power plant ("VPP") project—now New York's largest behind-the-meter solar-plus-storage deployment—are helping O&R deliver value to both the system and customers. Consistent with the CLCPA's goal that at least 35 percent of clean energy benefits reach disadvantaged communities ("DACs"), O&R is aligning investments and planning tools to serve these communities as the Grid of the Future takes shape.

While increased integration of EVs and clean heat technologies are leading to higher demands for electricity, programs like SmartCharge NY and planned EV rate structures are helping to shift loads off-peak. In addition, clean heat system innovations like Utility Thermal Energy Networks ("UTENs") have the potential to provide resilient and reliable heating solutions that reduce long-term customer energy costs. AMI also plays a central role in maintaining affordable energy costs by enabling data-driven planning and targeted efficiency measures and improving operational performance and customer engagement. As tools like granular **hosting capacity** maps become more refined, O&R will continue to direct DER and infrastructure investments toward locations and solutions that maximize customer and system value.

Enhancing Customer Experience

Customers are at the heart of everything O&R does as an energy utility. Their participation, feedback, perspectives, and ideas are central to formulating and progressing the DSP vision, and O&R is dedicated to continually improving programs and tools that keep customers informed, help them make better energy choices, and provide feedback that helps the Company improve its operations every day.

Over the past few years, O&R has achieved marked success with initiatives like the My ORU Store (or the "Marketplace") and Home Energy Reports ("HERs"), which provide financial incentives, product rebates, and personalized insights that empower customers to manage energy use and reduce their bills. O&R's outreach events at local schools and food banks have also received praise from customers and industry partners as they have helped connect those in need with opportunities available to them, especially in underserved communities. In addition, as customer billing is one of the primary means of interacting with customers, O&R utilizes this medium to communicate clearly information about consumption, energy transactions, and regulatory changes in a clear and concise format.

Investments in AMI and digital information delivery platforms like the Integrated Energy Data Resource ("IEDR") are enabling customers and stakeholders to access real-time energy insights, while also helping the Company to improve services like outage response time, and customer engagement programs. Enhanced hosting capacity maps and the Data Access Platform ("DAP") also provide access and transparency for developers and customers alike.

To keep customers informed and educated on the rapidly changing energy landscape in NYS, O&R will continue to refine customer-facing tools and programs to maintain customer trust, simplify engagement, and maximize participation across all customer segments.

Enabling DERs and Other Market Services

O&R continues to make meaningful progress toward NYS's clean energy goals by developing capabilities as a DSP that supports greater DER adoption. Since 2016, O&R has collaborated with the Joint Utilities ("JU")[4] to develop and enhance **hosting capacity** tools, providing more granular system data to help prospective DER developers make informed siting decisions and better support project planning. O&R has also invested in streamlining the **DER interconnection** process to reduce project timelines and costs—key factors in accelerating DER deployment. The Company is actively evaluating opportunities to automate parts of the interconnection application review to shorten approval times and improve efficiency. As market needs evolve, O&R remains engaged with the JU, the Public Service Commission ("PSC" or "the Commission"), developers, and other stakeholders to refine screening methodologies and explore policy and technical solutions that enhance transparency and cost-effectiveness.

To maintain reliable **grid operations** as DER penetration increases, O&R is investing in new capabilities that support the safe integration of flexible resources. The development and deployment of grid management tools such as the DERMS will play a critical role. O&R is also collaborating with the New York Independent System Operator ("NYISO") and aggregators to enable customer participation in wholesale market programs.

The Company continues to apply insights from demonstration projects and pilots to guide its DER strategies. Projects like the Distribution Feeder of the Future ("DFOTF") and Haverstraw UTEN provide key learnings on the functionality of these systems and how to communicate their benefits to promote community support. As the Grid of the Future proceeding progresses, these systems and integrations will likely support new pilots to demonstrate flexibility-enabling capabilities. Continued pilot programs help the Company gain the experience necessary to determine which are the right solutions at the right time and in the right places to advance NYS's clean energy transition while prioritizing the best interest of each community.

Progressing Toward New York's Clean Energy Goals

O&R is aligning infrastructure planning, operational capabilities, and customer programs with NYS's climate and decarbonization goals, while preparing the distribution system to evolve into a more flexible and dynamic Grid of the Future. Through **integrated planning** informed by climate-adjusted demand forecasts and DER buildout scenarios, the Company is developing infrastructure solutions that support decarbonization while preserving system reliability and affordability. Critical to achieving clean energy targets are O&R's building electrification programs that not only integrate innovative solutions but also provide customers with tools to better manage energy usage. Tools like the Building Energy Usage Portal ("BEUP") help building owners access the energy data needed to comply with local regulations and identify opportunities to reduce emissions. The Company also continues to offer and expand incentives and education programs to encourage customers to adopt clean energy technologies and make **energy**

[4] The Joint Utilities are Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation d/b/a National Grid, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation.

efficiency enhancements to their homes and buildings that reduce the need for fossil fuels and ease the burden of energy demands on the system.

Alongside building electrification, the electrification of the transportation sector is also moving forward at rapid pace. With more than 10,000 EVs now in its service territory and a rapidly expanding charging infrastructure, O&R is continuing to expand its **electric vehicle** ("EV") offerings and incentive programs like SmartCharge New York and several EV Make-Ready Programs. These programs work in conjunction to incentivize EV-adopting customers and charging station operators by using price signals to shift loads and engage in more grid-beneficial charging behaviors. In addition, **energy storage** initiatives and expanded grid monitoring and control through the ADMS and DERMS enable more efficient coordination of DERs and flexible loads. These efforts, coupled with ongoing improvements to the **DER interconnection** process and support for future Vehicle-to-Grid ("V2G") use cases, reflect O&R's commitment to building a clean, resilient, and customer-focused energy platform.

Engaging with and Leaning Alongside Our Stakeholders

Engaging with stakeholders—including customers, the PSC and other NYS agencies, NYISO, the New York State Energy Research and Development Authority ("NYSERDA"), local governments, the JU, developers, aggregators, and non-governmental organizations—is essential to advancing NYS's clean energy goals. For O&R, stakeholder engagement is a two-way dialogue that fosters collaboration on challenges, opportunities, program development, and potential solutions that considers the benefits to all parties. Recognizing the diverse priorities of its stakeholders, O&R employs a variety of communication channels—such as technical conferences, webinars, and newsletters—to share information and gather feedback.

The 2025 DSIP highlights numerous examples of how O&R collaborates with stakeholders to enhance customer value and support decarbonization efforts. As the energy landscape continues to evolve with growing demand, new technologies, and shifting market dynamics, O&R remains committed to strengthening existing partnerships and building new ones to support ongoing dialogue and alignment wherever possible.

Conclusion

O&R's 2025 DSIP reflects a clear and deliberate strategy to evolve into a modern DSP provider supporting NYS's clean energy goals while delivering safe, reliable, and affordable service. Through this forward-looking plan that is practical, actionable, and ever-evolving based on a constantly changing environment and continued technological innovations, O&R is enabling a future grid that is more flexible, equitable, and resilient. By aligning infrastructure investments with climate and electrification trends and making it easier for customers to participate, O&R is not only supporting a decarbonized energy future—it is helping lead the way. O&R welcomes the opportunity to share this plan with stakeholders to work collaboratively with its implementation.

2025 Distributed System Implementation Plan

Chapter 1 - Evolving the Distributed System Platform

2025 Vision

Orange and Rockland Utilities, Inc. ("O&R" or the "Company") and Consolidated Edison Company of New York, Inc. ("CECONY") (collectively, "the Companies") are committed to a Grid of the Future ("GOTF") that results in a safe, reliable, efficient, and flexible electric grid through the energy transition. Achieving this will require encouraging adoption of and, subsequent, integration of distributed energy resources ("DER") in order to achieve an orderly and cost-effective transition to best meet customers' and society's evolving needs. As envisioned by the New York State ("NYS") Public Service Commission ("PSC" or "the Commission") early in the Reforming the Energy Vision ("REV") proceeding, the Distributed System Platform ("DSP") "*fosters broad market activity that monetizes system and social values by enabling active customer and third-party engagement that is aligned with the wholesale market and bulk power system.*"[5]

Informed by robust stakeholder engagement, the development of the GOTF has played a key role in supporting the State's policies driving the clean energy transition. The Companies have engaged with customers, DER developers, technology providers, research institutions, government agencies, environmental interest groups, and other stakeholders to facilitate the integration of DER and enable customer participation in clean energy programs.

State policy objectives have also advanced significantly since the first Distributed System Implementation Plans ("DSIPs") were filed in 2016. Subsequent laws and regulatory initiatives built upon the REV proceeding. The 2019 Climate Leadership & Community Protection Act ("CLCPA") and 2022 CLCPA Scoping Plan[6] target an 85 percent reduction in greenhouse gas emissions by 2050, 100 percent carbon-free electricity by 2040, and procurement of 6,000 MW of energy storage and 10,000 MW of solar.[7]

Several regulatory initiatives since 2020 have built upon the original REV goal of reducing carbon emissions by focusing on electrification. These include the New Efficiency: New York ("NENY") proceeding to drive energy efficiency and electric heating, various electric vehicle ("EV") proceedings to support transportation electrification, the Proactive Planning Proceeding[8] to support rapid load growth, and most recently, the GOTF Proceeding[9] to support an orderly and efficient clean energy transition. Notably, the GOTF Proceeding expands upon the REV goals with a focus on flexibility, advancement of utility capabilities, and greater harmonization across programs.

Foundational investments enable grid capabilities that support applications designed to enhance reliability, resiliency, safety, and situational awareness. These capabilities are achieved through advanced technologies and equipment, including robust sensing and measurement, information and data management, analytics, and communications networking. They are "no regrets actions" that can support

---

[5] Case 14-M-0101, *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision* ("REV Proceeding"), Order Adopting Regulatory Policy Framework and Implementation Plan ("Track 1 Order"), (issued February 26, 2015).

[6] New York State Climate Action Council, *New York State Council Scoping Plan* (December 2022): https://climate.ny.gov/resources/scoping-plan/.

[7] The storage goal was updated to 6,000 MW (from its original target of 3,000 MW) after the June 20, 2024 Order Establishing Updated Energy Storage Goal and Deployment Policy, and the distributed solar goal was updated to 10,000 MW (from its original target of 6,000 MW) after Governor Kathy Hochul's announcement on April 14, 2022 that the PSC had approved a framework for the State to achieve at least 10,000 MW of distributed solar by 2030.

[8] Case 24-E-0364, *In the Matter of Proactive Planning for Upgraded Electrical Grid Infrastructure,* Order Establishing Proactive Planning Proceeding (issued August 15, 2024).

[9] Case 24-E-0165, *Proceeding on Motion of the Commission Regarding the Grid of the Future*, Order Instituting Proceeding (issued April 18, 2024).

both current applications and future applications, such as integration and utilization of DERs, in a modular fashion.

The results of utility investments and regulatory action have resulted in significant progress in the adoption of flexible resources in the Companies' territories. Notable achievements for O&R include:

- As of May 31, 2025, O&R has integrated a total of 47.96 MW of energy storage onto the Company's electric system, including 3 MW of Company-owned utility integrated storage ("UIS").
- O&R has completed 1,475 total heat pump projects over the course of the clean heat program from 2020 to 2024, claiming 122,149 Million British Thermal Units ("MMBtu"), exceeding their share of the NENY program target by 141 percent.[10]
- Administered the SmartCharge New York ("SCNY") program, surpassing 5,000 customer enrollments; concurrently, achieved early success in EV infrastructure deployment by installing 1,074 Level 2 plugs and 40 Direct Current Fast Charging ("DCFC") plugs across 96 public sites, with an additional 496 Level 2 and 102 DCFC plugs committed, successfully meeting the Company's original Make-Ready Program-PowerReady-Level 2 plug target ahead of schedule in February 2024.
- In partnership with Sunrun Inc., O&R successfully activated New York's largest residential virtual power plant ("VPP") during the summer of 2024, using more than 300 solar-plus-storage systems.

As DER growth continues and more end-uses in the Companies' service territories are electrifying (especially transportation and buildings), a greater share of energy use will become dependent on electricity, making it more important than ever to maintain the reliability of the electric grid. At the same time, the proliferation of DER creates an opportunity, as flexible load can be leveraged to provide grid services in parallel with growth of intermittent large-scale renewables. The Companies anticipate increasing value in the future by leveraging flexible resources to balance supply side (wholesale) renewable generation. To realize these benefits, however, will require a flexibility framework that balances both dependability with market support to drive market maturity. The Companies outline below a set of balanced, key principles that can guide the implementation for flexibility in their service territories:

1. **Dependability of Flexible Resources:** For a grid resource to be valuable, it must be dependable. To verify dependability of flexible resources, the Companies are currently taking and will continue to take a data-driven approach, collecting performance data from different customer segments and technologies. The Companies welcome opportunities to gather additional data through programs, pilots, and studies to better understand the performance of these resources and in turn, realize their system value while avoiding negative impacts to affordability.

2. **Scalable Market Participation through Aggregation:** An aggregation model enables market participation to scale efficiently and supports the balancing of renewables by facilitating participation of aggregations in wholesale markets. Aggregators of flexible resources play an important role in the market by translating price signals into simplified customer incentives and rewards, as they often specialize in distinct customer segments and technologies and bring that specialized expertise to bear alongside the utility and its customers. The utility, as the entity responsible for maintaining reliability, should serve as an aggregator of aggregators to facilitate inclusion of these resources in wholesale markets. As most of the benefits from grid flexibility will

[10] Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative,* New York State Clean Heat Program 2024 Annual Report (Filed April 1, 2025).

come from wholesale value, aggregation will be an important tool to leverage in capturing that value.

3. **Value-based and Predictable Compensation:** Fair compensation for flexible grid services needs to strike a balance between upfront deployment incentives based on market needs and ongoing performance incentives in programs based on services delivered reliably. Considerations for compensation levels should include (i) the costs and economics of adoption of different technologies by customers, (ii) the business model(s) of developers, aggregators, and customers, and (iii) the benefits each flexible resource (or combination of resources) provides to the grid and customers while balancing the impacts on all utility customers. Compensation mechanisms in programs should provide a base level of stability to encourage the adoption of flexible resources while allowing a level of adaptability to adjust to changing grid needs. The Companies are eager to support the unlocking of new use cases at the whole system level for flexible resources and determine appropriate value(s) for compensation through pilots and market development.

4. **Harmonized and Growing Customer Programs:** Increasing customer enrollment and participation in programs brings flexible resources together to serve grid needs while providing benefits to customers. The Company has already made great strides in this direction through programs such as managed EV charging and various demand response ("DR") programs. In the case of customer-facing or aggregator-based programs, a harmonized suite of programs with clear and aligned price signals, such as for balancing large-scale renewables, can increase enrollment, enhance the participant experience, and facilitate the development of innovative business cases for both utilities and third parties. Programs offer a greater level of adaptability to evolving market needs over more rigid rate- and/or tariff-based approaches. As electric grid needs change over the course of the clean energy transition, programs must evolve as well. For instance, different peaks may shift or lengthen, changing the value that flexibility could provide. Additionally, as technology adoption increases, the change in the cost maturity curve may necessitate the need for different incentive levels over time. O&R and CECONY will continue to work to simplify and streamline program enrollment and design, allowing for adaptability and scale to match market and grid needs.

5. **Advanced Utility Capabilities:** O&R has been making foundational investments to advance their utility capabilities, as documented in this DSIP filing and prior iterations. This includes efforts such as working toward increased monitoring and visibility through the ongoing development of a distributed energy resources management system ("DERMS") and improved visibility for DER siting through building and enhancing the Companies' hosting capacity maps. Looking forward, the Companies will continue to develop capabilities, including planning and forecasting, hosting and registration, interconnection, monitoring and visibility, customer enrollment, dispatch, and market participation in incentive programs. Other cross-cutting capabilities being further developed are cybersecurity, data management, and advanced metering infrastructure ("AMI"). The Companies will continue the development of their capabilities in coordination with the GOTF's efforts to unlock the potential of flexible resources.

In April of 2024, the PSC initiated the GOTF Proceeding. The goals of the GOTF Proceeding are clearly aligned with both the enablement of various capabilities that the Companies have achieved thus far and the Companies' longstanding DSP vision.[11] In past DSIPs, the Companies and the Joint Utilities ("JU") have

[11] As outlined in prior DSIPs.

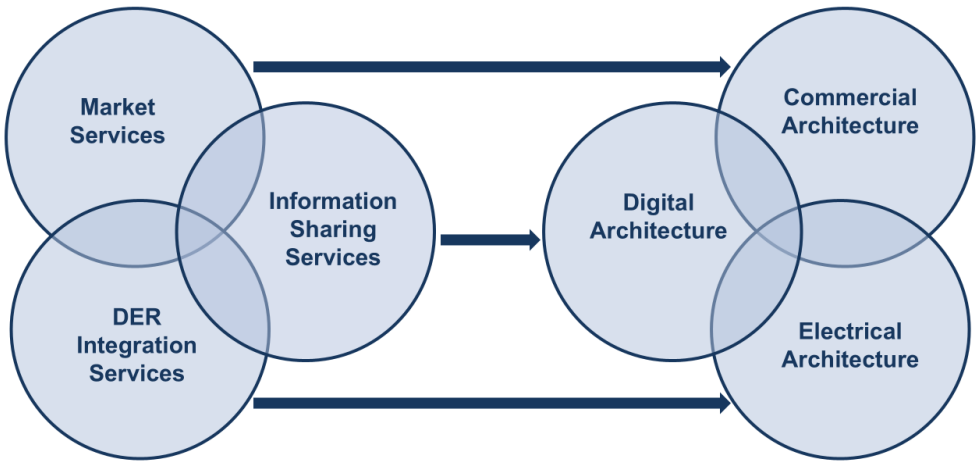
organized the development of this vision into three core overlapping functions: DER integration, market services, and information sharing.[12] These core functions map closely into subsets of the architectural framework presented in the First Iteration of the Grid of the Future Plan.[13] These three architectures are interlinked and will work in tandem to enable the benefits of grid flexibility:

1. **Market services are a subset of the commercial architecture:** The commercial architecture encourages flexible resource adoption, deployment, and ongoing operations using targeted, sensible price signals through a harmonized suite of programs. This generally aligns with the market services described in prior DSIPs.

2. **Information sharing services are a subset of the digital architecture:** The digital architecture allows utilities to access and leverage demand-side data for grid planning and operational purposes and serve as a platform to enable customer programs. This aligns with the information sharing services and the digital aspects of DER integration services described in prior DSIPs.

3. **DER integration services are a subset of the electrical architecture:** The electrical architecture allows utilities to support integration of flexible resources onto the grid and operate them for grid and customer benefit. This aligns with physical infrastructure aspects of DER integration services described in prior DSIPs.

Figure 1: Prior DSP Functions Mapping as Subsets to Architectural Framework of GOTF



The underlying capabilities that enable these architectures are still being developed in the GOTF Proceeding and will be further described in subsequent DSIPs. The Company's initial vision of how O&R may further develop these architectures and their underlying capabilities is summarized below, recognizing that the achievement of the vision will also be driven in large part by customer and market engagement. The Companies are looking forward to engaging with policymakers and stakeholders to further define this vision and inform future priorities.

[12] The Joint Utilities are Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation d/b/a National Grid, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation.
[13] Grid of the Future Proceeding, First Iteration of the Grid of the Future Plan (Filed March 31, 2025).

Electrical Architecture

The electrical architecture describes the physical grid infrastructure, including customer-sided DERs, that enable reliable delivery of electricity in a bidirectional energy system and facilitate grid services, including meeting the operational needs of grid operators, grid service providers, utility business managers, and customers.

Elements of the electrical architecture that O&R has developed and invested in include:

- Completion of AMI meter rollout
- Installation of grid sensors
- Installation of protective equipment on the distribution grid that enables two-way power flows
- Establishment of standards requiring smart inverters for DERs

Going forward, safety and reliability will remain paramount priorities for O&R, particularly as customers rely on the electric grid for more of their essential services. Enhancements to the electrical architecture that the Companies will pursue to mature their capabilities include:

- Continuing operation of programs that encourage adoption of EVs, heat pumps, and battery storage
- Deploying modernized network protector relays
- Standardizing technology, where applicable, to increase interoperability
- Automating device-setting updates
- Implementing flexible interconnection

Digital Architecture

The digital architecture layer includes the business information technology ("IT") and operations management systems that enable the utility to implement and advance key capabilities.

Elements of the digital architecture that O&R has developed and invested in include:

- Developing systems that provide operational management like DERMS
- Enhancing corporate IT systems to support grid modeling or programmatic billing
- Creating customer-facing portals to exchange information between the utility and customers or developers
- Build-out of internal system interfaces within the utility or external interfaces between utility systems and the New York Independent System Operator ("NYISO")

Enhancements to the digital architecture that O&R will pursue to mature its capabilities include:

- Expanding functionality of key grid management systems, including DERMS and geographic information system, to integrate and manage DERs and DER programs digitally
- Automating technology-enabled functionality for:
    - DER interconnection
    - DER data integration and sharing
    - Granular grid modeling

Commercial Architecture

The commercial architecture includes an integrated set of commercial and regulatory mechanisms that enable the business and grid operations for customers, DER operators and aggregators, the utility, and the wholesale market.

Elements of the commercial architecture that O&R has developed and invested in include:

- Deploying programmatic upfront incentives for technology installations and ongoing performance-based incentives
- Implementing contracts for dispatch rights of flexible resources
- Solicitating for grid solutions through requests for proposals in the non-wires solutions program

Enhancements to the commercial architecture that O&R will pursue to mature its capabilities include:

- Continuing programs that compensate resources that meet grid needs and enable participation in the wholesale market
- Targeting resources or locational solicitations as dictated by planning needs
- Offering a portfolio of programs that provide incentives for various resources that may be leveraged for flexibility in the future

Many of the capabilities discussed fit broadly in one architecture, but O&R recognizes there will be overlap in how these capabilities enable different parts of the GOTF in other architectures as well. Additionally, there are several capabilities which are crosscutting across all three architectures. These are cybersecurity, data management and infrastructure, and AMI. Robust development of these capabilities enables safe, reliable deployment of the other grid functionalities.

In conclusion, O&R will continue evolving key grid functionalities over time to align with customer needs and NYS policy goals and will refine this vision through the GOTF Proceeding as the capabilities and architectures are further defined.

Utility Capabilities

The Advanced Utility Capabilities introduced above are highlighted throughout this DSIP. At the beginning of each "Current Progress" section in Chapter 2, a summary box outlines key accomplishments for that topic. These highlight the relevant capabilities and link them to supporting O&R programs and initiatives. Table 1 below serves as a guide to the capabilities featured in each topic section.

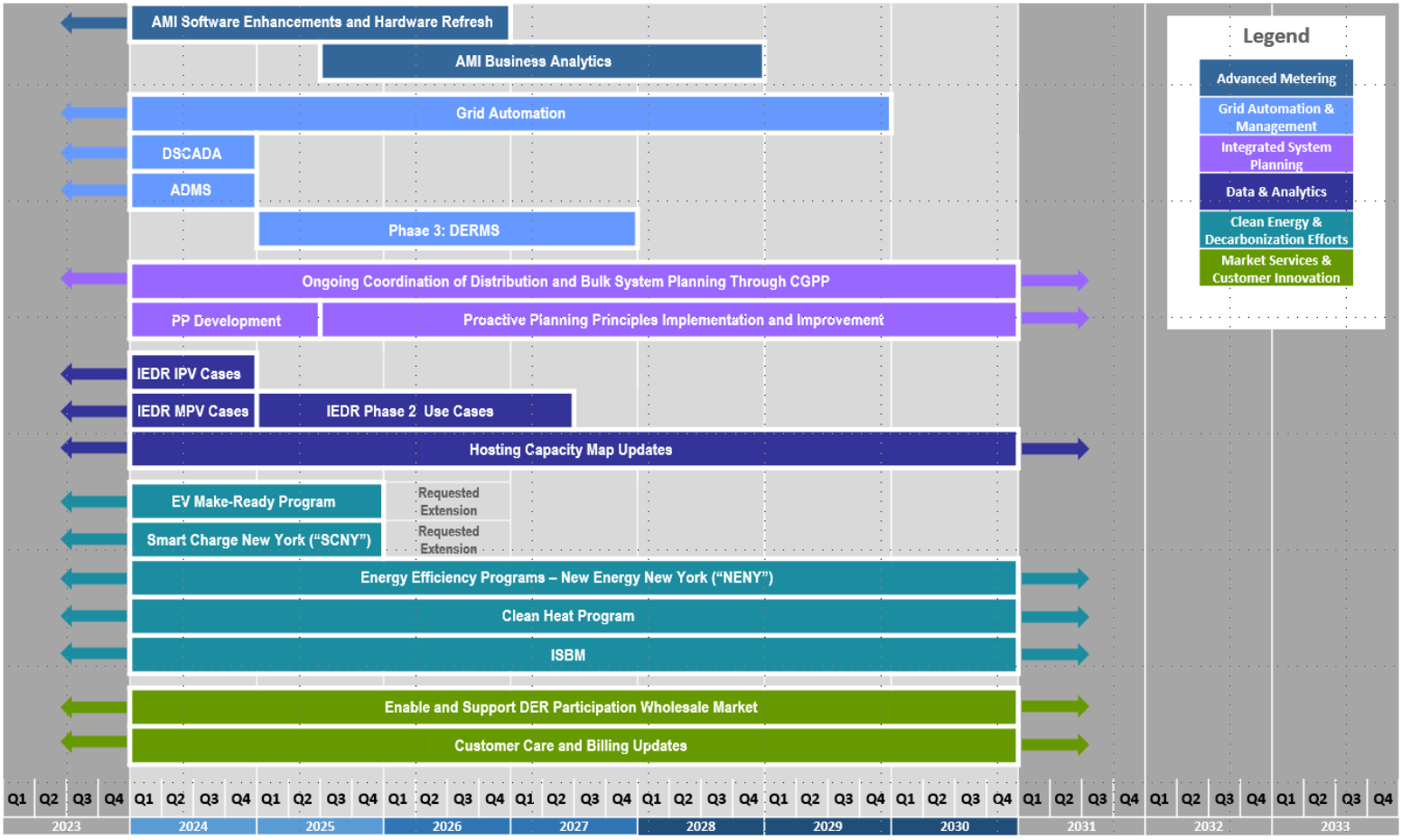
Table 1: Capabilities Highlighted in Each Topic Section

Capability	Example	Highlighted Sections (not exhaustive)
Planning and Forecasting	*Ability to develop long-term planning scenarios based on adoption of flexible resources and impact on system and individual networks*	Integrated Planning Advanced Forecasting Clean Heat EE Integration and Innovation Beneficial Locations for DERs and NWAs
Hosting and Registration	*Ability to maintain a registry of flexible resources and their data attributes and process and manage interconnection requests*	Integrated Planning Data Sharing Hosting Capacity DER Interconnection
Monitoring and Visibility	*Ability to receive and store real-time data from specific assets (e.g., solar, batteries, EVs, smart buildings) and to monitor their operational status*	Advanced Forecasting Grid Operations Advanced Metering Infrastructure
Dispatch	*Ability to dispatch assets and modify grid settings (e.g., programmable logic) to perform actions in line with grid needs (e.g., load shifting, peak reduction)*	Grid Operations Energy Storage Advanced Metering Infrastructure
Customer Programs	*Ability to design a program with incentives and pricing levels best suited to specific customer groups and increase customer awareness and understanding of existing programs in order to drive enrollment*	EV Integration Clean Heat EE Integration and Innovation Data Sharing Billing and Compensation Advanced Metering Infrastructure
Market Participation	*Ability to align incentives for customers and third parties with O&R's evolving needs, while providing long-term revenue certainty for customers*	Energy Storage EV Integration Clean Heat EE Integration and Innovation Data Sharing Hosting Capacity Billing and Compensation DER Interconnection

Cross-Cutting Capabilities *These capabilities support multiple areas and are reflected either directly or thematically throughout this DSIP. While they may not be explicitly highlighted in the key accomplishments of each topic, they play a critical role in advancing essential utility programs and initiatives.*		
Capability	**Example**	**Highlighted Sections (not exhaustive)**
Cybersecurity	*Ability to prevent cyber attacks, detect threats in real-time, and adhere to the highest security standards*	Grid Operations Data Sharing
Data Management and Infrastructure	*Ability to ingest, clean, and aggregate data, process high-velocity data, and store data securely*	Grid Operations Energy Storage EV Integration DER Interconnections Advanced Metering Infrastructure
AMI Capabilities	*Ability to utilize data gathered through O&R's AMI systems to develop and improve program and initiatives across the utility*	Integrated Planning Advanced Forecasting Grid Operations Energy Storage EV Integration EE Integration and Innovation

Overall Integrated Timeline

Figure 2: Integrated Timeline of Activities and Investments



2025 Distributed System Implementation Plan

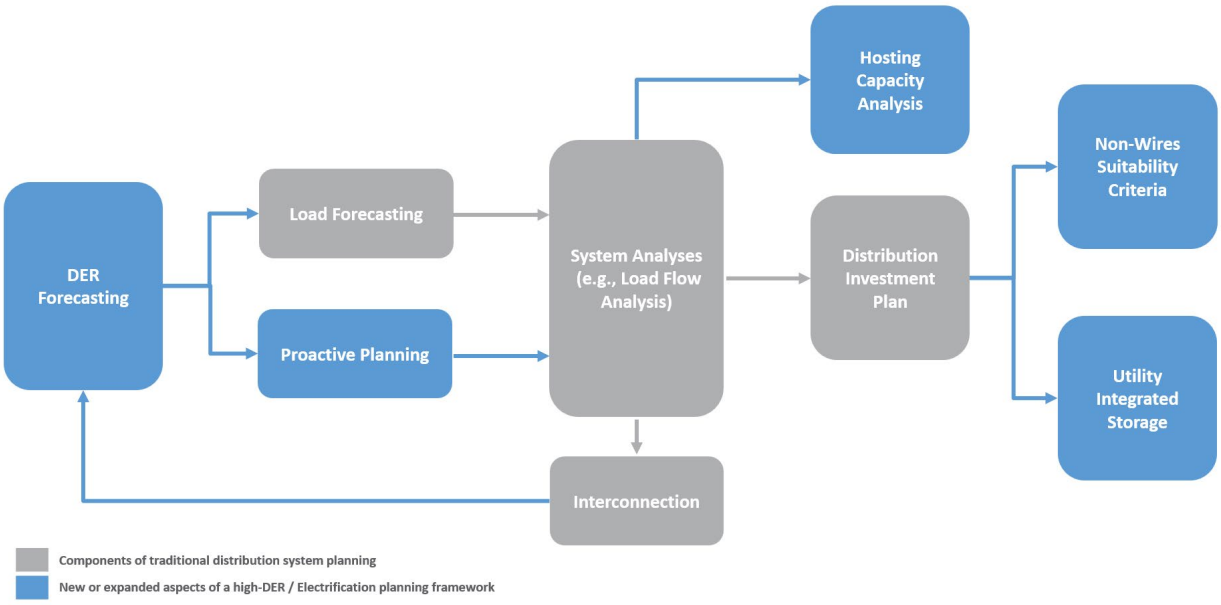
Chapter 2 - DSIP Update Topical Sections

Integrated Planning

Introduction/Context and Background

Over the past decade, rapid advancements in energy technologies—particularly the growing role of distributed energy resources ("DERs")—have created new opportunities to meet both increased energy demand and clean energy goals. To support the integration of higher levels of DERs, the Joint Utilities[14] ("JU") recognize the need to modernize their planning process to continue delivering electricity safely, reliably, and efficiently in a changing energy landscape. This evolving planning approach builds upon traditional methods by incorporating enhanced tools, more comprehensive data inputs, and a greater focus on uncertainty, resource diversity, and transparency. As described in the Supplemental DSIP,[15] these enhancements will facilitate the development of Distribution System Platform ("DSP") capabilities. Figure 4 originated from the Supplemental DSIP and illustrated the initial evolution of the planning process, with gray-shaded boxes representing traditional planning components and blue-shaded boxes highlighting new or expanded elements of a high-DER planning framework—marking a shift toward a more standardized, transparent, and DER-responsive process. Orange and Rockland Utilities, Inc. ("O&R" or the "Company"), recently added Proactive Planning and Utility Integrated Storage to this framework, demonstrating the Company's efforts to adapt and support the continuously changing energy environment.

Figure 3: Distribution System Planning Processes



[14] The Joint Utilities are Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation d/b/a National Grid, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation.

[15] Case 16-M-0411, *In the Matter of Distribution System Implementation Plans,* Supplemental DSIP, November 1, 2016.

O&R continues to strengthen its integrated planning processes and capabilities to align with system and customer needs, regulatory expectations, and the clean energy goals established by New York State ("NYS"). The Company develops detailed forecasts at the substation, bank, and circuit levels to support its distribution system analysis, which informs its investment planning decisions. These forecasts are used to identify system constraints and compare the costs and benefits of various traditional, non-traditional, or hybrid solutions *(*i.e., pairing of smaller-scale NWA with a more cost-effective traditional upgrade). This approach enables O&R to "right-size" its infrastructure investments, leveraging modular DERs where appropriate, while still relying on traditional infrastructure in cases where reliability, safety, equipment, or timing issues make alternatives unviable.

Under the Climate Leadership and Community Protection Act ("CLCPA"), NYS has committed to producing 70 percent of its electricity from renewable sources by 2030 and achieving 100 percent by 2040. To help meet these ambitious goals, NYS enacted the Accelerated Renewable Energy Growth and Community Benefit Act ("AREGCBA")[16] in 2020, streamlining the siting and construction of large-scale renewable energy projects. Pursuant to AREGCBA, the Public Service Commission ("PSC" or "the Commission") launched key transmission planning initiatives, including utility-specific local transmission and distribution ("LT&D") capital plans and a statewide framework to identify strategic transmission investments needed to meet CLCPA targets. In November 2020, the JU submitted LT&D plans distinguishing between Phase 1 projects (i.e., immediate needs like reliability and compliance) and Phase 2 projects (i.e., longer-term capacity improvements for renewable integration).

Recognizing the need for a coordinated planning process, the Commission directed the JU in 2021 to develop the Coordinated Grid Planning Process ("CGPP"), [17] culminating in the JU filing a refined CGPP Proposal in December 2022, after stakeholder engagement. To promote a formal, inclusive advisory structure, the Energy Policy Planning Advisory Council ("EPPAC") was formed with representatives from NYS energy agencies, the JU, municipalities, and environmental groups. In response to growing electrification in the transportation and building sectors, the Commission initiated the Proactive Planning Proceeding[18] in August 2024, requiring the JU to propose urgent infrastructure upgrades and a long-term planning framework to address localized grid impacts. These proceedings are ongoing, further advancing regulatory efforts to align infrastructure with NYS's clean energy transition.

O&R's involvement in statewide initiatives like the CGPP and the Proactive Planning Proceeding further illustrates its commitment to comprehensive, future-facing grid planning that is transparent and fosters broader participation from customers and other stakeholders. The Commission initiated the Proactive Planning Proceeding to support NYS's anticipated rapid electrification and enable timely, scalable infrastructure investments aligned with regulatory mandates. In December 2024, the JU proposed a Proactive Planning Framework[19] to establish a process and methodology to identify and evaluate infrastructure upgrades to address transportation and building electrification. As of the filing of this Distributed System Implementation Plan ("DSIP"), the Proactive Planning Framework is pending Commission approval.

---

[16] New York State's Accelerated Renewable Energy Growth and Community Benefit Act: https://www.budget.ny.gov/pubs/archive/fy21/exec/30day/ted-artvii-newpart-jjj.pdf.

[17] Case 20-E-0197, *Proceeding on Motion of the Commission to Implement Transmission Planning Pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act*, Order Approving a Coordinated Grid Planning Process (issued August 17, 2023).

[18] Case 24-E-0364, *In the Matter of Proactive Planning for Upgraded Electrical Grid Infrastructure*, Order Establishing Proactive Planning Proceeding (issued August 15, 2024).

[19] *Id*, Joint Utilities Proactive Planning Framework (Filed December 13, 2024).

In response to increasing climate risks and evolving system demands, O&R also developed a Climate Change Vulnerability Study ("CCVS")[20] and a Climate Change Resilience Plan ("CCRP"),[21] both of which have been approved (with modifications) by the Commission. The Company adopted a Climate Change Planning and Design Guideline that integrates climate projections into asset planning, enhancing resilience to extreme weather and shifting load patterns. Combined with enhanced stakeholder engagement through the EPPAC, O&R's planning framework is both inclusive and adaptive. Integrated efforts across advanced forecasting, DER integration, climate resilience, and grid modernization position the Company to meet long-term electrification and decarbonization goals while maintaining system reliability and encouraging customer involvement.

To enhance its distribution modeling and planning transparency, O&R is adopting new software tools and methodologies to support more robust system impact studies. Hosting capacity analyses and improvements such as new storage hosting maps and updated solar photovoltaic ("PV") maps are aligning distribution modeling with real-world system capabilities. These efforts are complemented by coordination with utilities, industry experts, and developers to refine best practices and improve planning outcomes.

Implementation Plan, Schedule, and Investments

Current Progress

Summary of Achievements

- Initiated transition to the CYME Power Engineering platform for improved DER impact analysis, while expanding hosting capacity maps and public data tools to support third-party DER integration and transparency.
- Actively participated in the CGPP and Proactive Planning Framework to anticipate system needs from electrification and DER growth, contributing to future-ready LT&D infrastructure proposals.
- Completed and updated its CCVS and CCRP, incorporating future climate projections into asset design and operations while also identifying resilience investments to enhance system reliability amid increasing extreme weather events.

Utility Capabilities In-Focus:

Planning and Forecasting – O&R is enhancing its planning systems and processes with the CYME Power Engineering/DER Load Flow software and proactive planning principles. These new capabilities, along with climate-related modifiers, improve flexibility in capacity forecasting and enhance monitoring and visibility of DER performance.

Hosting and Registration – Enhanced distribution modeling through CYME provides better hosting capacity analysis and a more holistic database of flexible resources to facilitate planning and help stakeholders understand infrastructure needs and limitations for solution design and implementation.

[20] Case 22-E-0222, *Proceeding on Motion of the Commission Concerning Electric Utility Climate Vulnerability Studies and Plans*, O&R Climate Change Vulnerability Study (Filed September 22, 2023).
[21] *Id*, O&R Climate Change Resilience Plan (Filed November 21, 2023; updated February 18, 2025).

Distribution Modeling

The new CYME Distribution Modeling Platform will enable enhanced system integration capabilities for more efficient data analysis.

Distribution modeling, and the subsequent studies and analyses, not only undergird O&R's investment planning but also alert the market, the DER developer community, and other third parties about opportunities for safe and reliable DER integration onto the electric grid. In 2024, O&R began the process of replacing the modeling software the Company uses to support its hosting capacity analysis and perform DER system impact studies. Design work for the new CYME Power Engineering/DER Load Flow software was completed in 2024, and implementation and system model build will follow during 2025. The Company currently is targeting initial use for planning in Q1 2026 and full automation by the end of 2027. Additional details on the CYME platform are available in the Hosting Capacity and Grid Operations sections of this DSIP.

As further detailed in the Hosting Capacity section of this DSIP, the Company uses the Electric Power Research Institute ("EPRI") Distribution Resource Integration and Value Estimation ("DRIVE") tool to perform the hosting capacity analysis for all circuits. The Company then provides publicly available hosting capacity maps to engage and inform third-party developers. Since 2020, the Company has added energy storage hosting capacity maps and new features to Non-network Hosting Capacity Visualization, previously referred to as "PV Hosting Capacity Map." Alignment between the Company's distribution modeling software and the hosting capacity analysis tool is crucial to maintain transparency and facilitate planning by developers.

In addition, O&R is investing in advanced analytics and load forecasting tools to better predict and plan for dynamic shifts in energy demand, particularly under its modeled Deep Electrification and Hybrid Pathways.[22] These pathways incorporate various adoption scenarios for heat pumps, electric vehicles ("EVs"), and low-carbon fuels ("LCFs") and guide investment in both traditional infrastructure and forward-looking solutions. The Hybrid Pathway, in particular, blends electrification with continued, limited use of LCFs, allowing O&R to balance emissions reductions with cost effectiveness and technical feasibility.

In support of this vision, O&R is actively deploying complementary solutions such as utility integrated storage ("UIS"), non-wires alternatives ("NWAs"), peak management programs, and pilot initiatives like Utility Thermal Energy Networks ("UTENs"). These measures help mitigate grid strain, defer costly infrastructure upgrades, and enhance resilience. The Company is integrating energy storage both at the grid level and within EV infrastructure through programs like the Load Management Technology Incentive Program ("LMTIP"). NWAs are being used to replace or avoid new gas infrastructure expansion. In addition, demand-side strategies—including demand response programs, time-of-use rates, and managed EV charging—play a crucial role in peak load reduction and customer engagement. By combining traditional utility planning with innovative, distributed solutions, O&R's integrated model supports a flexible, resilient energy system aligned with the CLCPA's clean energy and climate goals.

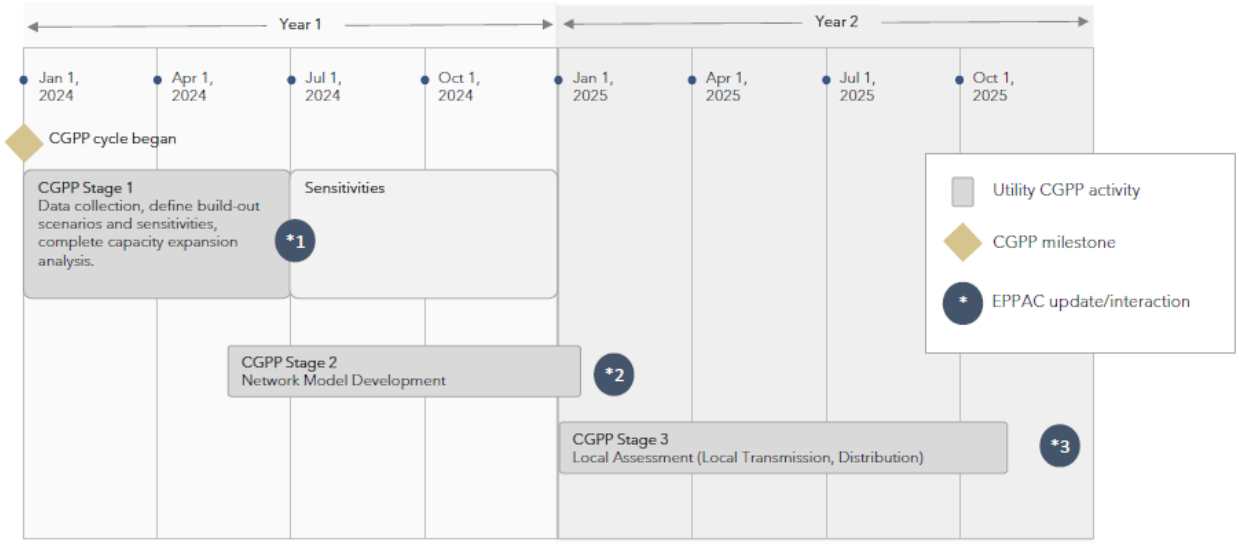
The Company continues to work with industry experts, developers, and the JU through its participation in EPPAC, Advanced Technology Working Group ("ATWG"), and various other working groups with other utilities to align on best practices and refine the integrated planning analysis.

[22] These pathways are discussed in detail in O&R's Long Range Plan, released in January 2024, and available on the Company's website: https://www.oru.com/en/our-energy-future/our-energy-vision/long-range-plan.

Coordinated Grid Planning Process ("CGPP")

The JU are partially through the first six-stage CGPP "cycle" (currently a three-year duration with two years of analysis and one year of PSC review). During Stage 1, the JU completed a capacity expansion modeling exercise (including the development of three key scenarios and 10 sensitivities) in collaboration with NYISO. Stage 2, which is currently ongoing, involves power flow modeling exercises to identify and evaluate constraints/system needs based on the generation buildout scenarios. As part of this process, preliminary project solutions are also being developed and analyzed (i.e., Stage 3). These efforts will culminate in a set of new LT&D project proposals from the JU planned to be released the first half of 2026. The timeline for the implementation of the first three stages of CGPP Cycle is shown in Figure 4 below. Though the CGPP is not used as a direct input to the Company's distribution system planning, O&R's work to coordinate the CGPP with proactive planning provides a model for how other planning efforts can be integrated moving forward.

Figure 4: CGPP Phases 1-3



Climate Change Vulnerability Study ("CCVS") and Climate Change Resilience Plan ("CCRP")

In February 2022, NYS enacted Public Service Law ("PSL"), §66 (29),[23] which requires major NYS electric utilities, including the Company, to conduct a CCVS and develop a CCRP. As noted above, in September 2023, the Company filed its CCVS which provides a detailed review of the threat climate change poses to O&R's electric system infrastructure and customers. Following this, in November 2023, the Company filed its CCRP. O&R's CCRP identified actionable and cost-effective adaptation strategies that support O&R's customers by addressing emerging and remaining risks identified in the Company's CCVS. In December 2024, the Commission issued an Order[24] approving O&R's CCRP with modifications to investments based on their classification as climate resilience. In February 2025, the Company filed an updated CCRP incorporating the modifications from the December 2024 CCRP Order and plans to file an updated CCRP

[23] New York Consolidated Law, PSL – PBS § 66 – General Powers of the Commission in Respect to Gas and Electricity, Article 29(a).

[24] Case 22-E-0222, *Order Regarding Electric Utility Climate Change Resilience Plans* (issued December 19, 2024) ("December 2024 CCRP Order").

every five years. Additional details on the CCRP are available in the Grid Operations: Risks and Mitigation section of this DSIP.

In February 2024, the Company adopted the Climate Change Planning and Design Guideline ("Guideline"), which provides guidance on integrating climate change projections into the design, construction, operation and maintenance of Company assets. The Guideline contains life cycle tables of decadal climate change projections of climate variables, which serve as future design parameters and can also be applied to specifications, procedures, and processes to increase resilience to climate risks. The Guideline provides topical guidance related to design and planning of new capital investments and existing assets, flexible adaptation strategies, flood risk evaluation, heavy rainfall and wind considerations, and temperature and load forecasting. O&R, in conjunction with CECONY, utilizes a customized temperature and humidity indicator—a temperature variable ("TV")—for peak forecasting purposes. TV is correlated with demand for power and uses cooling degree days ("CDD") to evaluate volumetric forecasts. The Company is using information from the CCVS and CCRP to inform and prioritize planning processes, operations, and investments for the next 5, 10, and 20 years.

Proactive Planning Framework

Since the Company filed its most recent DSIP in June 2023, the JU filed the Proactive Planning Framework to support transportation, building, and industrial electrification, as well as economic development. While the framework itself is pending approval by the Commission, O&R has been incorporating many of the principles of proactive planning as discussed below.

- Support customer needs in a timely manner without adverse impacts: O&R aims to manage the challenge of serving new electrification loads quickly, despite often lengthy grid expansion timelines, by using proactive planning to bridge the gap between rapid customer demands and the pace of infrastructure development, all while maintaining grid reliability and resiliency.
- Support achievement of objectives in policies, laws, and regulations: O&R's planning should support faster customer adoption of electrification to meet ambitious NYS and local policy objectives and facilitate regulatory compliance. Maximize cost efficiency: O&R's planning approaches and solution designs should focus on maximizing grid investment value and managing construction risks by prioritizing long-term needs with high forecast confidence, using expandable designs, integrating advanced technologies, and accounting for long-term cost savings and grid resilience benefits. Enable flexible planning and authorization: O&R's planning and regulatory processes should accommodate fast-evolving markets and policies by balancing an agile process with appropriate guardrails.

Proactive Planning principles are meant to help utilities manage the challenge of serving new electrification loads quickly, bridging the gap between rapid customer demands and the pace of infrastructure development.

O&R is supporting the Proactive Planning process by developing electrification forecasts for transportation and building loads. At this time, the Company has determined that it was not necessary to file an Urgent Upgrade Project proposal and will continue to monitor its service territory and plans to file projects under this proceeding, pending the approval of the proposed framework.

Future Implementation and Planning

Summary of Future Actions

- Continue work on the CGPP process and report to the Commission. Advance CGPP analysis through later stages including preferred solution evaluation, least cost analysis, and recommendations development.
- Initiate work and continue to identify proactive infrastructure investments within the Joint Utilities on the Proactive Planning Framework. (Proposed framework is currently being considered by the Commission).

Distribution Modeling

The Company continues to assess, refine, and improve its forecasting and planning methodologies. With recent deployments of automated metering infrastructure ("AMI"), Distribution Supervisory Control and Data Acquisition ("DSCADA"), and Advanced Distribution Management System ("ADMS"), the Company has access to more data to validate model assumptions and explore opportunities to enhance its planning process. O&R will complete the transitioning from the Distribution Engineering Workstation ("DEW") to the CYME platform in 2025 and anticipates that the new platform will enable enhanced system integration capabilities for more efficient data analysis.

Looking ahead, the Company is prioritizing no-regret investments that enhance grid flexibility to support a modern, dynamic electric system. These efforts focus on building core capabilities—such as advanced sensors, real-time data, high-speed communications, and automated field devices—that provide greater visibility and control across the transmission and distribution network. By strengthening situational awareness, asset management, and outage response, these investments will enable a more resilient, efficient, and adaptable grid. They also lay the foundation for integrating diverse DERs and advancing New York State's clean energy goals. In addition, O&R's system planners continue to work closely with the Company's Distributed Resource Integration ("DRI") organization (formerly the Utility of the Future ("UotF") team) to assess clean energy technology penetration and program initiatives. For example, integrated planning considers fleet and/or medium- and heavy-duty vehicle electrification siting so that planned infrastructure upgrades are in place to support future EV-related loads safely and reliably.

O&R continues to build on best practices with CECONY, the JU, industry experts, and developers. The Company is confident that this organized and inclusive approach will lead to the identification and development of key process and model improvements necessary to further optimize the interconnection of DERs and proactively prepare for beneficial electrification.

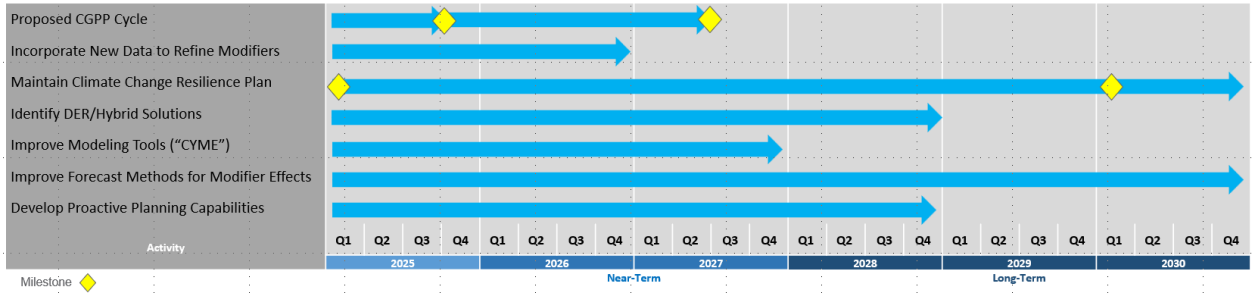
Proactive Planning

While the Proactive Planning Framework proposal is still pending approval from the Commission, O&R is using the framework design to proactively identify areas of rapid electrification growth. In the event additional electrification loads unexpectedly develop in the O&R service territory, the Company will file requests for urgent infrastructure upgrade projects in accordance with the Commission's recommendations.

Integrated Implementation Timeline

Figure 5 below highlights the Company's five-year plan for both Integrated Planning and Advanced Forecasting. These two timelines are presented together to highlight the dependencies and timing of activities in each area.

Figure 5: Five-Year Plan for Integrated Planning and Advanced Forecasting



Risks and Mitigation

Reliability, resiliency, and safety remain O&R's top priorities when considering new projects and initiatives. There is an increasing reliance on the electric system, primarily driven by beneficial electrification, and O&R's planning process needs to be proactive and adaptable to meet customer needs. The Company will continue to closely monitor system impacts of load modifiers on annual forecasts and conduct contingency analyses during summer months with system peaking expected to continue during the summer for at least the next 20 years. The Company will also continue to conduct annual winter forecasts to closely monitor the load growth as buildings continue to transition to electric methods of heating. Table 2 below summarizes the risks that could affect the timely implementation of the future actions described above as well as the measures the Company has or will take to mitigate these risks.

Table 2: Integrated Planning Risks and Mitigations

Risks	Mitigations
Higher reliance on the electric system due to beneficial electrification.	Greater awareness of the state of the electric system through grid automation and smart grid devices and applications.
Rapid growth in demand on the electric system due to factors like increased electrification of heating and transportation	Employment of proactive planning principles helping to identify system needs well in advance of urgent situations.
Uncertainty in forecast due to electrification and DER adoption.	Continual refinement of forecasting load modifiers and validation of assumptions, as well as adoption of Proactive Planning framework.
Increasing incidents of extreme weather events and other climate change impacts.	Developed the CCVS and CCRP to identify specific actions the Company can take to mitigate these impacts.

Stakeholder Interface

The development of long-term load forecasts is a key component of transmission and distribution ("T&D") system planning and the key area in which the Company has and will continue to collaborate with stakeholders. The Company's efforts in this area are detailed in the Advanced Forecasting section of this DSIP. In addition to engaging stakeholders on the forecasting component of the planning process, the Company will continue to interact with stakeholders on a broad range of other planning topics, including integrated and probabilistic planning, as part of the JU Integrated Planning Team, as well as other stakeholder and outreach efforts.

A stakeholder group, EPPAC, has been established to provide guidance and allow for stakeholder participation in the CGPP planning process. EPPAC is composed of representatives from the JU, NYISO, the NYS Energy Research and Development Authority ("NYSERDA"), DPS Staff, generation and storage associations, New York Power Authority ("NYPA"), Long Island Power Authority ("LIPA"), the Office of Renewable Energy Siting, the Utility Intervention of New York State, the City of New York, and environmental justice organizations. This extensive representation will allow for the consideration of stakeholder needs to provide feedback and guidance throughout the planning cycle, including offering insights from previous CGPP iterations, advising the JU on the selection of up to three distinct generation build-out scenarios, and informing the need for sensitivity analyses that could impact the achievement of CLCPA targets. The EPPAC also reviews and comments on the modeling assumptions used to align the electric system with state policy goals and previews the final CGPP report to support key stakeholder perspectives.

O&R has established a Climate Resilience Working Group ("CRWG") that meets at least twice a year to inform stakeholders regarding the Company's climate resilience activities, share insights and outcomes from climate studies and to collect stakeholder feedback on key concerns, challenges and goals, which provide input to both the CCVS and the CCRP. Stakeholders that are part of this working group include regulators, municipalities, telecommunication service providers, and environmental organizations. Documented feedback and actions taken from this working group can be found in Table 4 of O&R's CCRP.

Further, the Proactive Planning Proceeding has seen robust stakeholder participation including the New York State Thruway Authority, the Alliance for Transportation Electrification, the Environmental Defense Fund, Tesla, the City of New York, Advanced Energy United, the Sierra Club, the New York Power Authority, and Earthjustice. The Company looks forward to continuing to collaborate with these and other stakeholders as the Proactive Planning Proceeding advances, in alignment with the JU's proposal for annual stakeholder sessions.

Additional Detail

This section sets forth additional details regarding the Company's Integrated Planning efforts.

1. The means and methods used for integrated distribution system planning.

Integrated Planning Process Overview

Each year, the Company completes a detailed weather adjusted forecast and a contingency analysis of its entire T&D system. This includes both a 20-year weather-normalized coincident peak and independent peak forecast for each distribution bank and circuit. In addition to load data, the forecast contains detailed information for several key load modifiers, see the Advanced Forecasting section of this DSIP. The Company then conducts a thorough assessment of each asset by applying T&D design standards and risk-assessment methodologies to the results for each year of the forecast period. This process involves

analyzing both normal and contingency conditions to identify potential operating risks and corrective solutions. Once the Company identifies a deficiency, it develops a planning charter to begin documenting the identified deficiency, relevant decisions made, proposed solutions, and any corrective measures taken. During this annual process, existing charters are also reviewed for accuracy and updated with current information, if appropriate.

The next step in the process is to identify all potential solutions that can defer or solve a system need including traditional, NWA, or hybrid solutions. The Company considers the qualitative and quantitative aspects of each solution, as well as their cost effectiveness. Once a traditional project is selected as the preferred option, the Company investigates if the capital investment can be substantially deferred, reprioritized, or eliminated using NWAs such as DER, energy efficiency ("EE"), demand side management ("DSM"), or energy storage. This process includes applying the NWA Suitability Criteria and benefit-cost analysis ("BCA") in accordance with JU REV and DSP guidance (*see,* the Beneficial Locations for DERs and NWA section of this DSIP). If the NWA is successful, the relief provided is tracked as a separate line item in the forecast and is re-evaluated during the next annual planning cycle. If the NWA is unsuccessful, the Company proceeds with a hybrid or traditional solution based on the timing determined in the contingency analysis. The Company documents pertinent decisions, results, and other background information in the planning charter.

In certain cases, traditional infrastructure investment cannot be avoided due to reliability, safety, or equipment obsolescence. As noted above, when possible, the Company is considering hybrid solutions that can also increase local hosting capacity, provide for on-site energy storage, and build in additional capacity where appropriate to support the future goals outlined in the CLCPA. Hybrid designs provide additional opportunities to improve distribution reliability, improve bank/circuit hosting capacity, reduce developer interconnection costs, improve station load factors, reduce peak demand, and further support the goals outlined in the CLCPA.

Once a set of projects has been selected, the Company employs a two-step process for prioritizing major substation projects in its overall electric capital investment plan. The first step is prioritization conducted by the Company's Electrical Engineering organization within the planning process. The second step is prioritization against other Company projects through a corporate-wide optimization process and methodology.

2. How the utility's means and methods enable probabilistic planning which effectively anticipates the inter-related effects of distributed generation ("DG"), energy storage, EVs, beneficial electrification, EE and climate change impacts.

Probabilistic planning is a tool to address uncertainty and risk. O&R continues to refine forecasting assumptions by collecting and analyzing data from various field devices (*e.g.*, AMI, power quality ("PQ") nodes, smart devices) and incorporating that data into the system model.

The Company also continues to pursue new ways to incorporate DER load modifiers into its integrated planning process, including the impact of how various policies, such as the CLCPA, will impact the adoption and growth of DERs in the O&R service territory. This approach will support the Company's ongoing efforts to have the adequate infrastructure in place to continue to provide safe and reliable service, as energy resources shift to a more decentralized distribution-based generation mix.

The Company has a process for collecting data to determine load modifier growth, identify growth trends, model growth rates, understand key modeling assumptions, and eventually develop growth and sensitivity projections for load modifier penetration within the O&R service territory. The Company is

continuing to develop capabilities to understand and model load modifiers. *See* Appendix A to this DSIP for further details on forecasting.

The Company's 2023 CCVS is based on a probabilistic, risk-based approach that considers the likelihood and consequence of potential climate changes, including assessing the probability of plausible future climate outcomes and the associated impact on the O&R service territory. This approach helps in managing risks and uncertainties associated with climate change. The Company selected climate change pathways to provide an understanding of projected climate change in the O&R service territory and benchmark values for design parameters to plan to and make O&R's electric system more resilient to potential climate change risks. The pathways are based on the downscaled climate projections for variables related to a range of climate hazards, including temperature, precipitation, and sea-level rise.

The Company uses information from the CCVS to prioritize operations, planning processes, and asset types for further analysis and potential remediation. For example, O&R's identified flood protection improvements to its Lovett Substation, adjacent to the Hudson River, as a result of its assessment of precipitation and sea-level rise projections. The Company will continue to explore opportunities to incorporate more probabilistic methods into the planning process.

3. How the utility ensures that the information needed for integrated system planning is timely acquired and properly evaluated.

The Company's load forecast, developed annually, uses a range of inputs, including customer data, economic indices, and new business projects in the queue. DER forecasts are an increasingly important input to the system, and substation, bank, and circuit-level forecasts are informed by data from the interconnection queue, as well as known program activity such as EE programs. The Company evaluates new business projects within the O&R service territory to understand the expected load (and appropriate phasing-in), the location, and when the job will come online to maintain awareness of the increase in load-requirement over the next five years. More details on load and DER forecasting are included in Appendix A of this DSIP. Further, the Company's investment in AMI and grid modernization technologies has and will continue to increase the information available to system planners, as will data from the CGPP process. Part of CGPP Stage 1 includes coordination and determination for capacity expansion build-out scenarios using data inputs, such as CLCPA objectives, load forecasts and shapes, publicly available NYSERDA procurement data, forecasted amounts and locations of DER, and any supplementary information used to inform model results.

4. The types of sensitivity analyses performed and how those analyses are applied as part of the integrated planning process.

O&R incorporates load modifiers into its electric system planning efforts to assess how various factors—such as DERs, EVs, energy storage, beneficial electrification, and energy efficiency measures—could impact the accuracy of substation-level load forecasts. These analyses help the utility understand potential variations in system behavior under different scenarios, thereby enhancing the robustness of their planning processes.

Additionally, the Company participates in CGPP processes and working groups where sensitivity analyses are employed to evaluate how different generation build-out scenarios and modeling assumptions might influence the achievement of the state's CLCPA goals. This approach aligns adaptable planning efforts with policy objectives.

Through these efforts, O&R demonstrates a commitment to using sensitivity analyses as a tool for enhancing the flexibility and resilience of the electric grid in the face of evolving technologies and policy goals.

5. How the utility will timely adjust its integrated system plan, if future trends differ significantly with predictions, both in the short-term and in the long-term beyond the DSIP timeline.

The Company updates its 10-year load forecasts on an annual basis as part of its capital planning process. In developing the forecast, the Company incorporates the best information available at the time, extending over the 10-year period. To the extent that future trends differ from past assumptions, such as increased load from electrification or ramp-up of EE efforts, the Company incorporates the new information into the forecast, which flows into the system planning process. As such, the Company revises the system plan to reflect emerging trends and developments. As discussed in the Advanced Forecasting section of this DSIP, the Company is reviewing its forecasting process in light of EV and beneficial electrification, and other goals included in the CLCPA.

In addition, the Proactive Planning framework is designed to manage the challenge of serving new electrification loads, despite long grid expansion timelines, by using proactive planning to bridge the gap between rapid customer demands and the pace of infrastructure development, all while maintaining grid reliability and resiliency.

6. The factors unrelated to DERs—such as aging infrastructure, EVs, and beneficial electrification—which significantly affect the utility's integrated plan and describe how the utility's planning process addresses each of those factors.

The Company planners use load flow modeling and modeling of system performance to assess the current capabilities of existing distribution and substation assets to meet the forecasted load, based on the design criteria, type of asset, thermal rations, and local power factors. This process identifies a range of system needs, including risk reduction programs to address asset health, of which equipment age is one factor, along with maintenance history, performance, and other factors. As described above, the Company will prioritize multi-value projects that can address system reliability, safety, equipment obsolescence, increase hosting capacity, and support beneficial electrification.

O&R is committed to refining its forecasting and planning processes to incorporate light-, medium-, and heavy-duty vehicle electrification. The Company has added a load modifier to its forecasting to account for EV industry market trends, EV registration at a zip code level, and NYS policy goals. This approach will capture the temporal and spatial impacts of EV growth in the forecast so that planned infrastructure upgrades are in place to support future loads safely and reliably.

Similarly, the area of heating electrification continues to evolve. The added load associated with electric heat pumps is captured in a load modifier for heating electrification, applied in the Company's winter peak forecast, and the Company will plan for and accommodate the projected increase in load from this electrification.

The Commission has also directed O&R and the other JU members to undertake a Proactive Planning process for transportation and building electrification load, moving away from a just-in-time approach given the fast ramp up of large concentrated electric vehicle and building loads expected. This process is further detailed in the "Current Progress: Proactive Planning Framework" section above.

7. How the means and methods for integrated electric system planning evaluate the effects of potential EE measures.

The Company accounts for organic EE through programs and DR as load modifiers. The Company is actively working to improve its understanding of, and ability to model, this and other load modifiers. *See* Appendix A to this DSIP for a detailed discussion of how EE forecasts are developed and applied in the Company's forecasts. The Company incorporates EE programs as part of the NWA portfolio solution, as well. EE is often the least cost solution to providing the portion of the necessary demand reduction for NWA projects.

8. How the utility will inform the development of its integrated planning through best practices and lessons learned from other jurisdictions.

As described in the Stakeholder Interface section above, the Company continues to work with industry experts, developers, other utilities, and the JU, to identify best practices and lessons learned to refine its planning and forecasting processes. In addition, the Company coordinates through EPRI, the Institute of Electrical and Electronics Engineers ("IEEE"), and other industry forums, and Company planners have developed relationships through those forums with other utility peers, who are a resource for questions and discussion.

Advanced Forecasting

Introduction/Context and Background

Advanced forecasting is a key element of Orange and Rockland Utilities, Inc.'s ("O&R" or "the Company") planning process and supports the integrated planning approach outlined in the previous chapter of this Distributed System Implementation Plan ("DSIP"). Ongoing and considerable shifts in the energy industry, such as growth in electrification and Distributed Energy Resource ("DER") penetration, driven in large part by the Climate Leadership and Community Protection Act ("CLCPA") and other policy actions, increase the importance of developing forecasts that accurately represent future load and support sound decision-making on future investments.

O&R develops forecasts at the system, substation, bank, and circuit levels to provide a comprehensive view of system constraints and future needs. These forecasts guide the Company's investment and planning decisions by identifying the right solutions at the right time and place. They also help DER developers and other stakeholders analyze locations for potential grid-supportive solutions. As the energy landscape evolves—with increased electrification, greater DER integration, and rising electric vehicle ("EV") adoption—the importance of accurate and detailed forecasting continues to grow. O&R has enhanced its forecasting capabilities to reflect these trends, incorporating them as modifiers to base load and refining methods to capture both temporal and locational impacts across the grid. These improvements allow O&R to anticipate shifting seasonal and hourly peak demands driven by electrification. While O&R expects its overall system peak to continue to occur during the summer season for at least the next 20 years, the Company's winter peak forecasting is becoming more important with the increase in heating electrification.

O&R is also enhancing its forecasting capabilities through more granular, data-driven methods to address the complexities introduced by DER variability, evolving load correlations, and geographic diversity. The Company is leveraging Advanced Metering Infrastructure ("AMI") in a comprehensive data analytics initiative to improve forecasting accuracy, understand customer behavior, and track the adoption of clean energy technologies such as heat pumps and EVs. This effort supports both near- and long-term planning by integrating AMI data into forecasting workflows, consolidating data sources, and enabling automation and advanced analytics. Future use cases will further refine location-specific forecasting, particularly in Disadvantaged Communities ("DAC"), and improve modeling of capacity constraints and flexible resource impacts. These initiatives are crucial for accurately measuring system dynamics, effective resource deployment, and advancing O&R's progress toward the CLCPA's goals.

Implementation Plan, Schedule, and Investments

Current Progress

Summary of Achievements

- Continued to use data obtained through the Supervisory Control and Data Acquisition ("SCADA"), AMI, and Advanced Distribution Management System ("ADMS"), and load modifiers to produce detailed forecasts down to the circuit level, thereby improving load modeling and planning accuracy.
- Launched a unified tool, REV/DER forecasting model, to forecast the impact of EVs, heat pumps, solar, and storage aligning with CECONY's methodology and supporting electrification planning.
- Continued collaboration with **New York Independent System Operator's ("NYISO") Load Forecasting Task Force ("LFTF") and the Joint Utilities ("JU") to share best practices and align forecasting approaches.**
- Established Forecast Reconciliation, Improvement and Data Control to oversee reconciliation of peak demand modifiers and implement a robust data governance system.
- Initiated development of Integrated Forecast Pathway Sensitivity Model **("IFPSM").**

Utility Capabilities In-Focus:

Planning and Forecasting – The integration of new internal technology-based systems, such as the REV/DER Forecasting Model and AMI Business Analytics project, has improved data granularity and flexible capacity forecasting. These enhancements enable O&R to produce more accurate hosting capacity analysis and 8,760-hour load profiles, which are shared with developers.

Monitoring and Visibility – Enhanced forecasting accuracy through AMI improvements and the business analytics project enables near real-time monitoring, supporting interconnection via a new DER forecasting tool that provides 20-year projections for storage and electrification.

The improved data granularity that O&R has achieved and continues to improve with the implementation of new internal technology-based systems and processes allows the Company to produce more accurate outputs of hosting capacity analysis and 8,760 hour forecasts, which are then shared with developers, helping them make better site selections. The Company is also integrating SCADA measurements and AMI load data into its analyses, enabling models to reflect actual grid conditions rather than static assumptions. For example, using data from AMI and ADMS enhances the accuracy of hosting capacity models. These models now incorporate 8,760 hour load profiles, allowing developers to see how hosting capacity varies by time of day and season. This increases confidence in the maps and reduces the likelihood of unexpected issues during the interconnection study.

CECONY's Commodity Forecasting Department, which also serves O&R, produces the system peak forecast using summer peak-load data. O&R's Distribution Planning team, with support from Commodity Forecasting, uses a data-driven, seasonal approach to forecast summer and winter peak electricity demand. Summer peaks are typically more critical due to air conditioning loads, but the importance of winter peaks is rapidly increasing with the transition to electric heating. Forecasts are based on historical peak-load data at the system, substation, bank, and circuit levels, with adjustments for weather using temperature, humidity, and degree-day metrics. O&R combines econometric models with engineering insights, accounting for factors like population growth, energy efficiency, and the adoption of EVs and DER. The Company also leverages granular data from AMI and SCADA systems to reflect empirical load

patterns. In collaboration with the NYISO Load Forecasting Task Force and the JU, O&R has enhanced its methodology to produce more accurate and statistically robust forecasts, aligning O&R and CECONY's planning efforts. Table 3 below, provides an overview of the types of forecasts discussed in this section.

Table 3: Types of Forecasts

Forecast Type	Forecast Level	Description
Summer and Winter Peak Demand	System/Substation/Bank/Circuit	Top-down and bottom-up methodologies are used to produce 20-year forecasts, incorporating load modifiers. These forecasts may incorporate additional sources of data such as system monitoring information, meteorological data, and customer demographics. They are developed every year for both summer and winter periods.
8,760 Hourly Load	Substation	Developed for external stakeholder use only and provide projected loads for every hour of the year over a three-year forecast period. The 8,760 hourly load forecasts are further described in the Additional Detail section below.

O&R continues to validate assumptions and improve accuracy. For example, the Company used AMI data to validate its load curve assumptions for large-scale solar output. The Company is exploring other opportunities to analyze meter data to enhance forecasting inputs. For the beneficial electrification forecast, the Company started utilizing AMI data to reconcile the forecasted first year with aggregate actual data from customers that have installed heat pumps. The AMI data is also being used to derive load curves by building type, as well as peak load shape factors ("PLSFs"). For more information about AMI analysis, please refer to the Data Sharing and AMI sections of this DSIP.

O&R continues to use the Weather Adjusted Peak ("WAP") process in its annual planning cycle. This enables the Company to track the growth and impact of each load modifier at each level of forecasting (*e.g.,* system, substation). The Company currently incorporates 11 modifiers into its base load (including new business) to forecast a final total net load, which includes climate change, building electrification ("BE"),[25] EVs, demand response "DR", energy efficiency ("EE"), organic[26] EE/codes and standards, photovoltaic ("PV"), other DG/combined heat and power ("CHP"), battery storage, and non-wires alternatives ("NWAs").[27] This modeling can be performed down to the circuit-level for a more granular view of the net impact of load modifiers on a specific circuit.

Below are several updates on how the Company is using information on specific load modifiers to inform forecasts.

Electric Vehicles: The EV forecast is developed in the newly designed REV/DER forecasting model and

[25] The BE load modifier is comprised of the electrification of space heating ("EoH") and the electrification of non-space heating ("EoNH"); only the EoNH component is considered for the Summer Peak Demand Forecast.
[26] Organic EE captures naturally occurring reductions in usage that are due to technological improvements or changes in customer behavior, which are not influenced by programs or incentives.
[27] The NWA load modifier is currently included under battery storage at system-level forecasts. It is separate as its own load modifier for substation-level and below forecasts.

includes the peak impact of charging for both light-duty and medium/heavy-duty EVs. This forecast is informed by Department of Motor Vehicle "(DMV") registration data, comprehensive industry research, and customer project information.

Photovoltaic: The PV forecast is developed in the newly designed REV/DER forecasting model. The Company has deployed an improved queue management system at the circuit level to capture the status of current and pending PV projects. The Company analyzed average solar output curves during the summer months and applied the results to the forecasts every year, as provided by metered interval data. The forecasts now reflect two different types of average solar output curves, (1) residential/small commercial and (2) large-scale/community solar, using both system and bank peaking hours to develop granular level forecasts.

Battery Energy Storage Systems ("BESS"): The BESS forecast is developed in the newly designed REV/DER forecasting model. As the number of solar-plus-storage projects grows every year, the Company has continued to include granular level forecasts considering different coincident factors to differentiate small and large solar-paired batteries, as well as standalone residential and commercial battery storage.

Non-Wires Alternatives ("NWA"): The Company treats NWAs as part of the BESS modifier to both represent their effects on local facilities in the forecasting and planning process, and, for reporting purposes, to provide granular level forecasts.

Building Electrification: In 2024, the REV/DER forecasting tool was introduced for the O&R service territory, which enabled more sophisticated modeling of BE adoption with a more diverse array of inputs. The inputs themselves have also been enhanced, including AMI usage data to guide forecasted load shapes and net efficiency of conversion from gas to electric equipment, as well as assumptions towards BE adoption that are more tailored toward the regions within the service territory.

In 2024, the REV/DER forecasting tool was introduced for ORU territory, which enabled more sophisticated modeling of Building Electrification adoption with a more diverse array of inputs.

Climate Change: In 2020, the Company introduced a line item to its forecasting process to account for climate change's anticipated impact on peak demand. This modifier is informed by the Company's CCVS which utilizes climate projections as provided by New York State Energy Research and Development Authority ("NYSERDA") in partnership with Columbia University.

To maintain focus on changing industry policies impacting future loads, the Company's Commodity Forecasting Department formed a Policy Integration Forecasting ("PIF") Section in 2021. As mentioned above, in 2024, the PIF team worked with industry experts to develop a tool called the REV/DER forecasting model that includes five forecasting modules. All five modules are fully functional and being utilized including EV, BE, PV, Distributed Generation ("DG")/Combined Heat and Power ("CHP") and BESS. Another benefit of this automated web application is that the methodology is now completely aligned with the methodology employed by CECONY. Similar to the efforts in 2024 that launched the REV/DER forecasting tool in the ORU territory, in 2026 O&R will also integrate an EE forecasting tool to better align with the CECONY EE forecasting tool. This will better refine the EE forecast and their impact on the grid, including summer and winter peak forecast and monthly energy forecast to support short-term and long-term forecasts.

PIF also launched an AMI Business Analytics project to utilize AMI data for gaining valuable insights into customer behavior, identifying emerging trends, and understanding technology adoption. This project will lead to the development of several impactful use cases, including assessing the impact of heat pumps on gas and electric peak loads and volumes, and understanding the adoption of EV chargers and charging behavior. Leveraging AMI data will enable the Company to improve both the reconciliation process and accuracy of forecasting inputs. More information on this project is available in the AMI section of this DSIP.

O&R has begun work with CECONY on the development of the Integrated Forecast Pathway Sensitivity Model ("IFPSM") which employs a sensitivity module containing new forecasting functionality and integration with the existing REV/DER forecasting tool. The IFPSM will aid the Company in its holistic analysis of the electric and gas systems under various pathway scenarios in realizing CLCPA goals. The outputs from the IFPSM will also be leveraged in developing the Company's pathways analysis. The development and implementation of the model will be important in optimizing achievement of the Company's Clean Energy Commitment.

O&R engages with the JU to discuss forecasting items and hold technical workshops as needed on topics such as:

- Locational value/marginal cost of service ("MCOS") studies;
- Advanced load/DER forecasting;
- AMI applications;
- Applying probabilistic forecasting to transmission, substation, and distribution planning models; and
- Developments from other jurisdictions to identify relevant lessons for the JU's forecasting efforts.

On August 15, 2024, the Commission issued the Order Establishing Proactive Planning Proceeding[28] to address the anticipated increase in electricity demand due to the electrification of transportation and buildings. In response to this Order, the JU filed[29] a long-term Proactive Planning Framework, which proposed an annual process to identify and file for potential projects. O&R is supporting the Proactive Planning Proceeding by developing electrification forecasts for transportation and building loads. If appropriate, the Company will file projects under this proceeding, pending the approval of the proposed framework.

[28] Case 24-E-0364, *In the Matter of Proactive Planning for Upgraded Electric Grid Infrastructure* ("Proactive Planning Proceeding"), Order Establishing Proactive Planning Proceeding (issued August 15, 2024).
[29] *Id*, Joint Utilities' Long-Term Proactive Planning Framework (Filed December 13, 2024).

Future Implementation and Planning

Summary of Future Actions

- Continue work on the Coordinated Grid Planning Process ("CGPP") and report to the Commission. Advance CGPP analysis through later stages, including preferred solution evaluation, least cost analysis, and recommendations development.
- Continue to develop proactive planning practices, including advanced forecasting methods and studies to assess the granular system impacts of electrification.
- Continue the AMI Business Analytics project and expand the uses of AMI data to develop better options and opportunities for customers and stakeholders.
- Expand and enhance capabilities of Forecast Reconciliation, Improvement and Data Control Section to better inform forecasting process.
- Implement and deploy the IFPSM which has an expected completion by Q4 2025.

O&R is actively supporting New York's CGPP by contributing to the development of clean energy build-out scenarios and system planning analyses aligned with NYS's climate goals. Along with the JU, O&R is participating in the CGPP's first two-year cycle, culminating in a comprehensive report due by January 2026. The Company is also enhancing its planning processes to account for climate risks, electrification, and DER integration. O&R will continue to collaborate with stakeholders, including the Energy Policy Planning Advisory Council ("EPPAC"), to refine planning assumptions and align infrastructure upgrades with both NYS policy goals and local community needs.

The long-term Proactive Planning Framework filed by the JU in 2024 presents a pivotal opportunity to take a forward-looking approach in preparing for the rapidly evolving energy landscape. This effort is designed to address the projected surge in electric demand driven by the electrification of transportation and buildings. O&R is committed to implementing this directive by actively developing a long-term strategic planning framework that anticipates and addresses the infrastructure investments needed to support electrification in the coming decades.

In alignment with proactive planning methodology, O&R is contributing detailed forecasts for transportation and building load growth and is identifying priority areas—such as anticipated EV charging "hotspots"—where near-term infrastructure development is essential. Through this proactive approach, O&R aims not only to meet future system needs reliably and efficiently, but also to guide investments that will enhance grid readiness and resiliency in support of NYS's clean energy goals.

O&R will also continue incorporating adaptability into its climate resilience framework to respond to evolving climate science and implementation insights. This flexible strategy enables the Company to take near-term, cost-effective actions while preserving the ability to adapt to longer-term climate risks. By using flexible adaptation pathways and continuous monitoring, O&R aims to keep climate-related risks within acceptable limits over 10- to 20-year planning horizons and beyond.

The Company continues to evaluate the impacts of DER integration to the substation and transmission systems as part of the impact studies. Such evaluation will assist upstream systems to continue to operate safely, reliably, and within design limits and standards. The Company coordinates with the NYISO to share data inputs and assumptions and promotes alignment between distribution level and bulk system forecasts.

Integrated Implementation Timeline

Please see the Integrated Planning section's Integrated Implementation Timeline.

Risks and Mitigation

Table 4 below summarizes the risks that could affect the timely implementation of the future actions described above as well as the measures the Company has or will take to mitigate these risks.

Table 4: Advanced Forecasting Risks and Mitigations

Risk	Mitigation
As forecasting becomes more complex and the demand for additional and more granular forecasts increases, *e.g.*, forecasts at the circuit level, the Company may require additional resources, including staff.	The availability of resources may affect implementation timelines, forecast accuracy, and timely delivery of forecasts.
Uncertainty in forecast due to electrification and DER adoption.	Continual refinement of forecasting load modifiers and validation of assumptions, as well as adoption of proactive planning framework.
Increasing incidents of extreme weather events and other climate change impacts.	Developed CCVS and CCRP to identify specific Company actions to mitigate these impacts.

Stakeholder Interface

In its forecasting initiatives, O&R maintains regular stakeholder engagement through coordination with the JU and the NYISO. The Company and the JU work closely with the NYISO to identify scenarios, evaluate underlying assumptions, and compare output results to promote alignment. These discussion forums also enable updates to methodologies and forecasting methods and increase awareness of best practices.

Additional Detail

This section contains responses to items specific to Advanced Forecasting.

1. **Identify where and how DER developers and other stakeholders can readily access, navigate, view, sort, filter, and download up-to-date load and supply forecasts.**

The Company provides extensive system data, including load and energy forecasts, through the Company's hosting capacity platform. The hosting capacity maps are posted and data is accessible on the Company's website.[30] Within the hosting capacity maps, developers and other stakeholders can view and download substation-level 8,760 hourly load forecasts.

The Company has developed and published updated substation-level 8,760 hourly load forecasts along with one-year historical data. These are estimated actuals that have been adjusted, but they may not fully account for the impacts of outages, storms, maintenance events, and other disruptions. The Company will not be held liable for any error or omissions associated with such forecasts provided.

Appendix A to this DSIP includes a detailed description of the most current forecasts.

[30] O&R Hosting Capacity and System Data website: https://www.oru.com/en/business-partners/hosting-capacity.

2. Identify and characterize each load and supply forecasting requirement identified from stakeholder inputs.

Load forecasts are increasingly adaptive, incorporating multiple layers of customer, market, and policy input. When large customers submit load requests—such as for new facilities, electrification projects, or expansions, O&R integrates them into its planning once there is sufficient certainty around timing, magnitude, and location. These high-certainty, near-term additions are treated separately from long-term growth projections and modeled with greater granularity to assess local grid impacts.

To enhance forecast accuracy and align with system needs, O&R engages early with large customers in key sectors such as energy storage and transportation. This communication helps synchronize infrastructure planning with customer timelines, identify system constraints, and explore solutions like non-wires alternatives. Through programs like the CGPP, O&R also collaborates with economic development agencies, which often have early insight into future commercial and industrial activity—enabling proactive, regionally informed planning even before formal load requests are submitted. Broader industry and stakeholder input is also essential to refining assumptions, particularly around trends like heating electrification. Engagement through the CGPP offers opportunities to incorporate evolving policies, incentives, market trends, and customer behavior. In addition to sharing information, these sessions support scenario development and sensitivity analyses to assess a range of potential outcomes. To promote transparency and continuous improvement, the JU host stakeholder engagement sessions twice a year. These forums provide feedback on forecasting methodologies, including the use of 8,760 hourly forecasts—area-specific projections that illustrate load variation by hour and location. While these forecasts are informational and subject to uncertainties such as weather, economic conditions, and DER adoption, they are valuable for understanding system behavior and informing planning. Stakeholders also help shape the continued evolution of forecasting practices, including the adoption of probabilistic methods and integration of external inputs such as public policy goals and developer data.

3. Describe in detail the existing and/or planned forecasts produced for third-party use and explain how those forecasts fulfill each identified stakeholder requirement for load and supply forecasts.

The 8,760 forecast is produced solely for third-party use. Please see the Company's response to Question 2 above.

4. Describe the spatial and temporal granularity of the system-level and local-level load and supply forecasts produced.

For load forecasts, O&R produces 20-year electric peak demand forecasts, as well as a five-year energy forecast at the system level. At the substation level, the Company produces a 20-year coincident system peak demand forecast and 8,760 hourly load forecasts for a three-year forward-looking period. At the bank and circuit levels, the Company produces 20-year coincident and independent peak demand forecasts.

5. Describe the forecasts provided separately for key areas, including but not limited to PVs, energy storage, EVs, and EE.

Over the last several years, the Company has expanded the list of DERs it considered from EE and DR to include DG/CHP, PV, EV, battery storage (starting in the 2016 forecast), and organic EE (beginning with the 2017 forecast). The latest additions to this list are electrification of heating ("EoH") (winter 2022/2023) and electrification of non-heating ("EoNH") (summer of 2021). The Company updated the methodology for forecasting load modifiers and has begun to incorporate 20-year forecasts for each load modifier. As

described above the Company continually looks for ways to enhance its forecasting approach for all modifiers.

Appendix A to this DSIP includes a detailed description of the DER forecasts, including methodology and the latest forecasts.

6. Describe the advanced forecasting capabilities which are/will be implemented to enable effective probabilistic planning methods.

O&R is integrating probabilistic, risk-based planning into its forecasting and infrastructure strategy to better manage uncertainty from climate change and DER adoption. By collecting and analyzing data from field devices like AMI and smart sensors, the Company refines its system models and forecasts, incorporating DER load modifiers and policy impacts such as the CLCPA. This data-driven approach supports reliable service amid a shift to decentralized energy. The Company's 2023 CCVS uses probabilistic climate projections to assess risks like temperature, precipitation, and sea-level rise, guiding system resilience efforts such as flood protection at the Lovett Substation. O&R continues to expand its use of probabilistic methods to enhance planning accuracy and system resilience. Additional details on probabilistic planning are available in the Integrated Planning section of this DSIP.

7. Describe how the utility's existing/planned advanced forecasting capabilities anticipate the inter-related effects of DG, energy storage, EVs, beneficial electrification, and EE. In particular, describe how EVs and EE forecasts are reflected in utility forecasts.

The Company considers both positive (load increasing) and negative (load decreasing) load modifiers to forecast a net load. Please see the Company's response to Question 5 above and Appendix A to this DSIP for a detailed description of the Company's DER forecasting methodology.

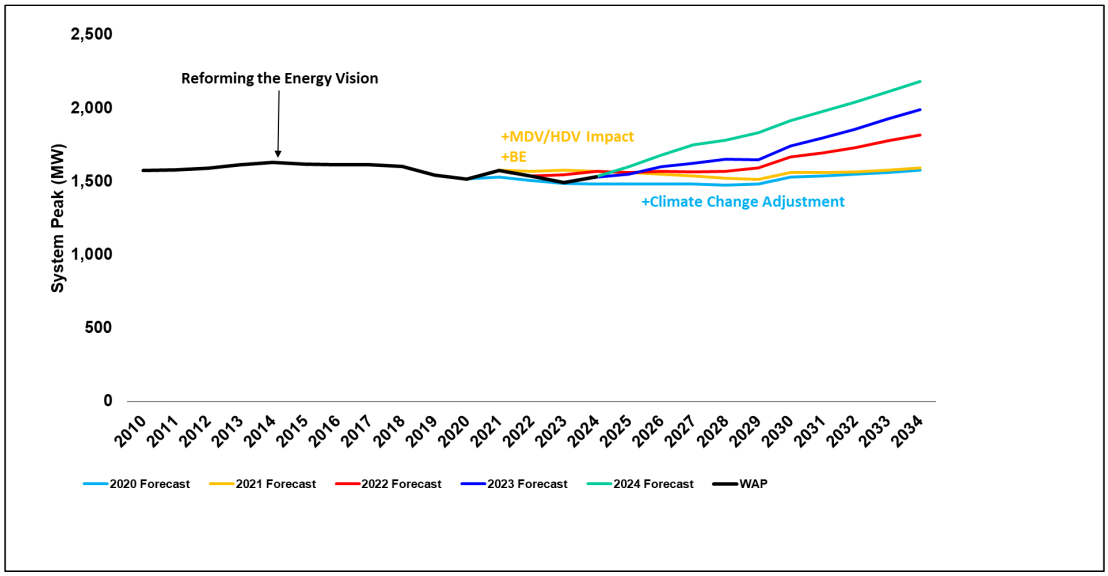
8. Describe in detail the forecasts produced for utility use and explain how those forecasts fulfill the evolving utility requirements for load and supply forecasts.

System and substation peak demand forecasts guide the Company's infrastructure investment decisions, directing capital to the areas of greatest need and setting the stage for identification of NWA and location-specific pricing. In addition, bulk level system planners use peak demand forecasts as an input to their planning process. Separately, O&R uses energy forecasts to determine the revenue forecast and set rates.

The forecasting of DERs becomes increasingly important as DER penetration grows, requiring more granular load forecasts and a better understanding of DER performance. As peak demand forecasts incorporate more robust and granular DER forecasts, O&R expects forecast accuracy to improve, and the impact of DER growth on system planning to become clearer and more actionable. At the same time, increased adoption of DERs introduces new challenges for maintaining forecasting accuracy due to the uncertainties associated with the variability of DER output, its evolving correlation with net load, and the impact of geographic diversity on aggregated DER output.

To that end, the Company continues to refine its forecasting process, including the addition of new load modifiers to provide a more complete assessment of the factors affecting the forecasts, thus supporting greater accuracy. Figure 6 below shows the Company's five most recent System Peak Forecasts the inclusion of modifiers used in these forecasts. Appendix A of this DSIP includes a detailed description of the most current forecasts.

Figure 6: O&R's System Peak Forecasts (2020-2024)



The increases in the later years of the most recent forecasts are due to projected demand growth, including an increase in EV penetration along with a leveling off of savings growth from demand side management ("DSM"). The Company treats resources capable of exporting energy to the grid, such as PV, as load modifiers in the forecasts. Separating onsite consumption from exported energy (i.e., supply) would require a level of disaggregation and granularity not currently practical or meaningful to forecast outputs.

9. Describe the utility's specific objectives, means, and methods for acquiring and managing the data needed for its advanced forecasting methodologies.

O&R uses a range of data inputs to produce its forecasts, including, but not limited to, meter data, queued projects, technology-specific growth forecasts, and macro-economic trends. To support more advanced forecasting methodologies as described above, the Company is integrating the use of more granular and accurate meter data available through AMI.

10. Describe the means and methods used to produce substation-level load and supply forecasts.

Please see Appendix A to this DSIP for more details on the weather adjustment process and associated forecasts.

As it relates to 8,760 hourly forecasts, O&R does not use the 8,760 forecasts for planning purposes. Instead, the forecasts are for third-party informational purposes only and include uncertainties beyond traditional peak forecasting, such as weather and hourly load curves, as well as uncertainties inherent in forecasting, including, but not limited to, customer behavior and forecasted DER.

O&R's three-year 8,760 area station forecast utilizes the hourly loads based upon (1) the previous year's monthly energy distribution, (2) forecasted peak demand, and (3) forecasted energy.

The Company uses actual hourly loads to capture the DER impacts embedded in the service area to develop the hourly load shapes for the individual area stations. *See* additional detail about these forecasts discussed in the Company's response to Question 2 above.

11. Describe the levels of accuracy achieved in the substation-level forecasts produced to date for load and supply.

The substation-level forecast has an average five-year error rate of 1.3 percent.

12. Describe the substation-level load forecasts provided to support analyses by DER developers and operators and explain why the forecasts are sufficient for supporting those analyses.

As requested by DER developers and other stakeholders, the Company's hosting capacity platform includes 8,760 hourly forecasts at the station load area level (please see the Company's response to Question 2 above regarding 8,760 hourly load forecasts). This is in addition to the observed peak and minimum load values at the substation level for the prior year.

13. Provide sensitivity analyses which explain how the accuracy of substation-level forecasts is affected by DG, energy storage, EVs, beneficial electrification, and EE measures.

The Company will continue to assess the impact of DERs on circuit, bank, substation and system-level forecast accuracy and refine methodologies as appropriate. The Company updates its assumptions each year.

For example, the Company collects AMI information from large solar customers seeking summer and winter solar output curves and uses the information to develop metrics that analyze the impacts during bank and system peak hours.

14. Identify and characterize the tools and methods the utility is using/will use to acquire and apply useful forecast input data from DER developers and other third parties.

O&R, along with the JU, employs a broad range of tools and engagement methods to gather meaningful input from DER developers and other stakeholders. These include formal mechanisms such as reviewing public comments on proceeding, and participating in technical conferences, working groups, and informational webinars, all of which provide opportunities for input that is considered in planning and decision-making processes.

Additionally, O&R participated in JU-facilitated stakeholder meetings and workshops focused on DER integration and grid impact, along with technical working groups that collaborate on targeted topics such as charging station deployment and forecasting improvements. These efforts are complemented by ongoing communication channels, including JU-hosted webinars, newsletters, the JU website, and ad hoc meetings with third-party developers, state agencies, and industry organizations. The Company also supports DER forecasting through data-sharing in Implementation Plans, Annual and Semi-Annual Program Reports, and direct outreach and education campaigns, helping developers better understand and align with forecasting needs.

15. Describe how the utility will inform its forecasting processes through best practices and lessons learned from other jurisdictions.

O&R continuously refines forecasting practices by incorporating best practices and lessons learned from both internal reviews and JU-facilitated activities such as those described in the response to question 14 above. Active participation in industry forums, conferences, and inter-agency coordination meetings helps O&R stay informed about national and regional developments in DER forecasting and grid integration.

In addition, O&R participates in JU working groups to stay apprised of evolving industry standards and insights which it then reflects in internal processes and shares with stakeholders. The Company also leverages publicly available data from Electric Power Research Institute ("EPRI"), NYSERDA, Atlas Public

Policy, and the US DOE to understand the EV market and its growth within both the O&R service territory and NYS. Collaborative partnerships with local governments, non-profits, and private sector entities also support the adoption of innovative forecasting approaches, enhancing the Company's ability to adapt to a rapidly evolving energy landscape. Through these combined efforts, the O&R integrates proven strategies into forecasting processes and maintains a responsive, informed planning framework.

16. **Describe new methodologies to improve overall accuracy of forecasts for demand and energy reductions that derive from EE programs and increased penetration of DERs. In particular, discuss how the increased potential for inaccurate load and energy forecasts associated with out-of-model EE and DER adjustments will be minimized or eliminated.**

The AMI Business Analytics project approved in O&R's 2024 electric rate case will leverage AMI data to enable the Company to improve both the reconciliation process and accuracy of forecasting inputs. More information on this project is available in the AMI section of this DSIP.

17. **Describe where CGPP forecast information can be found.**

The Company will consider CGPP forecasts as the process is defined with more clarity and a framework is established.

Below are links to CGPP-related forecast information:

- Description of Energy Forecasts: https://dps.ny.gov/system/files/documents/2025/02/capacity-expansion-model-assumptions-matrix.pdf
- 8,760 Profiles in the State Scenario: https://dps.ny.gov/cgpp-state-scenario-hourly-electricity-demand-wy2018
- Modifiers in the State Scenario: https://dps.ny.gov/system/files/documents/2025/02/integrated-analysis-state-case-proposal.pdf

Grid Operations

Introduction/Context and Background

With the continued growth of DERs, the role of electric distribution utilities is rapidly evolving. Orange & Rockland Utilities, Inc. ("O&R" or "the Company") is committed to enhancing grid visibility, automation, and control to accommodate this transformation, promoting the reliability and resiliency of the electric grid while advancing NYS's climate and clean energy goals, such as those set by the Climate Leadership and Community Protection Act ("CLCPA").[31] The Company's dedication has already been recognized, most notably through the 2024 Northeast Regional ReliabilityOne® Award for Suburban and Rural Utilities. These advancements reflect O&R's role as a Distribution System Platform ("DSP") provider, tasked with modernizing infrastructure and integrating complex grid operations in a decentralized energy landscape.

In parallel with New York State ("NYS") policy goals encouraging the proliferation of clean energy technologies, federal policy supported the participation of many of these resources in organized markets. In the last several years, the Federal Energy Regulatory Commission ("FERC") passed orders to integrate DERs into the wholesale markets it regulates. With FERC Order 841, issued in 2018, FERC required each Independent System Operator ("ISO") to revise its tariffs to facilitate the participation of electric storage resources in established capacity, energy, and ancillary services markets.[32] This Order specified that the storage could be of any technology, interconnected at the transmission level, the distribution level, or behind-the-meter ("BTM"), with a minimum size of 100 kW. Additionally, it required that the resource be dispatchable at the wholesale market clearing price as both a wholesale seller and buyer. FERC's Order 2222, issued in 2020, effectively removed barriers to DERs participation in ISO markets.[33] Aggregated DER can satisfy size and performance requirements that they may not meet on a standalone basis and benefit from sharing market participation costs (*e.g.*, metering, telemetry, and communication equipment).

Since issuance of its 2023 DSIP, O&R has advanced critical technologies, including Supervisory Control and Data Acquisition ("SCADA"), Advanced Distribution Management Systems ("ADMS"), and initiated planning for a Distributed Energy Resources Management System ("DERMS"). These platforms enable real-time monitoring and visibility, improved system coordination, and optimized DER dispatch, supporting both operational needs and market participation frameworks being developed in collaboration with the NYISO. O&R is also investing in communications, automation, and enterprise-wide geographic information system ("eGIS") platforms to provide a flow of data and enhance the accuracy of grid operations. As DER penetration increases, these technologies will become increasingly essential for reliable, efficient, and flexible grid operations.

O&R's modernization strategy also includes the continued deployment of smart grid technologies, widespread distribution automation ("DA"), and substation enhancements to increase system intelligence and resiliency. The Company continues to implement projects like the Distribution Feeder of the Future ("DFOTF"),[34] which tests and validates advanced ADMS applications for volt-var optimization, conservation voltage reduction, and automated fault restoration. These innovations enable proactive

[31] New York State Senate Bill S6599 Climate Leadership and Community Protection Act https://www.nysenate.gov/legislation/bills/2019/S6599.
[32] FERC, Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators (RM16-23-000; AD16-20-000; Order No. 841) (issued February 15, 2018).
[33] FERC, Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators (RM18-9-000; Order No. 2222) (issued September 17, 2020).
[34] New York State Energy Research and Development Authority ("NYSERDA") Agreement No. 152025.

management of the distribution network, enhance customer service during outages, and reduce greenhouse gas emissions through optimized asset control.

Looking ahead, O&R is aligning its technology roadmap with statewide objectives by transitioning to CYME for system modeling, developing DERMS capabilities, and expanding high-speed 4G/5G communications. These efforts are guided by a five-year implementation plan that focuses on enhanced grid visabilty while integrating climate resilience, cybersecurity, and stakeholder engagement. By investing in advanced grid management tools, refining forecasting capabilities, and enabling market participation for DERs, O&R is laying the groundwork for a flexible, sustainable, and intelligent energy system that can meet the demands of a decarbonized future.

Figure 7: Enabling Technologies

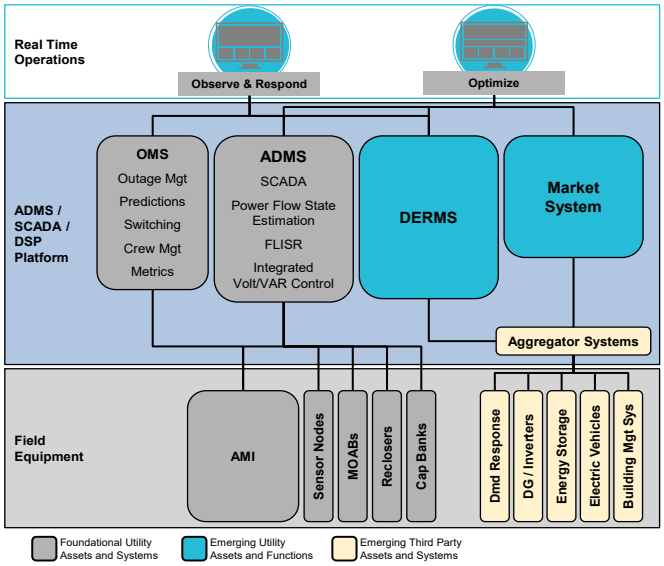


Figure 7 depicts the potential suite of systems, devices, and communications infrastructure that will provide the visibility, monitoring, and control required to plan effectively for and manage the increasing amount of DER on the O&R electric system.[35]

Implementation Plan, Schedule, and Investments

Current Progress

Summary of Achievements

- Completed the discovery phase of ADMS Phase 3: DERMS implementation, which included scoping, specification development, and benchmarking with affiliate, CECONY.
- Completed the ninth successful Dynamic Load Management ("DLM") Capability Period in 2024, with strong performance across residential and commercial programs.
- Deployed 4G technologies to enhance communications and telemetry, reduce setup time, and support DER market integration with the New York Independent System Operator ("NYISO"). Also began designing and preparing for the deployment of Software-Defined Wide Area Network ("SD-WAN") technologies to further enhance capabilities.
- Made significant progress toward implementing a modern eGIS platform to position O&R to support more accurate DER mapping, operational decision-making, and emergency response capabilities.
- Advanced a first-of-its-kind Innovative Storage Business Model (**"ISBM") demonstration project, a Virtual Power Plant ("VPP") developed in partnership with Sunrun, leveraging hundreds of residential batteries for peak shaving and system flexibility.**

Utility Capabilities In-Focus:

Planning and Forecasting – O&R's new DERMS platform builds on ADMS capabilities to enable real-time monitoring of DERs, combining core and advanced functionality to support

[35] Figure published in ADMS Phase 2-DERMS White Paper– V2.

interconnectivity by communicating present and future utility, market, and customer DER operational requirements.

Monitoring and Visibility – O&R is modernizing its distribution system through a comprehensive DA and Smart Grid strategy that combines advanced technologies, real-time device control, and upgraded communications infrastructure. The DFOTF project has validated this integration, while collaborations with third parties like the ISBM represent key progress in grid modernization and flexible DER integration.

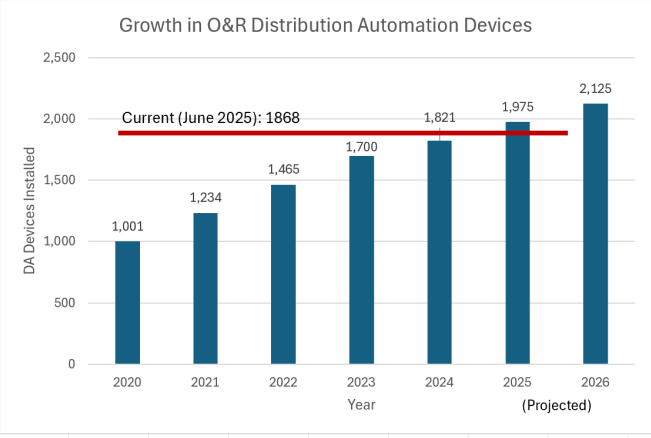
O&R is advancing the modernization of its electric distribution system through a comprehensive DA and Smart Grid strategy that integrates cutting-edge technologies, real-time control systems, and enhanced communications infrastructure. Central to this transformation are SCADA-controlled devices, the ADMS, and a growing deployment of intelligent field equipment that together improve grid reliability, outage response, and operational efficiency. As part of its role as a DSP, O&R is also implementing a DERMS, enabling greater visibility and control over DERs, while expanding demand response programs and dynamic load management to meet rising energy needs. Complementary efforts include upgrades to substation automation, the eGIS platform, and telecommunications systems—all contributing to a more resilient, flexible, and customer-focused electric grid.

Distribution Automation ("DA") / Smart Grid

O&R's DA/Smart Grid program leverages advanced technologies—including sensors, processors, and communications networks—to optimize system performance and enhance the efficiency and resilience of the electric distribution grid. A key focus is the deployment of SCADA-controlled devices like reclosers, smart capacitors, and power quality sensors, which, when combined with the ADMS, enable faster outage detection and containment. This effort is guided by a three-tier automation strategy: feeder optimization, field automation, and centralized automation control, each targeting specific areas like power quality, outage reduction, and centralized monitoring.

By the end of 2023, 90 percent of O&R's circuits had some level of distribution automation, with about 50 percent being fully smart-grid-ready. The infrastructure includes 536 reclosers, approximately 1200 motor operated air break switches ("MOABS"), and 135 smart capacitors, enhancing the grid's ability to detect and resolve issues quickly and safely (see Figure 8 below for current and estimated future DA device growth path). These technologies improve situational awareness, reduce customer outage impacts, and speed up restoration by streamlining crew deployment. O&R also continues research and development efforts, such as researching advanced sensors with enhanced fault detection and integration capabilities with MOABs and the ADMS to further strengthen grid reliability and visibility.

Figure 8: Total Number of O&R DA Devices



ADMS

ADMS is crucial for the DSP, enhancing situational awareness and improving reliability, resiliency, and system efficiency through monitoring and control. It can monitor system performance, identify disturbances, perform real-time analysis, and record data from abnormal conditions. ADMS functions enhance real-time visibility and control of the electric grid by monitoring system performance, identifying disturbances, and analyzing and recording abnormal operating conditions caused by planned or unplanned events. These capabilities improve situational awareness and, through monitoring and control ("M&C"), support greater system reliability, resiliency, and operational efficiency.

As ADMS functionality expands, it will integrate with DERMS to enable coordinated monitoring and control of DERs and smart inverters. This integration will allow DERs to operate harmoniously with utility-owned devices, supporting more dynamic and optimized system operations. The Distribution Feeder of the Future ("DFOTF") section further below describes the testing O&R has been conducting on ADMS-enabled technologies, demonstrating how the system and associated technologies support near real-time coordination of functions such as Fault Location, Isolation, and Service Restoration ("FLISR") and Volt/VAR Optimization ("VVO"). These features will use live system data to perform local state-estimation analyses, inform switching strategies, and make timely equipment adjustments to maintain optimal grid performance. As these advanced capabilities are commissioned, the Company continues to update operational processes and enhance operator training to support the transition to a more intelligent and responsive electric grid.

This increase in network-connected technologies and systems requires improvements to O&R's communications platforms. The Communications section below describes how O&R has been increasing network and communications capabilities by supplementing their existing platforms with 4G network technologies.

O&R's ADMS implementation plan has three phases, of which Phases 1 and 2 have been successfully implemented. The Company is now testing advanced applications for full deployment across the O&R service territory, aligning with the centralized automation control vision. The testing of these advanced applications is discussed in detail in the DFOTF section below.

Communications

To support the growing integration of DERs and meet the requirements of FERC Orders 841 and 2222, O&R is advancing substation communication system capabilities through the deployment of modern telemetry and telecommunications infrastructure. A foundational element of this effort is establishing robust communication links among utilities, aggregators, and the NYISO to enable coordinated grid and market operations. O&R has played a key role in piloting DER aggregation models, evaluating interoperability of jointly operated storage assets, and testing DSP/NYISO coordination protocols[36]. A notable advancement is the introduction of SD-WAN technology, which maintains the DNP3 protocol while offering a cost-effective, scalable, and flexible solution for routing telemetry and managing aggregator communications. Once fully implemented (expected during Q2 2025), SD-WAN will significantly reduce installation and commissioning time and facilitate market participation within the O&R service territory.

At O&R, modernizing the communications backbone is equally essential for enhancing grid automation and updating its DSP. Over the past few years O&R has begun supplementing the 220 MHz radio network

[36] NYISO DER & Aggregation Participation Model, https://www.nyiso.com/der-aggregations.

with higher-capacity technologies like 4G wireless to meet the demands of a modernized grid. 4G wireless service offers low latency, increased bandwidth, and real-time monitoring and control capabilities essential for DSCADA, ADMS, and DERMS systems. The first deployment of 4G technology occurred at the Pomona Battery Storage site, enabling full integration with the ADMS and participation in distributed energy markets. As part of the DFOTF project, the Company established communication standards and successfully validated 4G performance through lab and field testing. With Verizon and AT&T providing primary and backup coverage, the 4G network now delivers low-latency, high-bandwidth communication for critical grid functions. These improvements are critical to enabling real-time visibility, control, and coordination of distributed assets across the O&R system.

Advanced communications infrastructure is integral to enabling the Company's continued automation deployment and enablement of a flexible grid. O&R's newly expanded high-speed communications infrastructure will provide a robust and secure solution throughout its service territory, which is necessary for critical utility and customer data transport between control centers, data centers, server farms, remote data collectors, and devices.

Distribution Feeder of the Future Project

O&R implemented and tested a suite of ADMS applications as part of the DFOTF project. The goal of this project was to improve grid efficiency, reliability, and automation through real-time control and intelligent monitoring using a unified ADMS platform. Previously, substation and distribution systems operated independently and sometimes in conflict. Through this project, O&R integrated these systems using an AspenTech/OSI ADMS to monitor, control, and coordinate grid operations—including outage restoration and volt-var optimization—on a single platform. Selected feeders were configured within the ADMS network model for targeted application testing.

The Company tested the following three key ADMS applications:

- **Volt-Var Optimization ("VVO"):** Used field capacitor banks and substation Load Tap Changers ("LTCs") to manage voltage and reactive power, improving power quality and reducing losses.
- **Conservation Voltage Reduction ("CVR"):** Successfully reduced feeder voltage by 5 percent (from 123V to 117V) during peak demand, using coordinated adjustments to LTCs and capacitor banks—something not possible before system integration.
- **Fault Location, Isolation, and Service Restoration ("FLISR"):** Demonstrated fully autonomous outage response by detecting and isolating faults, then restoring service using SCADA-controlled switches and substation breakers.
    - In the simulated fault test, affected customers were automatically restored within 3.5 minutes, confirming that the integrated ADMS applications can effectively optimize distribution performance.

Distribution Energy Resources Management System ("DERMS")

In 2024, the Company began developing a DERMS to enable near-real-time monitoring of DERs. DERMS is a platform that combines core and advanced functionality to meet the present and future utility, market, and customer DER operational requirements. A DERMS platform combines core applications (DER Load Planning, Simulation, Reporting, Aggregation) and advanced functionality (Operations Integration ADMS/SCADA, Grid Optimization, Electric Vehicle Management) into a single, integrated, unified system. DERMS will provide a technology platform with a shared network model and a common user experience for all roles that are required to monitor, control, and optimize the secure operation of the electric distribution system (see Figure 9 for an illustration of technologies managed by DERMS).

This initiative includes software and infrastructure that support market optimization and dispatch as regulatory and technological landscapes evolve. The DERMS will improve system efficiency, minimize the need for grid upgrades, and help integrate clean energy technologies in alignment with state and federal policy goals, such as the CLCPA and FERC Orders 841 and 2222. By developing a unified, accurate database of DER assets and implementing middleware to harmonize data formats, DERMS will serve as a critical component of both the ADMS and the Company's role as a DSP. In addition, this foundation will support customer-facing and market-driven functionalities while enabling cost-effective alternatives to traditional infrastructure through better situational awareness and planning capabilities. Figure 10 introduces some of the use cases for coordinating DERs through DERMS.

Figure 9: Technologies Managed by DERMS

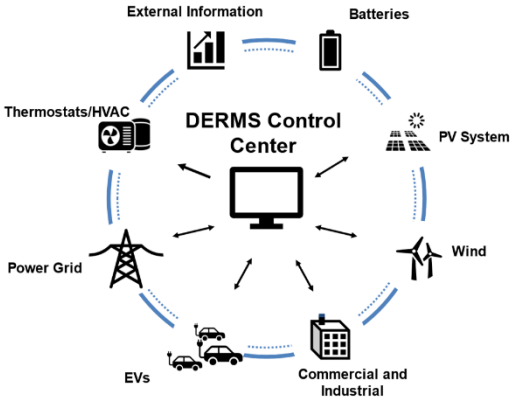
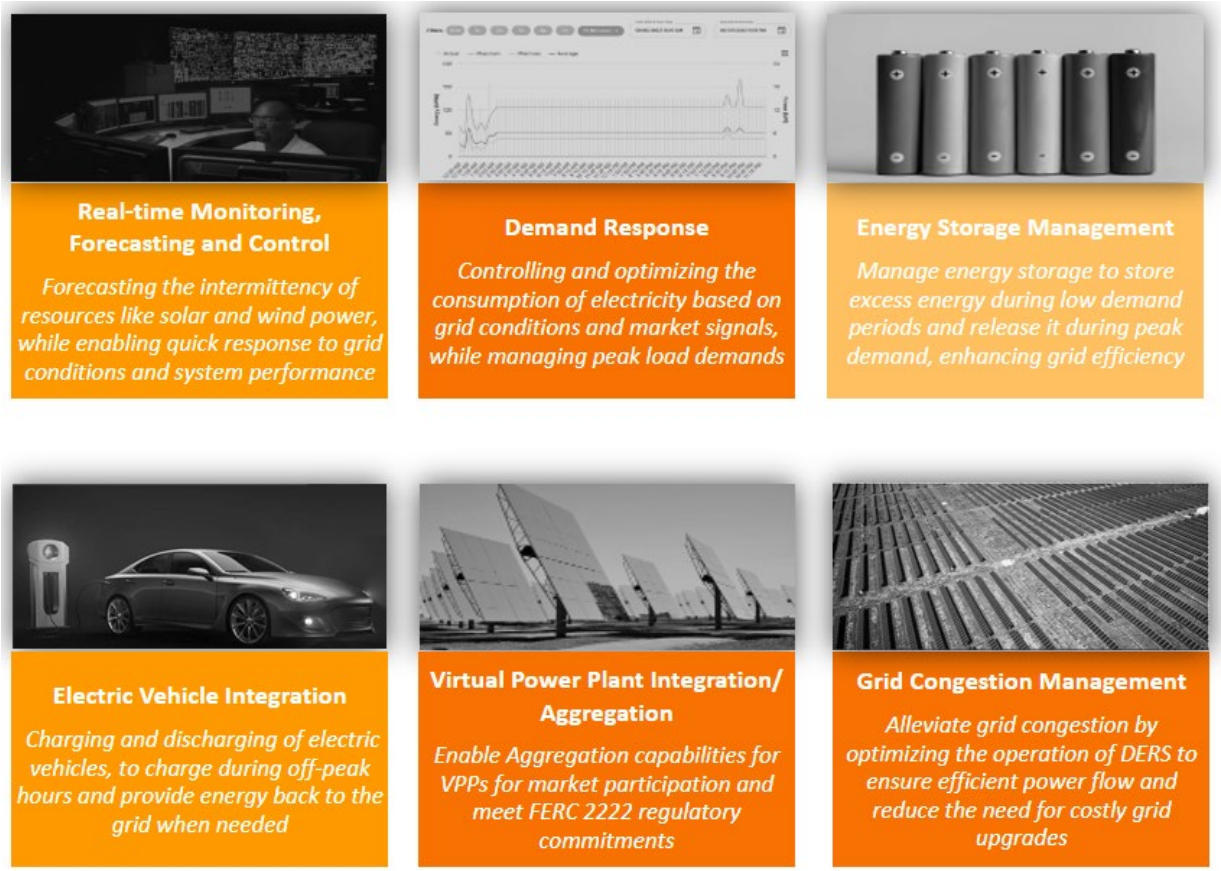


Figure 10: DERMS Use Cases for Coordinating DERs



O&R completed the first phase of DERMS implementation in 2024 and included scoping, developing specifications, and benchmarking with the Company's affiliate, CECONY. While O&R leveraged CECONY's experience and efforts to develop DERMS, the two utilities' approaches to DERMS vary. Notably, O&R is building upon its successful implementation of ADMS, which allows the Company to expand upon

monitoring and control capabilities in place with ADMS to add real-time capabilities related to DER in the control room. The Engineering Planning software solution to be implemented by the end of 2025, in addition to ongoing ADMS efforts to unlock functionality, will serve as an intermediate step toward a full DERMS implementation.

O&R continues to work with Smarter Grid Solutions ("SGS") as a part of NYSERDA Program Opportunity Notice ("PON") 4128 Future Grid project. This project is facilitating the DERMS implementation process by evaluating and demonstrating the ability of smart inverters to support distribution system operations such as grid stability, frequency, and voltage support, reduce system losses, and effective control of DERs. This project presents an opportunity to test the functionality and integration of smart inverters into the ADMS and DERMS.

Demand Response and Dynamic Load Management

Demand Response ("DR") is the act of reducing energy consumption from the grid.[37] O&R recognizes that achieving a successful clean energy transition will rely heavily on expanding and modernizing electric infrastructure to support a substantial rise in electric demand. With the projected growth of electric transportation and electric building heating over the coming decades, O&R forecasts a 35 percent to 45 percent increase in summer peak electricity demand by 2050. Moreover, by 2035, winter peak demand is expected to surpass summer peaks, driven primarily by widespread adoption of electric heating systems. To meet these demands, there is a need to not only build new system capacity to meet increases in customer demand but to provide adequate DLM. DLM refers to managing and balancing the supply of electricity on the network with the electrical load by adjusting or controlling the load rather than the power station output. O&R will use peak DR programs, such as direct load control and distribution load relief, to optimize the need for new capacity where possible.

O&R implements three types of DLM programs, which operate during the summer period from May 1 through September 30 (the "Capability Period"): a direct load control program, peak shaving programs, and contingency programs. These DLM programs are summarized in Table 5.[38]

- **Direct Load Control Programs ("DLCP"):** Consists of the Bring Your Own Thermostat ("BYOT") and a proposal to add residential energy storage for the 2024 Capability Period. This program allows for remote control by the Company of central heat pump and central air condition equipment in residential customers' homes and small businesses during peak shaving or contingency events.
- **Peak Shaving Programs:** The Commercial System Relief Program ("CSRP") and Term-DLM participants can be called on a day-ahead basis when the next-day forecasted load approaches the Company's forecasted summer electric system peak load.
- **Contingency Programs:** Distribution Load Relief Program ("DLRP") and Auto-DLM program participants can be called to address local reliability issues in specific defined circuits or geographic areas.

[37] New York ISO Demand Response Webpage: https://www.nyiso.com/demand-response.
[38] Case 14-E-0423, *Proceeding on Motion of the Commission to Develop Dynamic Load Management Programs*, O&R 2024 DLM Annual Report (Filed November 15, 2024).

Table 5: Summary of DLM Programs

Program	General Information	Incentive
DLCP	Activated by O&R in system critical contingency situations or peak shaving events. Participation limited to O&R residential, religious, and small business customers with central air conditioning ("AC"). Allows O&R to remotely control the device (smart thermostat) settings. The Company is proposing to add Residential Energy Storage to the DLCP for the 2025 Capability Period.	**Company Provided Thermostat Option**: Customers receive a free or low-cost controllable device (smart thermostat). **BYOT Option**: Customers enroll an eligible smart thermostat through a Service Provider and receive an enrollment payment of $85 and an annual Participation Payment of $25 starting the second summer. **Residential Energy Storage Option:** The Company is proposing to add a residential energy storage option for the 2025 Capability Period. Customers will enroll eligible battery storage devices through a Service Provider and receive a Participation Payment of $50/kW-year based on calculated load shed.
CSRP	Activated by O&R when the day-ahead forecast is 92 percent or greater of forecasted summer electric system peak to relieve system peak loads. Events last four hours. Reservation and Voluntary Payment Options.	**Reservation Payment Option:** Customers receive $3 per kW-month pledged and performed for months with fewer than five events and $4 per kW-month for months with five or more events. Performance payment is $0.50 per kWh provided during a Planned Event or $1 per kWh for Unplanned Event. **Voluntary Participation Option:** Customers receive a Performance Payment of $1 per kWh provided during Planned Events or $1.50 per kWh provided during Unplanned Events.
DLRP	Activated by O&R in response to a system emergency or voltage reduction of five percent or greater. Events last four or more hours. Reservation and Voluntary Payment Options.	**Reservation Payment Option:** Customers receive a $3 or $5 per kW-month pledged and performed depending on location for months with fewer than five events and $4 or $6 per kW-month pledged and performed depending on location for months with five or more events, and a Performance Payment of $0.50 per kWh provided during events. **Voluntary Participation Option:** Customers receive a Performance Payment of $1 per kWh provided during events.

Program	General Information	Incentive
Term-DLM	Activated by O&R when the day-ahead forecast meets or exceeds a specified percentage of the forecasted system peak, as specified by the Program Agreement.	**Reservation Payments:** Equal to the applicable Reservation Payment Rate per kW multiplied by the Direct Participant or Aggregator's kW of Portfolio Quantity multiplied by the Performance Factor (as described in the Program Agreement). Reservation Payments to Aggregators or Direct Participants are determined per aggregation, based on the Aggregator's kW of Portfolio Quantity in that aggregation.
Auto-DLM	Activated by O&R in response to a system emergency or peak shaving purposes under the same activation criteria as Term-DLM.	**Reservation Payments:** Equal to the applicable Reservation Payment Rate per kW multiplied by the Direct Participant or Aggregator's kW of Portfolio Quantity multiplied by the Performance Factor (as described in the Program Agreement). Reservation Payments to Aggregators or Direct Participants are determined per aggregation, based on the Aggregator's kW of Portfolio Quantity in that aggregation.

O&R views DLM as a key strategy to support the effective and efficient operation of its electric distribution system. In 2024, the Company successfully completed its ninth full Capability Period, implementing three DLM programs. While enrollment in commercial programs like CSRP and DLRP declined in terms of megawatt capacity, customer participation increased, and performance metrics, though slightly lower than the previous year, remained strong—87 percent for CSRP and 82 percent for DLRP. The BYOT program showed continued growth and high demand reduction results, with three events averaging a 4.8 MW reduction.

O&R emphasizes the importance of customer education and outreach, particularly with aggregators and direct participants, to drive increased participation and improved performance in future years. A key component of O&R's outreach effort is the integration of demand response education with energy efficiency programming. This is prominently executed through the ORU Marketplace, where customers can purchase energy-efficient products. Smart thermostats, which are eligible for participation in the BYOT program, are promoted through these platforms with instant rebates and enrollment incentives. This approach not only simplifies customer participation but also creates a seamless experience by bundling device acquisition with program enrollment and education.

Enterprise-wide Geographic Information System ("eGIS")

O&R's current GIS is nearing the end of its useful life, prompting the Company to align with CECONY on the implementation of a shared, eGIS platform. The new system's capabilities support a wide array of functions across customer collaboration, technological innovation, emergency response, and operational excellence. It enables precise calculation and visualization of DER installations, refined grid modeling from substations to customer endpoints, and enhanced data integration from non-utility and AMI systems. Visual trace and augmented reality technologies reduce mapping errors and provide real-world, spatial awareness of hazardous field conditions.

To date, the O&R project team has made significant progress in tailoring the eGIS solution to meet the Company's specific operational needs. Key personalization and customization requirements have been identified and defined. A comprehensive analysis of the existing O&R GIS database schema has been completed to determine the level of effort required to align the eGIS schema with O&R's data requirements. An automated data assessment was conducted to uncover anomalies and deficiencies in the current GIS dataset that must be resolved prior to migration. Functional, integration, and data migration requirements have been finalized, and the O&R-specific eGIS schema has been defined and configured. In addition, detailed design specifications have been developed for system configuration, integrations, and customizations. Lastly, system development and test environments have been established and configured to support ongoing implementation efforts.

Innovative Storage Business Model ("ISBM")

O&R, in partnership with Sunrun Inc., successfully activated New York's largest residential virtual power plant (VPP) during the summer of 2024, using more than 300 solar-plus-storage systems.

O&R, in partnership with Sunrun Inc., successfully activated NYS's largest residential VPP during the summer of 2024. As part of a REV demonstration project approved by the NYS Public Service Commission, the VPP discharged stored solar energy during dozens of peak demand events following activation, helping to stabilize the electric grid. Through this program, enrolled customers received free or discounted batteries, benefiting from backup power and utility bill credits, while supporting New York's clean energy and storage goals. As of June 2025, the VPP included 346 solar-plus-storage systems. The project marks a significant step toward grid modernization and flexible DER integration. This project enables the Company to utilize these flexible resources for electric system peak shaving by activating the batteries simultaneously when needed. This VPP progresses the CLCPA goals of integrating storage and modernizing the electric grid. These batteries are controlled remotely through a software program operated by Sunrun and can be a template for O&R to operate a DERMS system in the future as residential energy storage expands. See the Energy Storage Integration section for more details on the ISBM program.

Substation Automation

O&R continues to retrofit two to four substations every year with enhanced monitor and control capabilities. Through these efforts, the Company is increasing data capabilities and updating design standards to include greater functionality to tie into the ADMS and enable DER integration.

Future Implementation and Planning

Summary of Future Actions

- Advance the second phase of DERMS with a sequenced rollout of modules, aligned with planning tools, smart inverter pilots, and regulatory requirements to enable real-time DER monitoring and optimization.
- Implement CYME as the primary distribution modeling platform to improve planning accuracy, automate hosting capacity forecasts, and enhance DER screening and system simulations by 2027.
- Finalize data migration, conduct pilot tests, and complete system integration to enable a unified GIS platform supporting advanced visualization, outage response, and DER mapping.
- Expand Distribution Control Center staffing by 2027 to manage increasing DER complexity, provide 24x7 monitoring, and support clean energy goals while maintaining system reliability and regulatory compliance.
- Continue to invest in infrastructure hardening, climate adaptation, and grid modernization to mitigate the impacts of extreme weather, flooding, and rising demand.

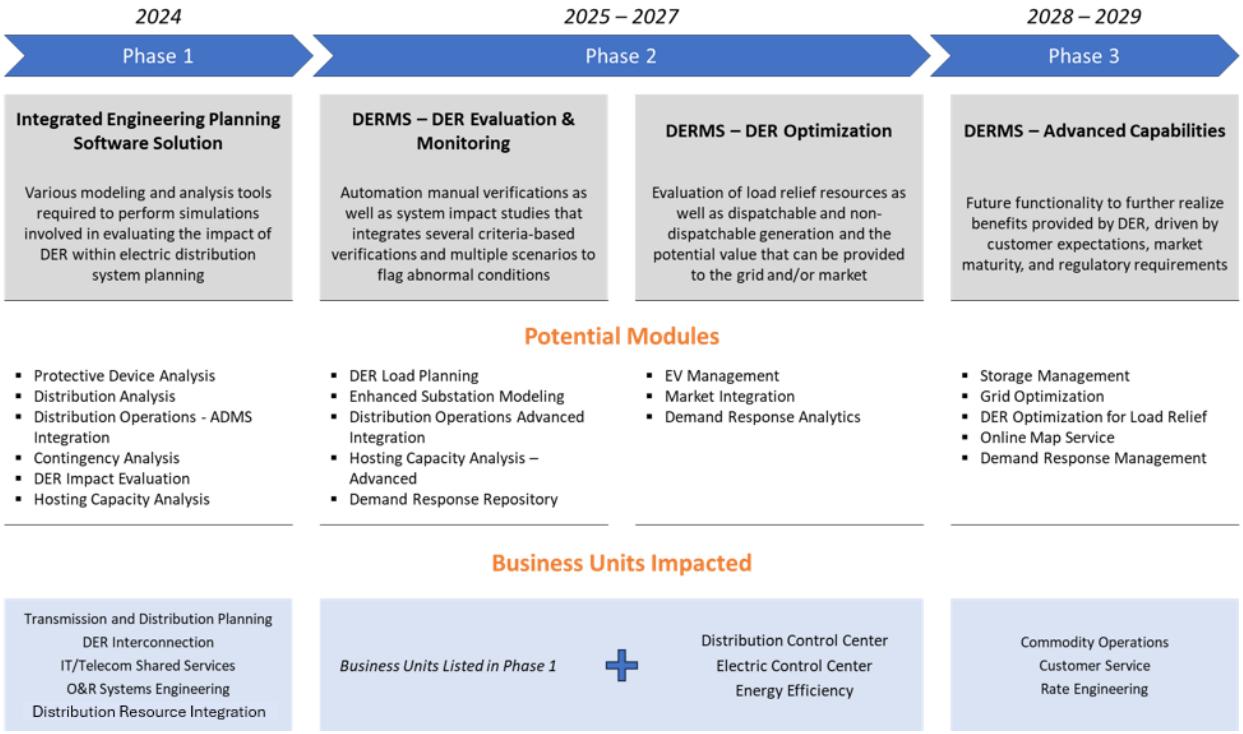
The Company plans to continue investing in grid modernization capabilities and DSP enabling technologies commensurate with the level of functionality required, based on DER penetration increases over time and the requirements to meet the CLCPA's goals and initiatives. With the completion of Phase 1 and Phase 2 of the ADMS implementation, the Company will focus its efforts on preparing and implementing DERMS.

As more DERs integrate onto the grid and participate in wholesale markets, electric reliability for customers remains at the forefront. O&R will continue to research and deploy innovative technologies that will allow for control and visibility to the outer rim of the electric grid, including enhancements to the end-user experience.

DERMS

O&R's DERMS implementation and associated functionality pilot will continue to be key efforts through 2025 and beyond. The second phase (2025-2027), similar to CECONY's approach, involves the sequenced rollout of specific modules and DER integration capabilities within the implementation of an integrated Engineering Planning software. Figure 11 depicts the focus across the phases and potential modules and capabilities to be implemented in each. The specific modules and capabilities implemented, along with their sequencing, will be determined through the scoping, developing specifications, and benchmarking processes and will be aligned with evolving customer expectations, market maturity, and regulatory requirements. NYSERDA's PON 4128 Future Grid project will continue to serve as a pilot opportunity for these system tests.

Figure 11: DERMS Implementation Phases with Potential Module and Capabilities



CYME Integration

O&R is transitioning from the Distributed Engineering Workstation ("DEW") to CYME as its primary distribution system modeling tool to align with Joint Utilities ("JU") standards and improve functionality for hosting capacity analysis, distributed generation screening, and planning. CYME offers key advantages such as Python automation for performance of repetitive tasks, better data integration, and an improved user interface, which will enhance modeling quality and efficiency. The Company completed the software design in 2024 and will begin implementation and system model build during 2025, targeting initial use for planning in Q1 2026 and full automation by the end of 2027, with DEW continuing in parallel during the transition. Initial CYME usage will require manual updates and quality checks until automation is fully established. CYME will also enable O&R to forecast hosting capacity using probabilistic models, supporting long-term system planning and stakeholder engagement.

eGIS

Over the next two years, eGIS implementation will focus on finalizing and executing core system components and preparing for a successful rollout. This includes finalizing data migration and data augmentation requirements for complete and accurate data transformation. System configuration and integration development activities will be initiated to establish connectivity with related enterprise systems. Pilot data migrations will be conducted and assessed to validate migration strategies and identify any issues early in the process. These efforts will be followed by full system testing, user training, final data migration, production cutover, and post-go-live support to allow for a stable and effective transition to the new eGIS platform.

Once complete, eGIS-enabled mobile tools will help facilitate damage assessment, outage heat mapping, and real-time collaboration with agencies during emergencies. For gas operations, capabilities include live leak mapping, integration with gas sensors, and simulations for planned and emergency work. Advanced eGIS platforms empower grid operators with real-time visibility, load flow modeling, outage management, and spatial analytics for strategic planning and investment. Consolidation into a unified eGIS architecture with CECONY and other utilities also reduces software, hardware, and support costs while enhancing cybersecurity and user accessibility.

Distribution Automation

O&R's Accelerated Smart Grid Distribution Automation Program is an effort to achieve a fully smart-grid ready distribution system with centralized control. This goal of this program is to be able to identify service interruptions automatically across the Company's service area and sectionalize customers into segments of 250 customers or less. To achieve this end, the Company is deploying DA assets onto the electric grid and anticipates adding approximately 750 devices between 2025 and 2029. This includes the installation and commissioning of the SCADA controlled devices (reclosers, smart capacitors, remotely operated switches, power quality sensors, and smart fuses) on a feeder-by-feeder basis. Additionally, the data gathered from the SCADA controlled devices provides better visibility of momentary outages in terms of frequency and location. The Company can analyze this data to direct tree trimming crews to areas where branches may already be encroaching on lines and thereby result in a more expeditious restoration of service to customers. The Company is actively leveraging data from these devices to identify, monitor, and record data from real time system conditions, and in turn enhance electric distribution system situational awareness, as well as M&C, to improve reliability, resiliency, and efficiency. The improved capability to monitor both present and historical electric grid behavior will lead to better short-term and long-term forecasting.

With this enhanced capability, O&R will be able to both interface dynamically with, and control and/or modify operating parameters for, certain types of DERs (*e.g.*, energy storage solutions), when appropriate, enhancing the reliability of the electric distribution system. The data collected by DA devices transmitted to the ADMS provides a comprehensive overview of the grid's status. This synergy between DA and ADMS equips grid operators with detailed insights and predictive analytics, facilitating more informed and faster decision-making to enhance grid reliability and resilience.

Distribution Control Center

The rapid proliferation of DERs on O&R's distribution system has introduced significant operational complexities, as the Company manages an evolving portfolio of clean energy initiatives while coordinating with multiple internal stakeholders. These complexities are expected to intensify, with a substantial number of additional DER projects planned and proposed over the next several years. The Distribution Control Center ("DCC") plays a central role in navigating this transition, coordinating with departments such as Distributed Resource Integration ("DRI"), Systems Engineering, Tech Engineering, New Business, and the Energy Control Center to meet regulatory mandates, implement clean energy solutions, and maintain system reliability. For continued success, the DCC must expand its capabilities to accommodate the increasing volume and technical demands of DERs while also adhering to new notification and reporting requirements.

To meet these challenges, O&R plans to hire five incremental, full-time employees by 2027, including the addition of a DER Shift Manager position. This team will provide 24x7 system monitoring, manage daily DER operations, respond to emergencies, and fulfill the required communications with regulators and stakeholders. These roles are essential to safely and effectively integrating DERs without overextending

existing Distribution System Operators ("DSO"), who must remain focused on the core responsibilities of maintaining safety, reliability, and system integrity. By expanding staffing, O&R will be better positioned to support NYS's clean energy goals, reduce greenhouse gas emissions, and manage the increasingly complex distribution grid in a reliable and efficient manner.

Communications

O&R will continue upgrading its communications infrastructure by deploying 4G/5G technology to support secure, low-latency control and high-bandwidth data backhaul. The Grid Mod 4G/5G project will roll out modems and communication cards in line with the installation of DA devices, such as reclosers, MOABs, SCADA capacitors, and high voltage sensors.

This infrastructure upgrade is essential to real-time monitoring and control capabilities required by systems like SCADA, ADMS, and DERMS. In addition to capital investments, the project will cover ongoing operations and maintenance, including bandwidth carrier fees and modem replacement costs.

DER Market Participation

O&R has significantly advanced its DER integration capabilities through enhancements to its PowerClerk®[39] platform, which serves as the backbone of its interconnection process. By incorporating the latest State Standardized Interconnection Requirements ("SIR"),[40] smart inverter functionalities, and automation and tracking tools, O&R is streamlining the customer and developer experience. In Q2 2025, PowerClerk® was further expanded to facilitate participation of aggregated DERs in NYISO wholesale markets, aligning with the evolving DER Marketplace. This reflects the Company's commitment to a transparent and efficient interconnection process that supports DER growth and market integration.

In support of FERC Order 2222 and NYISO's DER Aggregation Model, O&R is adapting PowerClerk® to enable aggregator registration and enrollment, demonstrating its proactive approach to enabling third-party DER participation in wholesale markets. Through its leadership in the JU Smart Inverter Working Group, contributions to national standards like Institute of Electrical and Electronics Engineers ("IEEE") 1547,[41] and collaboration on initiatives such as Cost Sharing 2.0,[42] O&R is helping shape both state and national DER frameworks. These efforts will support grid upgrades are more predictable and cost-efficient, while maintaining system reliability and enhancing planning coordination with developers. More information is available in the DER Interconnections section of this DSIP.

---

[39] PowerClerk Programs: New York, https://www.cleanpower.com/powerclerk/program-locator/.

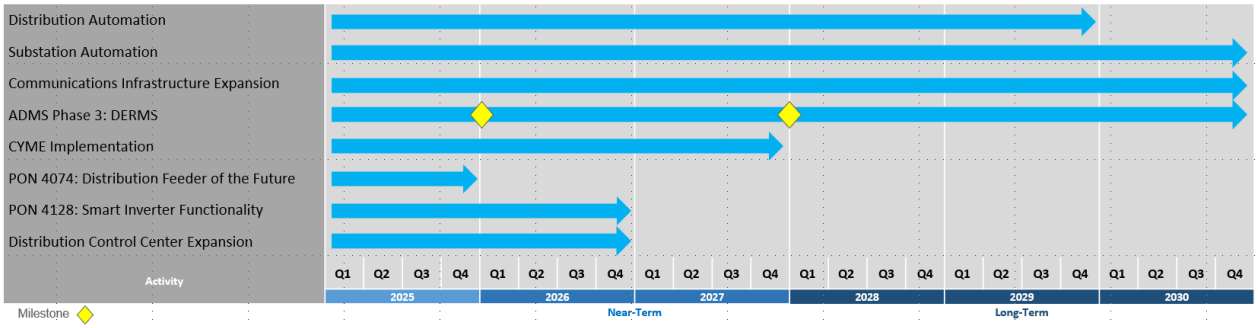
[40] NYS Standardized Interconnection Requirements ("SIR") website: https://dps.ny.gov/distributed-generation-information

[41] IEEE, *Application Guide for IEEE Std 1547 ™- 2018*, IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power System Interfaces, (Published, May 2024) https://ieeexplore.ieee.org/document/10534228.

[42] Cases 20-E-0543 and 19-E-0566, *Order Approving Compliance Filings with Clarifications* (issued April 14, 2022).

Integrated Implementation Timeline

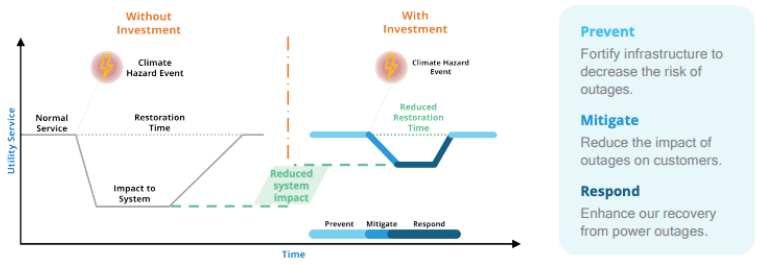
Figure 12: Five-Year Plan for Grid Operations



Risks and Mitigation

Table 6 below summarizes the risks that could affect the timely implementation of the future actions described above as well as the measures the Company has or will take to mitigate these risks.

Table 6: Grid Operations Risks and Mitigation

Risk	Mitigation
Insufficient funding for grid modernization technologies	Sustained investment in grid modernization technologies at a pace that balances attainment of policy goals, customer affordability, and the adoption of customer technologies. The amount of available funding will influence the timing and extent of implementation. Financial risks will be addressed through detailed cost-benefit analysis, evaluating the economic value of DER investments, operations, and maintenance alongside projected savings and revenues under different market, regulatory, and environmental scenarios. Established budgeting strategies will enable flexible tracking and allocation of expenditures.
Climate change-driven risk to customer reliability	Apply the Company's Prevent, Mitigate, and Respond framework (further detailed below) to invest in programs that strengthen the electric grid. The Company's proposed investments and frameworks are outlined in its most recent CCRP and depicted visually in Figure 13Figure 13 below. **Figure 13:** Prevent, Mitigate, and Respond Climate Change Resiliency Framework 

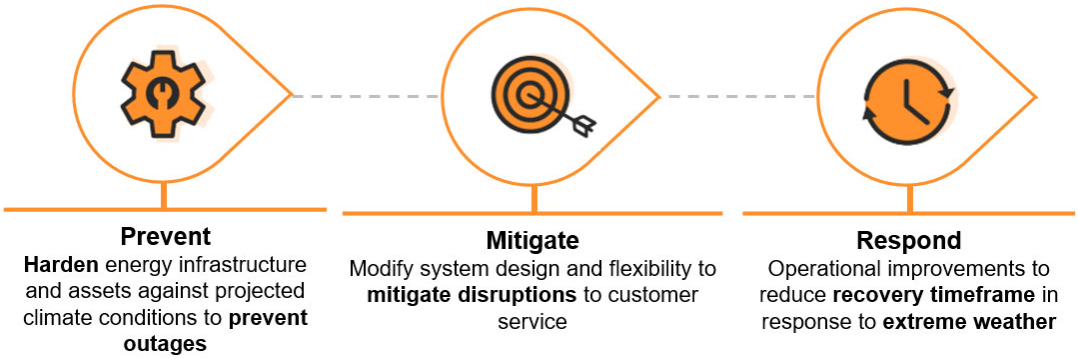
Risk	Mitigation
Risk of skill shortages	The future smart grid will require evolving skills to plan, build, and operate it, demanding highly skilled workers such as system architects, data scientists, modeling and simulation experts, cybersecurity specialists, communications engineers, and digital control engineers. The Company is committed to developing this skilled workforce, has expanded investment in workforce development initiatives, and will strengthen partnerships with federal and state entities, nonprofits, customers, universities, and research institutes to develop a modernized grid and a clean energy future.
Cybersecurity risk	Emerging cybersecurity and physical concerns and requirements have the potential to impact the implementation timeline to manage risk. The Company closely follows security developments at North America Electric Reliability Corporation ("NERC") and is actively engaged in industry discussions.

Climate Change Resilience Plan ("CCRP")

As climate change intensifies, causing more frequent and severe storms, flooding, heat waves, and other hazards, the reliability of the electric grid in New York is increasingly at risk. Temperatures in the New York State region have risen by nearly 2.5°F since the early 20th century, and events like the July 2023 floods in the O&R service territory have demonstrated the growing threat to infrastructure and customer service. In response, NYS mandated that utilities publish a Climate Change Vulnerability Study ("CCVS") and CCRP in 2023 and file an updated CCRP every five years.

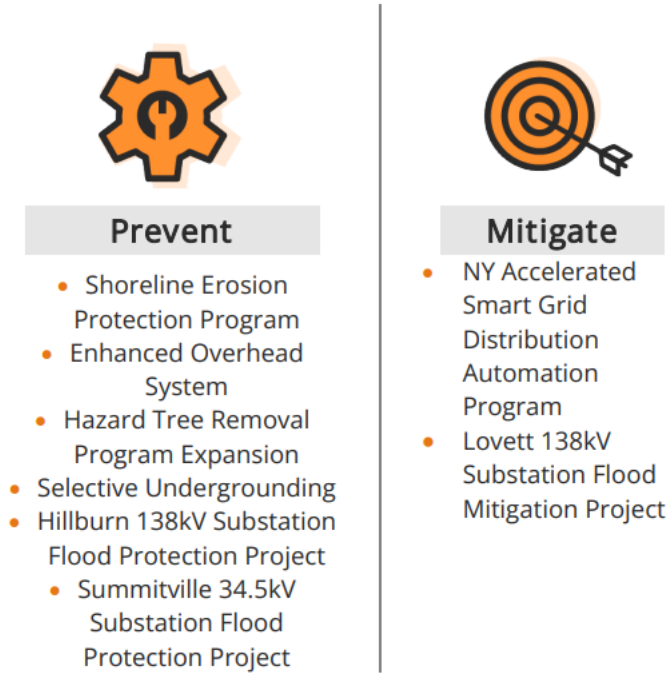
O&R's CCVS identifies four major climate hazards most likely to impact its electric system and emphasizes the need to incorporate future climate projections into asset planning and system design. The CCRP, published in November 2023, outlines a multi-prong resilience management framework that incorporates prevention, mitigation, and response strategies (see Figure 14). This approach includes strategic investments in infrastructure, integration of resilience into planning and operations, and adoption of new technologies.

Figure 14: Resilience Management Framework Strategies



The Company is actively investing in programs across the O&R service territory to strengthen the electric grid, improve storm resilience, and enhance emergency response. Between 2025 and 2029, the Company plans to invest approximately $184 million on a range of resilience initiatives (see Figure 15). From 2030 to 2044, O&R anticipates investing approximately $716 million to continue addressing the evolving impacts of climate change. These investments aim to mitigate risks from heat waves, extreme weather, sea level rise, and flooding—helping prevent outages, reduce customer disruption, and accelerate service restoration.

Figure 15: Resilience Driven Investments



Financial Costs Associated with Grid Modernization

O&R, in collaboration with community, municipal, and NYS stakeholders, is committed to building a clean and sustainable energy grid. Central to this vision is investment in a smart grid that enhances resilience, visibility, and control—supporting continued electrification, wider deployment of DERs, and expanded adoption of EVs. To manage technical risks, the Company will conduct a thorough evaluation of the software and equipment to be installed, including communication protocols, control systems, modeling, testing, and validation of DER performance and interoperability. This assessment will consider data quality, cybersecurity, reliability standards, and system enhancements such as smart inverters and sensors, to promote grid stability, efficiency, and reliability under varying conditions.

Financial risks will be addressed through detailed cost-benefit analyses, evaluating the economic value of DER investments, operations, and maintenance alongside projected savings and revenues under different market, regulatory, and environmental scenarios. Established budgeting strategies will enable flexible tracking and allocation of expenditures. In addition, the JU will quantify environmental, social, and resilience benefits of DERs and present the business case to stakeholders. The Grid Edge Research Lab ("GERL") will play a key role in identifying and mitigating implementation risks without disrupting day-to-day operations. Shared across service territories and supported by the Electric Power Research Institute

("EPRI"), the GERL will test emerging technologies to detect obstacles before wide-scale deployment and publish results to support other utilities nationwide. For the SCADA and CVO projects, the JU will proactively manage procurement risks—particularly supply chain disruptions—by pre-ordering critical equipment and closely monitoring availability.

The future smart grid will require evolving skills to plan, build, and operate it, demanding highly skilled workers such as system architects, data scientists, modeling and simulation experts, cybersecurity specialists, communications engineers, and digital control engineers. Many of these positions were included and approved in O&R's 2024 electric rate case. The Company is committed to developing this skilled workforce, has expanded investment in workforce development initiatives, and will strengthen partnerships with federal and NYS entities, nonprofits, customers, universities, and research institutes to develop a modernized grid and a clean energy future.

In addition, cybersecurity and physical security remain of paramount importance as digital technologies are added to the electric grid. Emerging cybersecurity and physical concerns and requirements have the potential to impact the implementation timeline to manage risk. The Company, along with CECONY, closely follows security developments at NERC and is actively engaged in industry discussions.

Stakeholder Interface

O&R will continue to participate in the JU discussions on low-cost M&C of DER as well as M&C solutions that are harmonized with NYISO requirements and individual utility requirements. Additionally, the JU anticipate continued collaboration with the NYISO on issues relevant to the compliance of FERC Order 2222 in 2026, including refining processes and data exchange mechanisms.

The JU continues to work with the DER community through the Information Technology Working Group and other venues to find mutually satisfactory solutions and maintain the transparency of M&C requirements. O&R has also partnered with industry solution providers—both software and hardware—to connect grid assets and customer resources to digital control systems.

As a member of the JU, O&R will continue to work with the NYISO to develop operational coordination requirements to continue the safe and reliable operation of the system while providing greater opportunities to realize DER value. The Company also continues to participate in the JU Independent System Operator Distributed System Platform Coordination Working Group, which primarily focuses on the DSP operational requirements. Additionally, the Company has collaborated with the JU and NYISO on the following:

1. The JU and NYISO initiated a series of workshops with the NYISO, New York Transmission Owners, and PSC Staff to document the processes and procedures required within existing and new NYISO guidelines. These workshops were held regularly between 2021 and 2024.
2. The Joint Utilities also held bilateral discussions with the NYISO to resolve implementation issues associated with the DER Participation Model and FERC Order 2222 compliance.
3. The Joint Utilities remain active participants in the NYISO's stakeholder forums, including the Installed Capacity Working Group and Market Issues Working Group.

Stakeholder engagement is a vital element of effective grid planning, management, and improvement, allowing for the consideration of diverse perspectives, expertise, and priorities. Engaging stakeholders helps identify key concerns, challenges, and shared goals, while also fostering collaboration, transparency, and trust. By incorporating feedback and lessons learned from external partners, including peer organizations and industry experts—planners can enhance the quality, relevance, and impact of their strategies.

To support this approach, it is common practice to convene working groups or advisory panels composed of stakeholders from various sectors. These groups offer valuable input and help guide decision-making throughout project development and implementation. Ongoing engagement with third parties, such as telecommunications providers and other critical infrastructure partners, further strengthens coordination and preparedness. Maintaining open lines of communication and continued stakeholder involvement remains essential to achieving long-term success and adaptability. Engagements strategies across the company are designed to support the specific sector as necessary (*e.g.*, EV Integration, Energy Storage Integration, DER Interconnectivity) so that appropriate stakeholders are included and engaged through the most complete methods.

Additional Detail

This section contains responses to items specific to Grid Operations.

1. **Describe in detail the roles and responsibilities of the utility and other parties involved in planning and executing grid operations which accommodate and productively employ DERs.**

The Company's primary responsibility is to preserve electric distribution system safety and reliability, with a growing focus on developing a flexible system that is resilient to disruption. The Company's DCC plays a central role in navigating this transition, coordinating with Company departments such as Systems Engineering, Tech Engineering, New Business, and the Energy Control Center to meet regulatory mandates, implement clean energy solutions, and maintain system reliability. To facilitate continued success, the DCC will be expanding its capabilities to accommodate the increasing volume and technical demands of DERs while also adhering to new notification and reporting requirements. Additional details on the DCC are provided in the Future Implementation and Planning section above.

O&R works closely with DER aggregators and the NYISO to define operational coordination requirements, including specific roles and responsibilities for each party, to preserve safety and reliability for a system characterized by increasing amounts of DER. As part of distribution system programs (*e.g.*, DR) and procurements (*e.g.*, NWA), the Company requires participants (*e.g.*, DER aggregators) to sign a contract that defines the roles and responsibilities for both the Company and the DER aggregator. For example, contracts typically specify the amount of advanced notice the Company will provide the DER aggregator prior to an event, and separately they define all reporting and settlement requirements for the DER aggregator. In addition, the JU have developed and refined a Draft DSP Communications and Coordination Manual to define the roles and responsibilities among the DSP, the NYISO, DER aggregators, and individual DER to enable DER wholesale market participation while preserving system safety and reliability.

2. **Describe other role and responsibility models considered and explain the reasons for choosing the planned model.**

No other specific models were considered. However, the Company continually examines the roles and responsibilities model to accommodate shifting needs and expectations, as well as evolving NYS and regulatory goals. The JU coordinates with the NYISO on an ongoing basis to define the roles and responsibilities for relevant parties to facilitate DER wholesale market participation in a safe and reliable manner. Similarly, input received through the NYISO stakeholder process has informed the development of the current role and responsibility definitions.

3. Describe how roles and responsibilities have been/will be developed, documented, and managed for each party involved in the planning and execution of grid operations.

For distribution-related programs and procurements, O&R will continue to capture all roles and responsibilities with contractual agreements with relevant parties. The JU continues to coordinate opportunities to align the procurement process, which may help inform a more standardized set of roles and responsibilities across the JU. While high-level roles and responsibilities will generally be consistent across the different utilities' programs and procurements, the unique nature of each system may result in differences (*e.g.*, pre-defined time periods in which the DER portfolio is required to be available for performance).

The JU work closely with the NYISO to develop and support the launch of the DER Market Participation Model. This includes refining the exchange of information related to registration, enrollment, operational coordination, and data exchanges, providing input on draft NYISO manual revisions, and resolving process concerns related to the 2023 DER market launch. The Company coordinates with stakeholders on NYISO DER Market Participation, including communications and coordination, metering, and telemetry requirements.

4. Describe in detail how the utilities and other parties will provide processes, resources, and standards to support planning and execution of advanced grid operations which accommodate and extensively employ DER services. The information provided should address:

a. Organizations;

O&R continues to coordinate with both the NYISO and DER aggregators to support planning and execution of advanced electric grid operations and establish coordination requirements. O&R establishes project specific governance to define each party's role and responsibilities. The Company anticipates that some of the processes, resources, and standards will evolve as systems and devices are updated to allow for greater M&C by the Company. In addition, the Company continues to partner with NYSERDA and EPRI to develop R&D projects to test new technologies.

b. Operating policies and processes;

The Company collaborates across all internal departments to develop, institutionalize, monitor, and enforce operating policies and processes. Operating guides describing the policies and procedures for performing a range of operational functions are available for Company personnel. These guides are updated as needed based on changes to systems, technology, and lessons learned from implementing new processes such as the Interconnection Online Application Portal ("IOAP"), NWA evaluation criteria, and hosting capacity map. With respect to energy storage, the Company developed a process that outlines roles and responsibilities of operational groups for charging and discharging a Company-owned battery. The process will be supported by new procedures for Distribution Planning, Electric Operations, and the third-party vendor, coupled with a project overview and troubleshooting guidelines that align with the Company's procedure for all DG. The DSIP Governance section in Chapter 3 and the Energy Storage Chapter of this DSIP provide further detail on the roles and responsibilities of various Company departments for this energy storage operating process.

c. Information systems for system modeling, data acquisition and management, situational awareness, resource optimization, dispatch and control, etc.

The ADMS is the foundational platform that is developed and integrated with other systems and near real-time data sources to enhance electric distribution system situational awareness, analysis, and M&C to

improve reliability, resiliency, and efficiency. The Company completed the deployment of ADMS applications in 2022 and is now commissioning those features. For further details on the ADMS implementation, including the various project phases, please refer to the ADMS section above.

The systems and/or sources of data integrated into the ADMS include the following:

- GE's EMS SCADA;
- GIS with customer and asset connectivity;
- Customer Information System;
- SCADA;
- DERMS;
- Outage management system ("OMS");
- DEW;
- Expanding and comprehensive DA consisting of M&C devices including:
    - Reclosers;
    - MOABS;
    - Capacitor Controls;
    - Regulator Controls;
    - Sensors/Power Quality ("PQ") Nodes;
- Substation Intelligent Equipment:
    - LTC ;
    - Microprocessor relay/data and RTU;
- AMI meters, communications infrastructure, and customer/meter data; and
- Robust radio frequency and communications infrastructure**.**

d. Data communications infrastructure;

O&R recognizes that a robust communication backbone is critical to monitor and control all distributed assets in the electric delivery system, including localized DERs, efficiently and effectively. The Company currently uses a 220 MHz radio network as the basis for communications on the system. The Company is in the process of supplementing this radio network with a 4G secure network infrastructure to support the amount of data being fed back to the system from new devices, in order to avoid limiting the functionality of the ADMS. A full discussion of the Communications Roadmap is outlined in the Communications section above.

e. Grid sensors and control devices;

The Company is continuing to install grid sensors and control devices to provide the real-time information and equipment automation needed for operating and optimizing the distribution system. Such sensors and control devices include:

- Reclosers;
- MOABS;
- Capacitor Controls;
- Regulator Controls;
- Sensors and PQ nodes;
- AMI meters, devices; and

- Substation Intelligent equipment:
    - LTC; and
    - Breaker data.

f. Grid infrastructure components such as switches, power flow controllers, and solid-state transformers;

As noted in the Company's response to Question 4c above, the Company is investing in equipment that supports system reliability in a high DER environment. These investments build on ongoing efforts to reduce the impact of storms, including installing additional automatic devices, such as reclosers or gang switches, fuses, fuse bypass switches, and automatic sectionalizing switches on the overhead system. Power flow controls and solid-state transformers are emerging technologies currently in the R&D phase. As such, these technologies are not part of the Company's current investment plan. The Company continues to explore new technologies in a demonstration project or R&D capacity, as appropriate.

5. Describe the utility's approach and ability to implement advanced capabilities:

a. Identify the existing level of system monitoring and distribution automation

O&R currently has installed more than 1,850 distribution automation devices on the system, which equates to 87 percent of the total circuits in the service territory. The Company uses these devices for real-time monitoring, as well as historical input to circuit models for load flow and planning cases.

b. Identify areas to be enhanced through additional monitoring and/or distribution automation

O&R will continue to deploy distribution automation devices in the field for enhanced M&C capabilities, as discussed throughout this section.

The implementation and synchronization of a DERMS with ADMS will be a significant driver for monitoring, control, and distribution automation. O&R will use these systems as the optimization engines to integrate DG operation fully into traditional electric grid management. These systems will require significant M&C data points from the electric grid and third-party DER assets that will be available to provide grid support. O&R is actively participating in the JU efforts on lower-cost M&C initiatives and will continue to invest in solutions that provide the necessary operational information to enable DG projects.

c. Describe the means and methods used for deploying additional monitoring and/or distribution automation in the utility's system

O&R's approach to deploying DA is described in the DA section above.

d. Identify the benefits to be obtained from deploying additional monitoring and/or distribution automation in the utility's system

As described in the section above, O&R has begun to realize the safety and system response benefits of additional M&C devices. In recent storm events, the Company was able to execute switching and safety related steps remotely, which allowed customers to be restored faster. The reclosers, MOABS, and advanced sensors provided real-time system information, reducing the time to recognize and address issues on the system which improved storm resiliency. These systems, devices, and communications infrastructure will also support the full functionality of the DERMS and provide the visibility, monitoring, and control required to effectively plan for and manage the DER assets on the grid, accommodate bi-directional flow of power, and provide market and customer services.

e. Identify the capabilities currently provided by ADMS

As described above, O&R has completed Phase 1 and Phase 2 of its ADMS implementation. The new SCADA system allows for enhanced M&C of field devices by enabling the synchronization of SCADA device statuses to the Company's outage/network management system. The Company has installed advanced applications, such as FLISR and VVO, onto the grid to provide M&C of the system. As part of the NYSERDA PON 4074 project at Port Jervis, the company evaluated these applications and provided feedback as described above in the Distribution Feeder of the Future section.

f. Describe how ADMS capabilities will increase and improve over time

O&R will continue to look for opportunities to unlock additional ADMS capabilities and improve the end-user experience. ADMS will eventually integrate with a DERMS to monitor and optimize the control of DER and smart inverters that will harmonize with Company devices and provide appropriate and improved electric delivery system operation. These capabilities will be accomplished by leveraging key SCADA and AMI meter information.

g. Identify the capabilities currently provided by DER Management Systems

During 2024, the Company completed the discovery phase for a DERMS, which include benchmarking and scoping with CECONY. The system will enable a near-real-time monitoring of DERs and allow the Company to track DER performance and capabilities, both for same-day dispatching and operational system performance, as well as for advising forecasts and integrated scenario planning.

h. Describe how DERMS capabilities will increase and improve over time

See the DERMS section in both Current Progress and Future Implementation and Planning sections above.

i. Identify other approaches or functionalities used to better manage grid performance and describe how they are/will be integrated into daily operations

O&R continues to leverage its R&D program to pursue new smart grid devices and technologies to unlock the most benefit to the system. The Company is researching a new sensor that has advanced fault detection capabilities. This sensor can pair with MOABs for more visibility on the grid and enhance integration with ADMS.

O&R will use lessons learned from the PON 4074 "Distribution Feeder of the Future" project to prove out the conceptual elements that the Company will need to advance grid operations in the future. The Company will continue to partner with leaders in technology development to refine the Company's software and technology roadmap as the Company expands its DSP functionality.

Energy Storage Integration

Introduction/Context and Background

Energy storage is becoming an increasingly important component of Orange and Rockland Utilities, Inc. ("O&R" or "the Company") distribution system platform as statewide targets, customer interest, and operational use cases continue to expand, supporting efforts to decarbonize the grid and increase system flexibility in pursuit of New York State's ("NYS's") long-term climate goals. Since the filing of its most recent DSIP, the Company has deepened its experience with energy storage across several deployment models, strengthened its internal systems to support integration, and collaborated with stakeholders to address siting, safety, and permitting needs. This represents a concerted effort by O&R to adopt an approach that balances benefits for all customers while minimizing bill impacts.[43]

As of May 31, 2025, O&R has integrated a total of 47.96 MW of energy storage onto the Company's electric system, including 3 MW of Company-owned utility integrated storage ("UIS"). These projects have served a range of objectives—from deferring capital investment to testing operational coordination and enabling wholesale market participation. O&R is evaluating energy storage as an integral element of the Company's integrated planning process and includes storage as a distinct category in system forecasts. Forecasts consider both utility-integrated resources and customer-sited projects, including those developed outside of Company sponsored programs.

As the market for flexible resources continues to evolve, O&R is preparing for broader aggregation and market integration by participating in statewide working groups and contributing to the development of wholesale coordination protocols. These efforts are focused on facilitating the response of storage resources to system needs at both the distribution and bulk levels, while maintaining safe and reliable operation. O&R's approach supports NYS's 6 GW by 2030 storage goal and reflects its role as a distribution service provider adapting to changing grid conditions.

Regulatory Drivers

The Commission's 2018 Storage Order[44] to establish a statewide energy storage goal and programs that will enable NYS to meet the 6 GW target by 2030. As part of the Storage Order, the Commission established a statewide energy storage goal of 3.0 GW of qualified energy storage systems by 2030. In January 2022, Governor Hochul announced in her State of the State address the intent to double NYS's energy storage target, from 3 to 6 gigawatts by 2030. The underlying driver of this increased target was the Climate Leadership and Community Protection Act ("CLCPA"), which called for NYS to achieve 70 percent renewable electricity by 2030 and 100 percent zero-emissions electricity by 2040.

Guided by the 2018 Energy Storage Order, New York State Energy Research and Development Authority ("NYSERDA") and Department of Public Services ("DPS") Staff developed an updated roadmap for the expansion to 6 GW ("Storage Roadmap 2.0").[45] The updated roadmap outlines deployment opportunities, use cases, and implementable actions NYS and various market actors can undertake to accelerate the deployment of high-value storage applications. The Storage Roadmap 2.0 identifies efforts to procure

---

[43] O&R provides information and responses to frequently asked questions on it's website at, https://www.oru.com/en/our-energy-future/our-energy-projects/energy-storage

[44] Case 18-E-0130, *In the Matter of Energy Storage Deployment Program* ("Energy Storage Proceeding"), Order Establishing Energy Storage Goal and Deployment Policy ("Storage Order") (issued December 13, 2018).

[45] *Id*, New York's 6 GW Energy Storage Roadmap Policy Options for Continued Growth in Energy Storage ("Storage Roadmap 2.0") (Filed December 28, 2022).

cost-effectively what was at the time a 4.7 GW storage deficit between current energy storage deployments and the 6 GW target, highlights storage deployment progress, and outlines program options for bulk storage and retail and residential sectors. On June 20, 2024, the Commission issued the 2024 Energy Storage Order.[46] This Order formally adopted the updated statewide deployment goal of 6 GW of energy storage resources by 2030, with an interim goal of 1.5 GW by 2025.

Implementation Plan, Schedule, and Investments

Current Progress

Summary of Achievements

- Integrated 47.96 MW of energy storage into the system as of May 31, 2025, including 3 MW of UIS.
- Held bulk market solicitations in 2019, 2021, 2022, and 2024.
- Deployed 346 residential solar-plus-storage systems through the ISBM demonstration project in partnership with Sunrun Inc.
- Executed contracts and completed construction for the West Warwick 12 MW/60 MWh NWA battery, now operational and participating in NYS's Value of Distributed Energy Resources ("VDER") value stack.
- Enabled Pomona to be the first utility-owned NWA battery to participate in the New York Independent System Operator ("NYISO") wholesale market.
- Supported development of Joint Utilities ("JU") Study of Non-Market Transmission and Distribution Energy Storage Use Cases and Related Process Proposals, to include a CECONY/O&R specific appendix.

Utility Capabilities In-Focus:

Dispatch– O&R is building the tools and operational processes needed to for device control and configuration to coordinate energy storage dispatch in alignment with system needs, for which UIS is well positioned. ISBM contributes to this capability by enabling dispatch of customer-sited batteries in response to grid needs, which is a third party interaction.

Market Participation – Enabling storage participation in wholesale markets by building telemetry, metering, and control capabilities for Federal Energy Regulatory Commission ("FERC") 2222 readiness.

The Company has advanced the integration of energy storage across the O&R service territory by combining direct utility initiatives with support for customer-driven deployments. As of May 31, 2025, the Company had 47.96 MW of installed storage capacity interconnected to its electric system, of which 3 MW is utility-owned assets. These installations reflect a mix of targeted, planned Company investments and organic market activity, each serving distinct use cases across the distribution network. Additional implementation details are provided in the subsections that follow.

Energy storage will play a critical role in the clean energy future. O&R continues to actively engage with DPS Staff and NYSERDA to support energy storage policy goals and incentive development. O&R utilizes different approaches to energy storage development: demonstration projects, UIS, non-wires alternatives ("NWAs"), and bulk solicitation—each supporting different use cases and contributing to broader NYS

[46] *Id*, Order Establishing Updated Energy Storage Goal and Deployment Policy (issued June 20, 2024) ("2024 Energy Storage Order").

policy objectives. These strategies are intended to test scalable business models, reduce long-term system costs, and enable greater participation of clean and flexible resources in grid planning and operations.

Demonstration Project – Innovative Storage Business Model

In 2021, O&R launched the Innovative Storage Business Model ("ISBM") demonstration project in partnership with Sunrun Inc. ("Sunrun") to demonstrate a virtual power plant ("VPP") where residential solar-plus-storage systems can be aggregated and dispatched to support grid operations and enhance customer resiliency. This initiative sets out to evaluate a scalable business model in which value is shared among stakeholders: customers benefit from backup power during outages; O&R receives demand reduction and operational flexibility; and Sunrun earns compensation for system dispatch and shared market participation. ISBM represents an example of a flexible resource consistent with the vision of a dynamic Grid of the Future; lessons learned from this demonstration may inform future statewide frameworks or operational applications for flexible distributed resources.

In September 2023, the Company expanded program eligibility to the entire O&R service territory because of market saturation in the original territory of Warwick, NY. The Total Addressable Market ("TAM") is comprised of all homes that would be able to host a solar plus storage system. After removing commercial properties, homes with unsuitable roofs, and homes that did not have enough solar potential, the total eligible homes dropped significantly. The average success rate for installation in New York and California is 2 to 3 percent of the target population, and at the time the territory was expanded, the success rate in the original Warwick, NY area was 3.8 percent. This demonstrated that to meet project goals, territory expansion was necessary. The ISBM project sought to focus on customers in Disadvantaged Communities ("DACs") and marketing materials were tailored accordingly. The materials include an updated letter, brochure, and a new doorhanger with frequently asked questions and contact information that Sunrun sales representatives could provide. The letter and brochure were mailed to 40,100 customers that reside in a single-family home in a DAC. A marketing email was also sent to 2,145 of these DAC customers with an email on file for their account. The Company wanted to advertise the ISBM program to customers that might otherwise not be targeted in direct-to-home marketing. In addition, the Company finalized a new website with an "ORU" address to lend credibility that O&R is a partner in this project (oru.com/Sunrun).

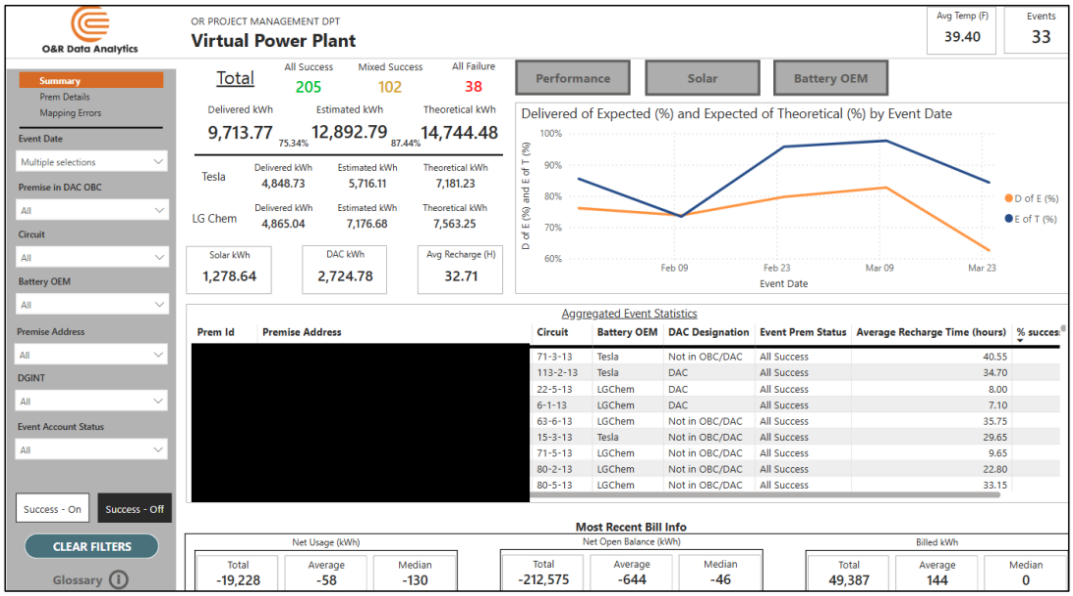
Prior to expanding the program's TAM, in June 2023, O&R and Sunrun had completed 104 installations toward the ISBM project's initial goal of 300 systems. Over the following 18 months, enrollment accelerated significantly, and O&R was granted permission by the Commission to surpass the project's initial 300 customer target in order to provide a better customer experience for those already in the project queue. As of May 31, 2025, the partners surpassed the project target and achieved full customer enrollment with 346 solar-plus-storage systems installed with PTO. 102 of the 346 customers are in a DAC. The aggregated systems represent approximately 1.5 MW/3 MWh of behind-the-meter ("BTM") battery capacity. The scale and coordination of this deployment established the ISBM project as the largest VPP utilizing BTM storage in NYS.

During the execution of the ISBM Project, O&R facilitated three battery fire safety training sessions with local fire departments in Rockland, Orange, and Sullivan County to address public safety readiness for any Lithium-ion ("Li-ion") Battery Energy Storage Systems ("BESS") in the service territory as part of a coordinated outreach strategy between the Company and Sunrun. Although Sunrun owns and maintains the solar-plus-storage systems, customer-facing materials were co-branded and aligned with O&R's customer experience standards. A dispatch agreement between O&R and Sunrun gives the Company the ability to control the fleet of aggregated batteries to support system needs—a first-of-its-kind contract structure for O&R that can now serve as a model for future Distributed Energy Resource ("DER")

contracting frameworks. Through this initiative, residential solar-plus-storage systems are aggregated and actively dispatched by O&R to provide grid services such as peak load reduction.

All systems enrolled in the ISBM project are optimized through Sunrun's Distributed Energy Resource Management System ("DERMS"), which enables dynamic dispatch based on grid and market conditions. As the ISBM project matures, the performance data and operational insights will inform future planning, rate design, and customer program strategy. At a broader level, the ISBM project directly supports NYS's clean energy goals, including 1,500 MW of storage by 2025 and 6,000 MW by 2030, while contributing to the CLCPA's mandate to build a more resilient, equitable, and decarbonized energy system. In summer 2024, O&R tested ISBM for peaking shaving 18 times to prepare for 2025 demonstration period. Sunrun will respond to signals produced by O&R's Commercial System Relief Program ("CSRP") in the same way as enrolled demand response resources.

Figure 16: ISBM Dashboard



O&R developed an internal VPP Analytics Dashboard to support the ongoing monitoring and evaluation of residential solar-plus-storage systems enrolled in the ISBM project. The dashboard integrates inverter telemetry and customer billing data, enabling the Company to filter and sort data accordingly for operational and administrative needs. This allows for detailed analysis of dispatch success, battery reserve behavior, and recharge times, as well as identification of inactive or underperforming systems. By visualizing performance across 15-minute intervals and aggregating data at the event level, the tool supports optimization of program operations and verification of customer value delivery. Figure 16 above shows a screenshot of the dashboard interface, which O&R uses to track system outcomes. Key updates, metrics, and insights are summarized in the quarterly ISBM reports that the Company files with the Commission. Figure 17 shows materials that O&R has used to market ISBM to potential participants.

Figure 17: Solar Plus Storage Customer Flyer and Door Hanger

UIS

UIS provides O&R with the ability to provide grid services such as peak shaving, load relief, and reliability support, flexibility, and may also participate in wholesale energy markets. By earning market revenue, UIS projects can reduce overall cost impacts to customers while helping to defer or avoid traditional infrastructure investments. Further, in response to the 2024 Storage Order, O&R (in conjunction with the JU) produced a Study of Non-Market Transmission and Distribution Energy Storage Use Cases and Related Process Proposals that identify additional potential benefits of these types of projects.[47] UIS is discussed further in the Future Implementation and Planning section below.

[47] Case 18-E-0130, *In the Matter of Energy Storage Deployment Program ("Energy Storage Proceeding")*, Joint Utilities' Study of Non-Market Transmission and Distribution Energy Storage Use Cases and Related Process Proposals (Filed October 29, 2024).

Pomona

The Pomona Battery is a 3 MW/12 MWh UIS system located on Company-owned property in the Village of Pomona. Energized in 2021, it has been a key contributor to system reliability and load relief. In 2023, the Pomona Battery began active participation in the NYISO wholesale market, becoming the first utility-integrated NWA battery to be dual-purposed for distribution and wholesale services in NYS. Participation in the wholesale market directly benefits customers, as earned revenues are returned to them. The system entered the energy market in summer 2023, followed by participation in ancillary services in winter 2024 and the capacity market in spring 2025. The achievement of these milestones demonstrates the viability of using storage to meet both grid and market needs and has informed O&R's ongoing work to refine dispatch strategies and monetization frameworks.

NWAs

O&R continues to advance the use of NWAs to address localized distribution system needs in a cost-effective and flexible manner. BESS has played a central role in NWA solutions, providing targeted peak load relief, improved system resilience, and enhanced operational control. Through the successful deployment and evaluation of several storage-based NWA projects, O&R has gained valuable insight into the technical, regulatory, and stakeholder considerations associated with integrating storage into core distribution operations.

West Warwick

The West Warwick NWA is a 12 MW / 57 MWh third party-owned storage system connected to circuits fed by the Wisner substation. In addition, energy efficiency measures, coordinated through the Company's Business Direct Install ("BDI") program, contribute 400 kW of customer-side load reduction. While this project experienced a fire event in 2023, O&R worked closely with the developer and local emergency services to implement updated safety protocols and retraining. This project is now fully operational and delivering both system benefits and market value. The system is structured so that O&R has shared dispatch rights and shares in the retail market revenue generated by this project. Revenue generated by this project help to offset the project costs to directly benefit O&R customers and put downward pressure on bills.

Sparkill

The Company pursued the Sparkill NWA as a 2 MW / 12 MWh battery storage project. Over the course of three RFPs, O&R explored multiple vendor proposals and refined the project scope to address siting, permitting, and interconnection challenges with developers and local authorities having jurisdiction ("AHJs"). The Sparkill NWA project, however, did not ultimately meet the conditions necessary to proceed. The process did offer valuable insights into siting considerations, permitting coordination, and market engagement, which continue to inform the Company's approach to future NWA planning and solicitations.

Monsey

The Company pursued the Monsey NWA as a battery storage solution to provide load relief at the Company's Monsey substation; the Company initially scoped this NWA to include two 5 MW batteries.. Following a competitive solicitation process, the Company selected a vendor and obtained planning board approval in early 2023. Despite early progress, this project faced local zoning challenges and community opposition that significantly delayed the permitting timeline. Given the uncertainty involving site approvals and the need to meet critical system timelines, O&R reevaluated the project and determined that a traditional infrastructure solution—including the construction of two new circuits and upgrades to

the Monsey substation—would provide greater reliability and certainty. Although the Monsey NWA did not proceed to implementation, it did offer valuable lessons related to hybrid planning models, community engagement, and the importance of aligning system needs with permitting feasibility. These insights continue to inform O&R's approach to DER deployment and beneficial location targeting.

Forest Avenue

The Company's Forest Avenue Substation project originally included a co-located energy storage system designed to provide peak shaving and enhance resiliency. As the project progressed through design iterations, the Company removed the storage component from the project. While the Company chose not to pursue the storage component of the project, the planning and site evaluation work completed for the Forest Avenue Substation project continues to inform O&R's approach to identifying strategic locations for future utility-integrated storage deployments.

Hybrid Solutions

In addition to pursuing standalone NWAs, O&R has identified opportunities to deploy energy storage and other DERs through hybrid solutions that combine traditional infrastructure with DERs. In cases where an NWA alone does not meet the Suitability Criteria or fails the Benefit-Cost Analysis ("BCA"), O&R may explore pairing a smaller-scale NWA with a more cost-effective traditional upgrade.[48] This hybrid approach can offer a viable pathway for projects that would otherwise be unachievable, while still capturing the operational and customer benefits of distributed technologies. A discussion of this hybrid-NWA strategy is included in the Integrated Planning section of this DSIP.

O&R continues to explore additional NWA opportunities. The Company's experience across these projects has informed internal process improvements related to siting, permitting, stakeholder outreach, and contract structuring. For additional detail on how the Company identifies and prioritizes NWAs through the planning process, please refer to the Beneficial Locations for DERs and NWAs section.

Bulk Solicitation

Under the Storage Order,[49] the Commission required O&R to procure a minimum of 10 MW of bulk-level energy storage through a competitive solicitation, with an initial in-service deadline of December 31, 2022. In coordination with CECONY, O&R issued a joint request for proposals ("RFP") in 2019, but none of the proposals submitted cleared the economic viability thresholds. The Commission subsequently approved modifications to the Storage Order in response to a JU petition, extending the deadline to 2025 and permitting 10-year contract terms. O&R issued a second solicitation under the revised terms in 2021, but it again yielded no awards. Following continued market constraints, the Commission approved additional JU-requested changes in March 2023, further extending the in-service deadline to 2028 and increasing the maximum allowable contract term to 15 years. In anticipation of this approval, O&R released a third solicitation in December 2022, incorporating the proposed extensions to attract viable projects. Following a competitive evaluation process, O&R selected a 10 MW utility dispatch rights storage project—Deer Park.

---

[48] Case 14-M-0101, *Joint Utilities' Supplemental Information on the Non-Wires Alternatives Identification and Sourcing Process and Notification Practices* (Filed May 8, 2017).

[49] Case 18-E-0130, *In the Matter of Energy Storage Deployment Program* ("Storage Proceeding"), *Order Establishing Energy Storage Goal and Deployment Policy* (issued December 13, 2018) ("Storage Order").

Energy Storage Processes and Procedures

Siting

Under requirements established by the Storage Order, utilities must assess available utility-owned land and incorporate its value into NWA proposals. For O&R, this approach proved effective in the development of the Pomona BESS, which was constructed on Company-owned property adjacent to an existing substation. Siting on utility-owned land allowed the Company to streamline permitting, reduce development risk, and accelerate project execution by retaining full control over site-specific decisions.

Separately, O&R's broader experience with energy storage siting has underscored the complexities of locating systems in densely populated or residential areas. These projects often require extensive coordination with municipal permitting boards, landowners, and third-party vendors. One recurring risk is the uncertainty associated with relying on privately controlled sites; if a selected parcel becomes unavailable mid-process, project timelines can be significantly extended or jeopardized.

Permitting

O&R's experience has shown that early engagement with municipal stakeholders is an effective strategy for reducing permitting timelines for energy storage projects. Many local building codes lack specific provisions for BESS, requiring proactive collaboration to develop or revise local ordinances that enable storage deployment. The Company continues to support municipalities in this process by offering technical guidance and policy insights to facilitate the safe and effective integration of BESS within their jurisdictions.

As energy storage development accelerates, this coordination will become increasingly important to accommodate forecasted growth in DERs. O&R acts as a resource to municipalities by addressing technical concerns, clarifying system capabilities, and helping local officials evaluate the benefits of both current and emerging storage technologies. This outreach supports informed decision-making and builds the foundation for more efficient project approvals in future cycles.

Contracting

O&R has used its recent experience in developing energy storage contracts to establish a structured and adaptable framework for future deployments. Recognizing that energy storage presents distinct operational characteristics and business model uncertainties compared to traditional assets, the Company developed a new legal framework tailored to storage-specific applications. This effort included close coordination with internal operational teams to define target use cases and translate those into contract terms addressing performance guarantees, liquidated damages, warranty provisions, and insurance requirements.

The Company also integrated feedback from bulk storage RFP respondents, which provided insight into developer perspectives on term lengths, operational testing protocols, and the allocation of wholesale market revenues. This feedback informed the design of agreements that enable energy storage to serve electric distribution needs while distributing residual value and project risk appropriately between O&R and third-party developers. This framework was first implemented in the BESS Agreement for the West Warwick NWA and will serve as the Company's template for future storage projects involving third-party ownership.

Education and Outreach

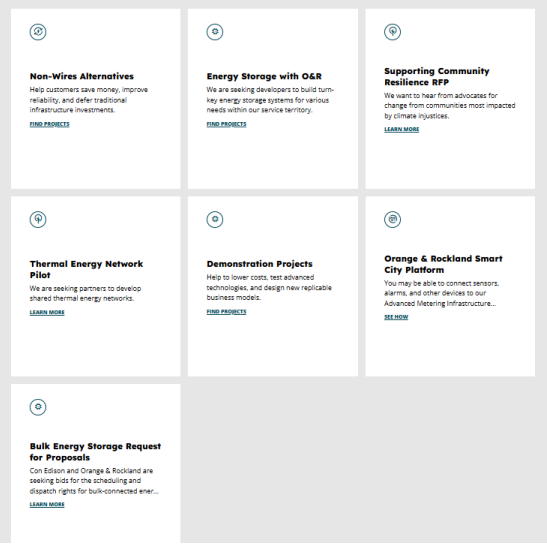
O&R recognizes that early and proactive engagement with AHJs is critical to the successful siting and permitting of a BESS. In developing storage projects, the Company has consistently worked with municipal

officials to explain the role of batteries in deferring costly infrastructure upgrades, such as new substations, and to highlight the grid reliability and community resiliency benefits that storage provides. This outreach helps build trust, clarify project intent, and streamline local approval processes.

In connection with the ISBM project, O&R and Sunrun conducted targeted outreach, including the development of co-branded marketing materials, a dedicated landing page and hotline, and direct-to-home engagement. In 2022, O&R also held community education sessions with organizations such as Sustainable Warwick and the Warwick Chamber of Commerce. The Company received positive feedback from these sessions, which were followed by successful permitting results. Additional community engagement included participation in local events such as Earth Day at the Warwick Library in 2023.

To promote public and employee safety, O&R has prioritized coordination with first responders. The Company hosted battery fire safety training sessions for fire departments in Orange, Rockland, and Sullivan Counties, led by a former fire chief and subject matter expert. These sessions were well received and helped establish strong working relationships with local emergency personnel. O&R plans to continue offering similar training as new projects are developed. The Company continues to align with the State's evolving fire safety standards for energy storage, including the Inter-Agency Fire Safety Working Group's final Fire Code Recommendations Report, which outlines updated code language and inspection protocols designed to enhance safety, inform permitting, and improve coordination with first responders statewide.[50] The Company also maintains an energy storage resource hub on its website, which provides customers with a general overview of BESS technology, FAQs, project updates, and links to third-party resources (see Figure 18 below). This webpage also offers information on current and future business opportunities for developers and service providers.

Figure 18: O&R Energy Storage Webpage



The Company's online marketplace, My ORU Store, presents an online tool that helps customers compare offers from leading solar and energy storage companies. Customers can receive multiple battery and battery plus solar quotes in one place, instead of negotiating with individual installers. This online tool

[50] New York's Interagency Fire Safety Working Group website: https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group.

allows customers to compare and select offers, enabling them to find the price and solution to meet their individual energy needs.

Internal Processes and Procedures

O&R has identified energy storage as a complementary asset that can be deployed in conjunction with traditional infrastructure to address localized capacity needs, enhance system resiliency, and advance NYS policy objectives. Depending on ownership and use case, storage systems may be dispatched either directly by O&R—particularly for UIS deployments—or by third-party developers operating under contractual control protocols. In all cases, O&R retains defined roles in coordinating system operations so that storage activity supports grid reliability and aligns with real-time system conditions. To support consistent and safe operation, the Company has implemented a two-phase dispatch framework, supported by internal procedures, operational protocols, and trained personnel dedicated to managing storage dispatch across its distribution network.

Phase 1

At present, dispatch protocols are established during project development and formalized through Energy Storage Service Agreements ("ESSAs") and interconnection agreements. These documents define operational roles and specify the terms of dispatch, with the level of utility control varying based on the project model. For third-party-owned projects, the Company secures dispatch rights contractually; for UIS projects, O&R maintains full control and visibility from the outset. The Company currently operates under Phase 1 protocols for several assets, including the Pomona Battery, which is directly dispatched by O&R, and the West Warwick project, which operates under coordinated scheduling following its return to service in January 2025. Phase 1 relies on manual coordination—such as emails or phone calls among the utility, aggregators, customers, and the NYISO—to schedule asset operations.

Phase 2

O&R is actively advancing toward Phase 2, which will enable a more automated and dynamic process using Advanced Distribution Management System ("ADMS") and DERMS platforms. These tools will provide O&R with real-time monitoring and control of both UIS and third-party DER assets, streamlining dispatch operations while supporting both system reliability and broader economic use cases. Phase 2 will also enhance O&R's ability to leverage storage for customer benefit even outside of direct utility need—for example, by enabling VDER market participation for eligible projects.

Regardless of dispatch phase, the Company applies a structured operational planning cycle each year, focused on summer readiness. This process includes:

1. Reviewing summer peak forecasts and installed energy storage capacity;
2. Identifying system needs and broader organizational goals (*e.g.*, earnings adjustment mechanism ("EAM") performance targets);
3. Testing assets to verify performance capability; and
4. Developing and communicating seasonal dispatch schedules to developers.

During the summer period, O&R continuously monitors system conditions and may adjust schedules or restrict operations as needed to maintain system reliability. In Phase 1, the Control Center maintains monitoring capabilities for all O&R-managed assets. In Phase 2, this will expand to include full control capabilities, enhancing operational flexibility and responsiveness.

As more use cases emerge across seasons, including potential winter peak impacts driven by electrification, O&R will reassess its summer-centric operational model to determine whether a year-round framework is appropriate. The Company continues to invest in tools and capabilities so that all managed energy storage assets—whether UIS or third-party owned—can be safely, efficiently, and reliably integrated into system operations.

Future Implementation and Planning

Summary of Future Actions

- Evaluate the 2024 bulk energy storage RFP results and award projects, as appropriate.
- Coordinate with DPS Staff and NYSERDA on future bulk solicitations.
- Complete contract execution and advance permitting and interconnection activities for the Deer Park 10 MW Utility Dispatch Rights ("UDR") storage project.
- Finalize design and initiate procurement for the Pomona BESS expansion to increase storage duration from 12 MWh to 18 MWh within the existing site footprint.
- Advance the deployment of additional UIS projects at substations and targeted locations identified through integrated planning. Continue development of NWA opportunities where viable, applying lessons learned from West Warwick and Sparkill to support cost-effective distribution relief.
- Coordinate with NYSERDA, DPS Staff, and JU partners on the development of DER aggregation protocols and wholesale storage participation under FERC Order 2222.
- Enhance modeling tools and forecasting platforms to improve assessment of storage value across multiple use cases, including hosting capacity, reliability, and load relief.
- Maintain engagement with local officials, emergency responders, and permitting authorities to support storage siting, safety training, and streamlined project approval.

O&R expects energy storage to continue playing a significant role in reshaping the energy landscape. In recent years, the Company has operationalized energy storage projects on its system, developed a demonstration project, established a contract template for NWAs, conducted fire safety training, developed a strong outreach and education program, and advanced its internal processes and procedures to operationalize battery storage. These foundational efforts—combined with lessons learned from early projects—position the Company to scale storage capabilities in a deliberate and cost-effective manner. O&R estimates that another 2 MW of energy storage will be interconnected to the electric distribution system by the end of 2025, and an additional 52 MW by 2030. These projects will improve system resilience, increase flexibility, and play a role in the State's target of installing 6,000 MW of energy storage by 2030.

Pomona Expansion

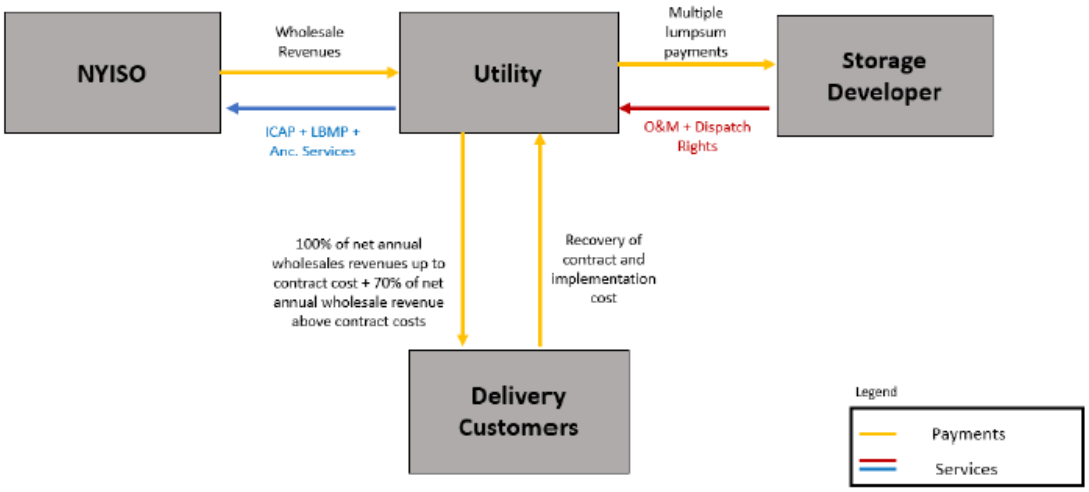
O&R is planning to expand the Pomona BESS, which as mentioned earlier, has provided critical peak shaving capability, supported local reliability, and deferred the need for construction of a new substation. It has also begun participating in the NYISO day-ahead and hour-ahead energy, spinning reserve, and capacity wholesale markets, demonstrating the dual value of storage across distribution and bulk system applications. When the original system was constructed, additional space was reserved within the site footprint to accommodate future augmentation. O&R plans to pursue expansion of the system to a total energy duration of 18 MWh. Advances in battery technology since the system's original deployment have made it feasible to increase storage duration using more compact equipment, without requiring additional land. The expanded system will enable longer-duration dispatch during peak periods and extended

participation in wholesale energy markets, further maximizing operational and economic value. The Pomona BESS expansion aligns with the Company's broader UIS strategy and will provide a replicable model for future substation-adjacent deployments that support grid reliability, flexibility, and cost-effective infrastructure deferral.

Bulk Solicitation

In Q4 2024, O&R and CECONY issued a joint energy storage RFP, building on the structure of the 2022 solicitation. This RFP seeks commercially available technologies with a minimum project size of 5 MW, while also allowing portfolios of smaller projects totaling at least 5 MW. Contracts of up to 15 years are available to support long-term deployment. Eligible projects must demonstrate progress in the interconnection process: distribution-connected projects must have entered the Standardized Interconnection Requirements ("SIR")[51] or Utility System Interconnection Study ("USIS") prior to Phase 1 bidding, and transmission-connected projects are required to obtain Capacity Resource Interconnection Service ("CRIS") rights through the NYISO Class Year or Cluster Study process. The solicitation also prioritizes N-1 contingency-aligned interconnection designs to promote system reliability in the targeted areas. All selected projects are required to meet the Company's defined procurement cost ceiling, which reflects an estimate of the project's value based on projected wholesale market revenues and/or distribution system benefits, net of charging costs, over the life of the contract. These portfolios of energy storage projects can consist of no more than ten projects located in the same NYISO zone within the utility's service territory so long as the total size of each project is at least 2 MW and the projects' collective capacity is at least 5 MW.[52] A high-level overview of the potential commercial arrangement with these ESS is shown in Figure 19 below:[53]

Figure 19: Bulk ESS Commercial Arrangement



[51] NYS Standardized Interconnection Requirements ("SIR") website: https://dps.ny.gov/distributed-generation-information

[52] *Id*, Revised Implementation Plan of Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. for a Competitive Direct Procurement of Scheduling Rights from Qualified Energy Storage Systems (Filed December 13, 2024).

[53] Ibid, p. 17.

Deer Park

In anticipation of Commission approval of the 2023 JU petition to extend bulk energy storage timelines and contract terms, O&R issued a third bulk storage solicitation in December 2022, incorporating the proposed extensions to improve project viability.[54] Following a competitive evaluation process, the Company selected a 10 MW UDR storage project—Deer Park—as the winning proposal. As of 2025, the project is under active development, with interconnection studies underway and contract negotiations in progress. Once in service, Deer Park will provide dispatchable capacity under the UDR framework and will represent O&R's first bulk-level storage procurement awarded through the formal energy storage RFP process.

Long Duration Energy Storage

O&R is supporting a long duration energy storage ("LDES") demonstration project in the northwest portion of its service territory through NYSERDA's PON 5779, with additional support provided by the U.S. Department of Energy's Energy Storage Demonstration and Validation program (DE-FOA-0003036). The project, which involves the deployment of a 100 kW / 10-hour (1 MWh) LDES system by a third-party developer on Company-owned land, is funded by external grants and does not require any ratepayer investment. LDES is defined by the DOE as storage capable of discharging for ten hours or more—offering value beyond conventional 2- to 4-hour systems by supporting extended outages, grid balancing across longer timeframes, and integration of variable renewable resources. This use case demonstrates how LDES can provide backup power to site-specific loads, offset operational energy costs, and contribute to local peak shaving. Unlike typical lithium-ion systems, the technology selected for this project uses a non-flammable aqueous medium, minimizing fire risk and siting constraints.

Incorporating LDES at scale may require enhancements to planning tools, dispatch protocols, and DERMS integration to fully capture the operational flexibility and multi-day value these resources can offer. This demonstration reflects O&R's broader efforts to evaluate emerging technologies that may support resiliency, environmental performance, and cost-effective grid support in targeted applications.

Utility Integrated Storage ("UIS")

UIS offers an essential solution to address pressing and emerging grid challenges—particularly in locations where speed, control, and certainty are paramount. UIS presents an opportunity to deliver targeted, reliable solutions that complement traditional infrastructure and existing customer programs. In specific cases where third-party or market-based solutions may face timing, siting, or coordination barriers, UIS allows the Company to move forward with projects that are directly aligned with planning objectives and operational timelines to bring resources online that support providing continued reliability to customers.

The flexibility to site storage assets on utility-owned property—such as substations or adjacent parcels—has proven especially important in addressing needs where private development interest is limited or where permitting timelines may otherwise delay system upgrades. In addition, retaining full operational control of these assets enables greater coordination across the distribution system particularly in response to real-time grid conditions or during system contingencies.

The long-term value of UIS also lies in its ability to serve multiple purposes over time. Projects may initially be deployed for load relief but can later be repurposed to support hosting capacity expansion, flexible interconnection, or local resiliency. This adaptability enhances the utility's ability to plan holistically and

[54] Case 18-E-0130, *In the Matter of Energy Storage Deployment Program, Order Directing Further Modifications to Energy Storage Solicitations*, issued March 16, 2023.

respond to future system conditions without needing to rely solely on new infrastructure investments. Because UIS assets are fully integrated into utility planning and operations, they provide high confidence in performance, response time, and coordination—particularly under system contingencies or in locations with complex operational needs. As non-market assets, UIS applications can help use flexible capacity to help de-load equipment, gain efficiencies through optimization and coordination of utility resources, and balance needs to maximize benefits to customers and the local grid. This allows them to be assessed on equal footing, while offering enhanced flexibility, reduced capital risk, and the potential for avoided transmission or distribution upgrades. In certain cases, UIS may offer an affordable and timely path to meet system needs, particularly in areas where market solutions face development barriers. This holistic, cost-managed approach aligns with broader objectives to maximize clean energy benefits and support affordability for all customers. The Company has identified the following transmission (T) and distribution (D) applications for UIS in Table 7 below:

Table 7: UIS Applications for Downstate

Application for Utility Integrated Storage	Level
Bridge-to-Wires	D
Flexible Transmission Capacity	T
Flexible Distribution Capacity	D
Resiliency and Near-Term Reliability	D
DER Integration and Hosting Capacity	D
Integrated Large Renewable Enablement	T
Peak Shaving	T&D
Grid Optimization	D
Renewables Balancing	T
Flexible Power Transfer	D
Reactive Power Control (Voltage Control)	T&D
Flexible Shunt Reactor (Inductor)	T&D
Clean Energy Access Point (Co-Location of EV Charging/DER)	D

In addition to addressing numerous grid needs, O&R believes that a narrow, use case-based UIS deployment will bolster the storage industry and support stakeholders over the next five years and beyond by:

1. Helping to drive down costs and reduce deployment barriers;
2. Increasing hosting capacity for third-party market storage;
3. Increasing supply chain capabilities;
4. Creating more knowledge and expertise that is shared publicly; and
5. Importantly, creating more opportunities for developers and investors to support UIS initiatives through participation in solicitations by the Company for design and construction of UIS applications.[55]

[55] Storage Proceeding, Joint Utilities' Reply Comments to Initial Comments on The Joint Utilities' Study of Non-Market Transmission and Distribution Energy Storage Use Cases and Related Process Proposals (Filed April 10, 2025).

Additional Areas for Exploration

O&R continues to evaluate innovative types of energy storage technology that can help reduce operational costs and support grid reliability and resiliency. These potential solutions go beyond traditional battery deployments and reflect the Company's continued focus on flexibility, siting adaptability, and alignment with emerging system needs.

- **Microgrids.**[56] These localized systems can operate independently from the larger grid, enhancing resiliency in outage-prone areas. Large batteries within microgrids can reinforce the system and support critical loads when isolated from the main grid.
- **Combination Storage and EV Charging.** Co-locating batteries with EV charging infrastructure may enable peak shaving and postpone or avoid costly system upgrades, especially in constrained areas experiencing transportation electrification growth.
- **Mobile Storage.** Deployable batteries offer situational flexibility—such as integration with EVs or temporary backup for specific areas. O&R is pursuing a pilot to test this use case and its system value under NYSERDA PON 5896.[57]
- **Vehicle-to-Grid**. Vehicle-to-grid is still relatively nascent. The use case is for energy stored in EV batteries to be discharged back into the home or grid, enabling customer-side resiliency and potential demand-side management applications.
- **Bring Your Own Battery ("BYOB")**. A residential demand response program allowing for the inclusion of energy storage within the Direct Load Control program. This program is expected to begin in 2025.

Looking ahead, O&R will continue to actively pursue competitive state and federal funding opportunities to support the deployment of emerging energy storage technologies. By leveraging external funding sources, the Company aims to reduce reliance on ratepayer capital, mitigate financial risk, and place sustained downward pressure on customer bills while advancing grid modernization objectives.

Education and Outreach

As expressed in the Current Progress section above, continued education and outreach, and proactive communication with AHJs regarding new and ongoing projects are critical to the adoption of energy storage and NWA projects, and overall achievement of the CLCPA's energy storage goals. O&R continues to assist local stakeholders in developing model laws and building codes addressing energy storage, and siting energy storage projects in locations that meet diverse stakeholder criteria. For additional information regarding the Company's outreach and education in support of NWAs and demonstration projects, please see the Beneficial Locations for DERs and NWAs section of this DSIP.

Internal Processes and Procedures

O&R continues to build on prior experience to align future project planning with operational insights and incorporate refinements to procedures that govern integration, oversight, and performance tracking. As

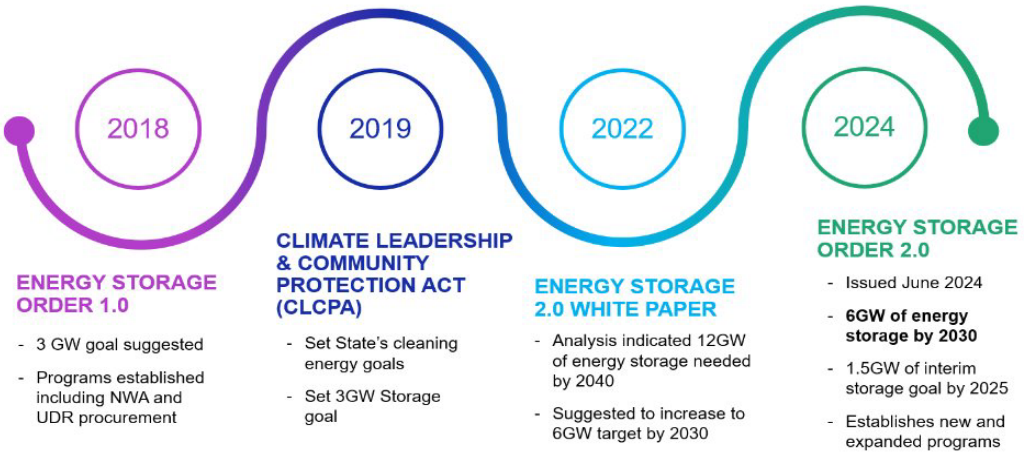
[56] US Department of Energy Grid Systems website: https://www.energy.gov/oe/role-microgrids-helping-advance-nations-energy-system.
[57] NYSERDAPON 5896: Grid Resilience State and Tribal Formula Grant Implementation Funding.

part of this progression, the Company is preparing to operationalize DERMS platforms to enable coordinated dispatch across energy storage and other DERs.

Regulatory Drivers

From a regulatory perspective, policy has been instrumental in establishing the conditions under which energy storage systems can access wholesale market value streams. FERC Order 841[58] initiated this shift by requiring regional transmission organizations and independent system operators to revise tariffs to accommodate energy storage participation across energy, capacity, and ancillary services—regardless of interconnection level or technology. FERC Order 2222 expanded this framework by enabling distributed energy resources to participate through aggregations,[59] removing minimum-size thresholds, and broadening eligibility. O&R is actively coordinating across internal teams and external partners to prepare systems and protocols that support aggregated DER participation and align with statewide efforts to operationalize flexible market resources. This evolving framework will enhance the ability of distributed storage to participate in wholesale markets, supporting DERs by creating new revenue opportunities for third-party developers, aggregators, and customers seeking to provide flexible grid services. The NYS Energy Storage Roadmap is illustrated in Figure 20 below.[60]

Figure 20: NYS Energy Storage Roadmap



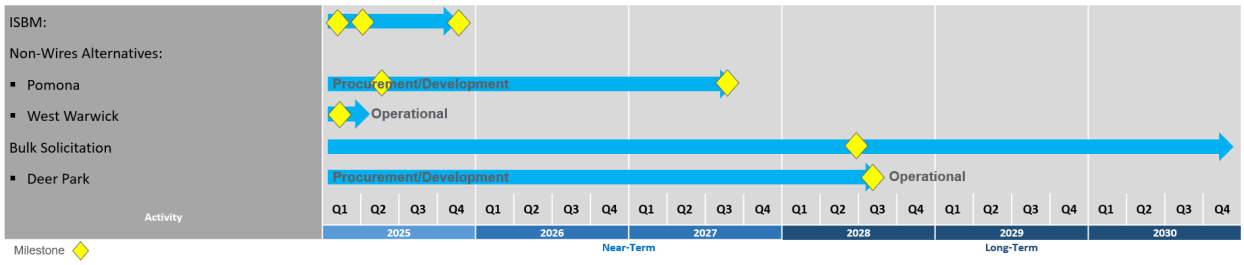
Dual participation—where storage systems can provide both wholesale and distribution services—is a key enabler of economic value. While dual compensation is not permitted, participation in multiple use cases allows excess stored energy to generate wholesale market revenues, helping offset costs for customers. O&R's approved Wholesale Value Stack tariff, effective July 1, 2023, and the planned Wholesale Distribution Services tariff provide pathways for distributed BESS to engage in the market while supporting system reliability. These mechanisms are particularly relevant for NWA projects and highlight the importance of policy alignment in unlocking the full potential of distributed storage. NYS's energy storage policy framework has seen significant acceleration over the past two years, with the culmination of

[58] FERC, Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators (RM16-23-000; AD16-20-000; Order No. 841) (issued February 15, 2018).
[59] FERC, Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators (RM18-9-000; Order No. 2222) (issued September 17, 2020).
[60] Case 18-E-0130, *In the Matter of Energy Storage Deployment Program*, Order Approving Modifications to the Energy Storage Goal and Deployment Policies (issued June 20, 2024).

ongoing efforts reflected in the issuance of the Energy Storage Order 2.0 in June 2024. This Order officially established a statewide target of 6 GW of energy storage by 2030, up from the original 3 GW target set in 2018, with an interim target of 1.5 GW by 2025. The 2024 Order builds on this foundation and introduces new and expanded programs to support both front-of-the-meter and behind-the-meter deployment.

Integrated Implementation Timeline

Figure 21: Five-Year Plan for Energy Storage Integration



Risks and Mitigation

Table 8 below summarizes the risks that could affect the timely implementation of the future actions described above as well as the measures the Company has or will take to mitigate these risks.

Table 8: Energy Storage Integration Risks and Mitigations

Risks	Mitigations
Extended permitting timelines due to evolving local codes and limited AHJ familiarity with BESS	Proactive engagement with AHJs early in project development; provide technical guidance on battery chemistries, siting, and fire safety
Thermal runaway and fire safety risks associated with lithium-ion battery systems	Collaborate with fire departments to support emergency response training; require Emergency Response Plans ("ERP"), safety systems, and HVAC; continuously update safety procedures; Follow Inter-Agency Fire Safety Working Group recommendations for storage systems
Supply chain delays impacting delivery schedules and project deployment	Maintain contractual flexibility with vendors; conduct early procurement coordination to manage lead times and adapt to supply chain constraints
Price volatility in critical commodities and other battery materials affecting cost predictability	Incorporate indexed pricing terms carefully; track IRA Section 45X incentives to offset commodity volatility; assess vendor pricing strategies to limit cost pass-through
Data exchange and coordination challenges under FERC 2222 DER aggregation framework	Develop automated telemetry, metering, and data exchange protocols; align with NYISO and aggregator interfaces through joint stakeholder coordination
Market-related risks for utility-owned storage participating in NYISO markets (e.g., dispatch, performance, price volatility)	Advance internal NYISO market readiness through tariff updates and operations planning; monitor bidding strategies and supports compliance with dispatch and performance rules

Risks	Mitigations
Dependence on third-party manufacturers and software providers introduces operational risk if a vendor is unable to deliver key support services.	Maintain vendor engagement; Consider utility-managed control platforms and interface protocols to reduce operational reliance on third parties

Stakeholder Interface

O&R engages a wide range of stakeholders to inform the development and implementation of its energy storage strategy. Each stakeholder group plays a distinct role in shaping deployment priorities, identifying barriers, and advancing mutually beneficial solutions. The Company uses targeted outreach and structured forums to identify stakeholder goals early in the planning process and continues engagement through iterative feedback cycles to refine program design, siting approaches, and operational protocols over time. This includes work with the JU in ITWG efforts to propose and draft new SIR technical requirements for energy storage to create a consistent and effective process for the interconnection of energy storage devices. To promote the effective use of information and tools while avoiding unintended issues, O&R conducts reviews and uses stakeholder feedback to refine systems and processes. These updates help maintain clarity and alignment with program objectives across internal and external audiences.

Local Governments and First Responders:

To support safe and timely deployment of storage systems, O&R has expanded outreach to local municipalities and emergency responders across its service territory. These stakeholders are engaged early during project siting and permitting to review battery chemistries, zoning considerations, and emergency response planning. Needs identified through this engagement—such as fire safety training, signage, and emergency coordination protocols—are addressed through technical briefings, co-developed ERPs, and regular coordination throughout the development cycle.

External Regulatory and Market Stakeholders:

O&R regularly coordinates with NYISO, DPS Staff, NYSERDA, and the JU to align its storage strategy with evolving wholesale market frameworks, FERC Order 2222 implementation, and State policy goals. These interactions occur through formal stakeholder proceedings, working groups, and joint planning efforts. To support long-term integration, the Company tracks NYISO rule changes, participates in DER and aggregation planning forums, and evaluates how wholesale market participation can reduce customer costs and enhance system value. Internal modeling and project design criteria are updated as these frameworks evolve.

Vendors and Technology Providers:

To assess technology readiness and project viability, O&R holds recurring meetings with energy storage vendors and integrators. These discussions are used to identify emerging technologies, market trends, and contracting structures that meet both grid needs and developer expectations. Vendor feedback from RFP processes and bilateral outreach informs contract design, system specifications, and the development of future solicitations.

Customers and Communities:

Education and transparency remain key components of O&R's stakeholder engagement approach. The Company maintains dedicated online resources, including its energy storage webpage and the Solar Plus Storage Marketplace, to inform customers about available programs, technology options, and grid benefits. Through direct outreach, the Company also works with property owners and community groups to build understanding of energy storage siting, safety, and environmental impact.

Industry Stakeholders

O&R participates in industry-wide technical forums like the NY-BEST Annual Conference and DistribuTECH conference to stay current on evolving standards and to share lessons learned. Through these stakeholder channels, the Company continues to refine its strategy and align implementation timelines with stakeholder needs, internal capability development, and market readiness.

Additional Detail

This section contains responses to the additional detail items specific to Energy Storage Integration.

1. **Provide the locations, types, capacities (power and energy), configurations (i.e., standalone or co-located with load and/or generation), and functions of existing energy storage resources in the distribution system.**

O&R has 912 BESS installed on its system with total capacity of 47.96 MW. 7 are stand-alone batteries, 2 are NWAs, and 905 are hybrid storage systems. Of the 912 installations, 899 are associated with residential customers. 849 of the batteries are lithium-ion, and the remainder use PB-acid, vanadium flow or other technology. Further details are included in O&R's monthly SIR reports filed with the Commission in the Matter of SIR Inventory, Matter 13-00205.

2. **Describe the utility's current efforts to plan, implement, and operate beneficial energy storage applications. Information provided should include:**

   a. **A detailed description of each project, existing and planned, with an explanation of how the project fits into the utility's long range energy storage plans**

Descriptions of projects underway that involve implementing and operating energy storage are included throughout this section. For project-specific information for NWAs, please see the Beneficial Locations for DERs and NWAs section of this DSIP. For a description of O&R's operational plans, please see the Internal Processes and Procedures section above.

   b. **The original project schedule**

Table 9 below outlines a high level view of timelines for current energy storage projects.

Table 9: High-Level Timelines for Energy Storage Projects

Project	Schedule	Status	Next Steps
ISBM Demonstration Project	Full aggregation testing in 2025; wholesale market participation by Q4 2025	346 systems deployed (1.5 MW / 3 MWh); testing with CSRP dispatch	Continue system testing and performance validation; prepare for NYISO aggregation onboarding
Pomona BESS Expansion	Expansion build in 2026; registered in ancillary/capacity markets by 2027	3 MW / 12 MWh in service since 2020; expansion to 18 MWh approved; NYISO market participation underway	Begin augmentation build; complete NYISO registration for additional services
Deer Park UDR Storage	Target in-service 2028	Selected through 2022 bulk RFP; interconnection studies and contracting in progress	Finalize ESSA and interconnection design; construction expected 2025–2026

c. The current project status

See the Company's response to Question 2b above.

d. Lessons learned to-date

Through recent project development experience, O&R has identified several key lessons that will inform future energy storage planning, siting, and engagement efforts. A recurring theme has been the value of initiating community outreach early in the NWA and storage project development cycle. Educating stakeholders on the system need, siting rationale, and expected benefits—while also clearly presenting the alternatives considered—has proven essential to building local support and streamlining permitting.

Municipal coordination has also emerged as a critical factor in project viability. Working with local governments to revise or interpret building codes and zoning ordinances has helped facilitate siting and reduce uncertainty during the permitting process. In parallel, O&R has intensified early-stage coordination with local fire departments to facilitate understanding of safety protocols, site layouts, and response procedures prior to deployment.

While these practices have been integrated into the Company's project development process, O&R anticipates that education and outreach will continue to grow in importance as storage deployments scale. Ongoing engagement with communities, municipal officials, and emergency responders will remain central to enabling the safe, timely, and cost-effective integration of energy storage across the service territory.

e. Project adjustments and improvement opportunities identified to-date

As noted above, siting and permitting is a significant risk to deploying energy storage, especially for NWA projects located in developing areas where land availability is limited. To address these risks, the Company requires bidders to obtain site control prior to submitting an energy storage project proposal. In addition, the Company has encouraged developers to site projects in locations with zoning compatible with the use in order to expedite the permitting process.

f. Next steps with clear timelines and deliverables

Please see the Company's response to Question 2b above.

3. Provide a five-year forecast of energy storage assets deployed and operated by third parties. Where possible, include the likely locations, types, capacities, configurations, and functions of those assets.

A detailed discussion is provided in the Current Progress and Future Implementation sections above. Please see the Integrated Implementation Timeline above for a five-year forecast of energy storage projects. Please see Appendix A for O&R's system-level forecast, which includes a five-year outlook for energy storage.

4. Identify, describe, and prioritize the current and future opportunities for beneficial use of energy storage located in the distribution system. Uses considered should encompass functions which benefit utility customers, the distribution system, and/or the bulk power system. Each opportunity identified should be characterized by:

a. location;

b. energy storage capacity (power and energy);

c. function(s) performed;

d. period(s) of time when the function(s) would be performed; and

e. the nature and estimated economic value of each benefit derived from the energy storage resource.

The Company continues to explore new opportunities for energy storage as the technology and market evolves.

Table 10 below summarizes potential beneficial uses of energy storage.

Table 10: Summary of Potential Beneficial Use of Energy Storage on the Distribution System

Potential Application	Functions	Location	Storage Capacity and Energy Provided	When Functions Will Be Performed	Value Provided
Distribution Deferral/NWAs	Defer investment in traditional infrastructure upgrades	Optimally located on the system in order to best meet needs	Dependent on the size/shape of the forecasted load in excess of limits	Coincident with circuit and/or system peaks to be reserved and be available for system need	Time value of the deferred traditional solution over the deferral period. Secondary benefits include reduction of losses and also revenues from participating in wholesale marketplace
Demand Charge Management	Reduce customers' peak demand over a given period by deploying energy storage BTM at times of low usage and using that energy at times of higher use	Demand charge management storage assets are located BTM, typically of large C&I customers	Dependent on customer type, size, load characteristics and desired load (bill) reduction	High demand charge periods relative to the customer's usage often correlated to times of high system demand	Primary value is the reduction in charges for demand-billed customers. Secondary benefits include system benefits provided through the reduction of load at peak times and participating in wholesale DR programs
Wholesale market participation	To provide energy, capacity and ancillary services such as frequency regulation in organized wholesale markets	Locations driven by interconnection requirements and proximity to transmission nodes/substations. For assets performing multiple applications, location may be driven by primary application	Current market rules limit participation to systems >1 MW. Proposed rules for NYISO market allow for >100 kW. After 2026 no minimum capacity for aggregated resources	Dependent on market conditions	Economic value determined by market pricing/conditions. Provide additional distribution system benefits as the power travels through the distribution system into the transmission system
Backup Power Resiliency PQ	To provide backup power during unexpected outages or disaster recovery scenarios	Combination of front- of-meter and BTM	Varies depending on customer type, needs.	Dependent on contingent needs	Peace of mind value for residential users. Value for critical facilities such as hospitals for which a loss of power may result in unacceptable consequences. For some manufacturers there could be an avoided cost of power loss or PQ.

Potential Application	Functions	Location	Storage Capacity and Energy Provided	When Functions Will Be Performed	Value Provided
Renewable Integration	To increase the ability of the distribution system to accommodate additional DER capacity	Located on circuits with high renewable penetration	Dependent on circuit load, configuration and DER size	At times of high DER output such as mid-day and during peak conditions	Economic value of increased hosting capacity
Contingency Response	Provide added distribution benefits as needed. Enable creation of micro-grid with storage as an anchor	Regions that have minimum circuit ties for contingency scenarios	Dependent on system need	During contingency period or extended outage period	SAIDI, CAIDI, SAIFI improvement
Part of the Traditional Capital Planning Process	Operational flexibility	Substations	Dependent on system need	Potentially all hours	Battery storage at strategic locations where operational flexibility is needed
Paired with EV Charging Stations	To enable deployment with Direct Current Fast Chargers ("DCFC")	Paired with DCFCs	Dependent on system	Charging during low utilization and discharging during high demand	Operator can store energy during times of low utilization and discharge stored energy during high EV Charging demand
Paired with Utility- Scale Solar	Store energy produced during high solar hours and use it during peak hours	Near grid-scale solar resources	Dependent on system	Charging during the day, discharging during peak loads	Better alignment of supply with demand and allows more flexibility for utilization of renewable recourses

5. Identify and describe all significant resources and functions that the utility and stakeholders use for planning, implementing, monitoring, and managing energy storage at multiple levels in the distribution system.

a. Explain how each of those resources and functions supports the utility's needs

b. Explain how each of those resources and functions supports the stakeholders' needs

O&R uses a combination of planning tools, interconnection platforms, operational systems, and stakeholder coordination mechanisms to support the full lifecycle of energy storage—from identification of system needs through daily operation. These resources are deployed to meet both utility needs (e.g., cost-effective planning, safe operation, grid reliability) and stakeholder needs (e.g., program transparency, interconnection clarity, wholesale participation readiness).

Planning

As part of its Integrated Planning process, O&R evaluates system needs using load forecasts and distribution design standards to identify infrastructure constraints. Once a need is confirmed, the Company identifies the least-cost traditional solution and assesses whether a non-wires alternative (NWA) is viable by applying its internal Suitability Criteria. This analysis is supported by several core systems. These tools also facilitate external communication—such as providing DER developers and municipal stakeholders with geographic and load-related context for proposed projects.

- GIS: O&R uses to identify siting opportunities by locating parcels close to constrained substations or feeders, supporting early-stage screening of viable deployment zones.
- The DEW platform by provides distribution power flow analysis, hosting capacity modeling, and DER scenario testing. These outputs help planners determine whether a storage resource can defer capital investment or mitigate a local reliability issue. This will be replaced by CYME in the future.
- AMI supplies granular load data for both planning and customer targeting. It is used to assess load volatility and identify potential customer candidates for program participation or localized solutions.

Implementing

Projects that pass the Suitability Criteria advance to implementation, including interconnection review, engineering design, permitting, and project execution. O&R uses the following resources to support safe, compliant, and transparent development.

- **PowerClerk®**: Manages project intake and interconnection tracking. Developers use PowerClerk® to submit applications and monitor status, while internal teams manage review workflows and milestone coordination. Additional detail is available in the DER Interconnection section.
- **IEEE 1547-2018[61] and IEEE 1547.9[62]**: Define the technical requirements for DER interconnection, including voltage, protection, and interoperability standards. These guide both internal review and vendor requirements.
- **Project documentation systems**: Support permitting, contract management, and technical document sharing across project teams.

Monitoring and Managing

After commissioning, energy storage systems are monitored for performance validation, safety, and operational alignment with distribution needs. To support long-term scalability and integration, O&R is investing in modern grid platforms, coordination portals, and internal capabilities.

- **Third-party interfaces:** For NWAs and demonstration projects, O&R relies on vendor-provided user interfaces to observe real-time status and verify dispatch compliance.
- **Forecast-driven scheduling:** O&R uses the same system load forecasts applied in planning to schedule discharge periods and set depth-of-discharge limits. Dispatch instructions are issued at least 24 hours in advance per contract terms.
- **ADMS:** Will provide real-time visibility and centralized control of distributed energy resources, including utility-integrated and third-party-owned storage assets.
- **DERMS:** Will enable modeling, constraint optimization, and coordinated dispatch of aggregated DERs. DERMS will also interface with market operators to support revenue optimization and system reliability.

[61] IEEE *Application Guide for IEEE Std 1547 ™- 2018*, IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power System Interfaces, (Published, May 2024) https://ieeexplore.ieee.org/document/10534228.

[62] IEEE Guide for Using IEEE Std 1547 for Interconnection of Energy Storage Distributed Energy Resources with Electric Power Systems, https://standards.ieee.org/ieee/1547.9/10875/.

- **Wholesale Aggregation Portal:** Developed in coordination with the Joint Utilities and NYISO to support near- and medium-term FERC 2222 implementation. This portal will manage data exchange and dispatch coordination with DER aggregators until full ADMS and DERMS functionality is available.

6. **Describe the means and methods for determining the real-time status, behavior, and effect of energy storage resources in the distribution system. Information produced by those means and methods should include:**

   a. **the amount of energy currently stored (state of charge);**

   b. **the time, size, duration, energy source (grid and/or local generation), and purpose for each charging event;**

   c. **the time, size, duration, consumer (grid and/or local load), and purpose of each energy storage discharge;**

   d. **the net effect (amount and duration of supply or demand) on the distribution system of each charge/discharge event (considering any co-located load and/or generation); and**

   e. **the capacity of the distribution system to deliver or receive power at a given location and time.**

O&R continues to refine and develop means and methods for monitoring energy storage performance. At present, the Company receives operational data from multiple sources, including vendor reports for NWA projects and internal systems such as SCADA and AMI. While some data is available within a week of the operating period, SCADA provides near-real-time telemetry for utility-owned assets. These inputs are used in combination to validate performance, verify alignment with dispatch schedules, and identify discrepancies across data streams. In addition, O&R is evaluating analytics and enhanced use cases for AMI data.

Core operational parameters include state of charge ("SOC"), instantaneous output, charge and discharge rates, round-trip efficiency, and safety status indicators. As noted earlier in this section, the ISBM dashboard offers enhanced visibility into these metrics for residential battery systems, supporting performance tracking and customer value validation. Over the long term, O&R will rely on ADMS and DERMS platforms to monitor and control energy storage in real time. These systems will standardize telemetry ingestion, automate dispatch coordination, and support integration with both market and utility-directed use cases. Further discussion of grid-facing visibility and control is included in the Grid Operations section of this DSIP. The ISBM demonstration project, as mentioned above, includes an internal analytics dashboard that aggregates 15-minute interval inverter and load data to track reserve margins, dispatch compliance, and the effect of battery discharges on system peaks.

7. **Describe the means and methods for forecasting the status, behavior, and effect of energy storage resources in the distribution system at future times. Forecasts produced by the utility should include:**

   a. **the amount of energy stored (state of charge);**

   b. **the time, size, duration, energy source (grid and/or local generation), and purpose of charging events;**

   c. **the time, size, duration, consumer (grid and/or local load), and purpose of energy storage discharges; and,**

d. the net effect on the distribution system of each charge/discharge event (considering any co-located load and/or generation); and,

e. the capacity of the distribution system to deliver or receive power at a given location and time.

O&R continues to evolve its forecasting capabilities to reflect the growing penetration and operational complexity of energy storage systems. Forecasting practices are designed to estimate the behavior, contribution, and system impacts of both customer-sited and utility-integrated storage, and are informed by real project data, interconnection queue trends, and scenario modeling.

At present, the Company integrates energy storage forecasts into its distribution load forecasts as a load-modifying resource, with expected discharge during peak periods modeled based on standard operational assumptions. For example, a 500 kW net peak reduction is modeled as a 2 MWh battery discharging over four hours, consistent with system peak periods. The energy storage component of the forecast is maintained as a distinct line item and appears in Appendix A of this DSIP alongside other DER types.

Energy storage forecasts are supported by the following inputs and assumptions:

- **SOC and Capacity Forecasts**: The Company estimates future SOC behavior using standardized assumptions for discharge windows and depth-of-discharge profiles. These assumptions reflect observed behavior in demonstration and NWA projects, and will be refined with additional metered data over time. Planned and forecasted energy storage capacity is derived from the interconnection queue and internal pipeline tracking.
- **Charging Characteristics and Energy Source:** Charging events are modeled based on the proposed use case. For utility-dispatchable systems, charging is assumed to occur during off-peak periods using grid supply. For customer-sited batteries, charging behavior is shaped by tariff structures, market signals (e.g., VDER[63] or NYISO incentives), or customer-specified use cases. Charging load is incorporated into the Company's load forecast as additional demand.
- **Discharging Characteristics and Grid Effect:** Discharge timing, size, and duration are modeled to coincide with local or system peak periods unless otherwise informed by contract terms. For demonstration projects and NWAs under utility control, discharge is scheduled explicitly to provide distribution relief. The net effect on the grid accounts for both the load displacement benefit and any co-located generation or coincident load impacts.
- **Distribution System Delivery and Hosting Limits:** As part of its interconnection study process (guided by Appendix K of the Standardized Interconnection Requirements), O&R analyzes the hosting capacity and delivery limits of the local distribution system for both charge and discharge events. These studies define export and import thresholds and inform both interconnection approval and longer-term planning models.

To improve forecast accuracy, O&R collects and tracks a standardized set of asset-level parameters in DER interconnection applications, including:

- Standalone vs. hybrid status
- Metering configuration

[63] Case 15-E-0751, *In the Matter of the Value of Distributed Energy Resources* ("VDER Proceeding"), Order Establishing an Allocated Cost of Service Methodology for Standby and Buyback Service Rates and Energy Storage Contract Demand Charge Exemptions (issued March 16, 2022).

- Planned wholesale market participation
- Nameplate capacity and chemistry
- Whether the resource is paired with other DG

This data is used to inform forward-looking projections and to classify storage types for differentiated modeling approaches.

For energy storage systems with contract-defined operational requirements (e.g., demonstration projects or NWAs), O&R can more confidently forecast dispatch patterns. These systems are treated as providing predictable peak load reductions and are included in scenario-based models to evaluate local reliability impacts and potential infrastructure cost savings.

As part of its broader DER forecasting strategy, O&R is developing new forecasting modules for energy storage, electric vehicles, solar PV, and distributed generation/CHP. These tools were introduced in 2024 and support enhanced scenario modeling, temporal granularity, and sensitivity analysis for different DER adoption pathways.

Forecast performance and storage impacts are evaluated periodically using available operational data and will be refined as more metered and aggregated telemetry becomes available through demonstration programs, AMI integration, and the rollout of DERMS functionality.

O&R evaluates the capacity of its distribution system to deliver or receive energy from storage resources through a combination of interconnection studies, hosting capacity analysis, and operational modeling. These assessments consider both real and reactive power as required under applicable standards.

During the interconnection process, O&R applies the methodologies defined in Appendix K of the SIR, which includes analysis of thermal limits, voltage deviation, flicker, protection coordination, and system losses. These studies are conducted using detailed circuit models to determine whether a proposed energy storage system can safely import (charge) or export (discharge) at a given location and time without causing adverse system impacts.

In addition, the Company performs hosting capacity analysis at the feeder and substation level to quantify available headroom for DER interconnection. This includes time-specific evaluations of circuit loading and voltage behavior under various dispatch scenarios. As part of this analysis, O&R incorporates the reactive power capabilities of storage inverters, consistent with IEEE Std 1547-2018. These inverters must operate in defined modes (e.g., constant power factor or volt–VAR control) to support local voltage regulation and support system stability. Reactive power contributions are factored into both steady-state and contingency modeling to assess their effect on system capacity.

For further detail on the Company's methodology, refer to the Advanced Forecasting section of this DSIP.

8. Describe the resources and functions needed to support billing and compensation of energy storage owners/operators.

Billing and compensation mechanisms for energy storage owners and operators must accommodate a range of configurations, including standalone batteries and storage paired with distributed generation. Currently, BESS that export to the electric grid may receive compensation under the Value Stack tariff or under Service Classification No. 15 (Buyback Service), depending on system characteristics and customer classification.

To align with evolving market structures and regulatory frameworks, O&R is developing new tariff provisions and billing protocols to support DER aggregation and wholesale participation. This includes

advancing tariff structures for wholesale distribution service and wholesale Value Stack eligibility, in coordination with Joint Utilities and NYISO efforts to implement FERC Order 2222 by 2026.

Additionally, O&R is monitoring the outcome of the ongoing Allocated Cost of Service ("ACOS") proceeding, which is expected to inform future standby and buyback rate structures applicable to BESS customers. Once final rates are approved, the Company will incorporate necessary updates to its tariffs and billing systems to facilitate proper application for energy storage configurations. These changes will support consistent treatment of BESS across market use cases while maintaining alignment with system cost recovery principles and policy objectives.

9. Identify the types of customer and system data that are necessary for planning, implementing, and managing energy storage and describe how the utility provides those data to developers and other stakeholders.

Appendix K in the SIR provides operating parameters for proposed energy storage projects. O&R studies proposed projects based on the information provided in Appendix K. Based on the results of the study, the Company communicates through a Coordinated Electric System Interconnection Review ("CESIR"), and upon agreement with the developer, captures relevant parameters in Attachment 1 of the interconnection agreement.

In developing NWAs, system load data is essential in understanding the deferral need for the NWA. This translates directly to the required system capacity, duration, and placement of the energy storage assets. System peaks that exceed design tolerances must be mitigated by appropriately sized and sited energy storage resources. The Company communicates this information to energy storage developers and stakeholders through the RFP process, as well as the Company's hosting capacity maps. In its NWA solicitations, the Company provides granular system data to developers that includes detailed load curves, depicting the area of need. These curves are critical for understanding both the capacity and duration of the asset, as well as the windows available for the BESS to charge from the grid. O&R's efforts are aligned with broader Joint Utilities initiatives to increase transparency and accessibility of system and customer data as these datasets continue to evolve annually. As described in the Hosting Capacity section of this DSIP, the Company has enhanced its hosting capacity maps to provide more granular feeder-level and nodal data, including detailed information on available capacity, and circuit-level constraints. These maps help developers make better-informed siting decisions by improving visibility into localized system conditions and reflecting ongoing stakeholder feedback through the JU's collaborative planning processes.

In implementing the Company's ISBM demonstration project, O&R evaluated multiple criteria to focus deployment of a VPP. The criteria include circuits which are congested or provide an opportunity for load factor improvement, areas with low reliability metrics (i.e., System Average Interruption Frequency Index ("SAIFI"), System Average Interruption Duration Index ("SAIDI"), or Customer Average Interruption Duration Index ("CAIDI")), and areas with low rooftop solar penetration. These criteria allow the Company to identify areas on the grid where energy storage (in this case paired with rooftop solar) can provide the most benefits to the electric system, as well as host customers. In future stages of the project, energy storage assets will be aggregated to provide wholesale services, in addition to customer and system benefits.

The mechanisms the Company uses to make this data available to developers and other stakeholders are described in detail in the Data Sharing and Hosting Capacity sections of this DSIP.

10. By citing specific objectives, means, and methods, describe in detail how the utility's accomplishments and plans are aligned with the objectives established in the CLCPA.

O&R supports the State's energy storage goals of 1,500 MW by 2025 and 6,000 MW by 2030 in the CLCPA and recognizes the critical role that utilities play in advancing these objectives. The Company is aligning its near- and long-term strategies with the CLCPA by deploying a mix of programs, planning tools, and procurement mechanisms to integrate energy storage into its distribution system in a manner that maximizes system and customer value.

To that end, O&R is actively pursuing multiple use cases for energy storage, including NWAs and front-of-meter and behind-the-meter deployments, supported by emerging capabilities such as DERMS and advanced load forecasting. In addition to these targeted deployments, O&R is integrating energy storage into traditional infrastructure planning to support resiliency and reliability in the face of electrification and extreme weather impacts. As discussed throughout this DSIP—including in the Current Status, Future Implementation, and Integrated Planning sections—O&R is also exploring hybrid approaches that combine NWAs with traditional infrastructure, as well as market participation strategies that unlock value for customers through dual participation.

The Company acknowledges that NWAs alone will not deliver sufficient storage capacity or greenhouse gas reductions to meet the CLCPA's aggressive timelines. As such, O&R is broadening its planning lens and seeking solutions that accelerate DER integration, prioritize storage in constrained areas, and create replicable models that support decarbonization and grid flexibility. These strategies are informed by data, customer need, and system reliability goals, and are designed to scale over time to meet the State's 2030 storage target and broader climate objectives.

Electric Vehicle Integration

Introduction/Context and Background

The Company is proactively promoting and preparing for accelerated EV adoption.

The transportation sector accounts for 26 percent of New York State's ("NYS") statewide Greenhouse Gas ("GHG") emissions[64] and is a key policy target for reductions under the Climate Leadership and Community Protection Act ("CLCPA"). O&R's Electric Vehicle ("EV") Programs play an important role in achieving the CLCPA's targets by enabling service territory-wide EV adoption through two focus areas: incentivizing charging infrastructure deployment and encouraging grid-efficient charging behavior. Orange and Rockland Utilities, Inc.'s ("O&R" or "the Company") EV programs support multiple market segments and are mutually beneficial to customers and the electric grid. The incentives distributed through O&R's programs demonstrate the Company's proactive promotion and preparation for accelerated EV adoption to meet customer needs effectively. O&R's proactive outreach and marketing efforts have resulted in a successful residential managed charging program that boasts nation-leading enrollment statistics. Tailoring programs to support customers' needs and leveraging lessons learned contributes to O&R's efforts to help NYS achieve its clean energy goals. In addition, O&R is the only upstate New York utility offering a commercial managed charging program.[65]

Alongside incentives, O&R provides current and prospective program participants with critical information, enabling customers to make informed decisions about vehicle electrification. O&R provides fleet electrification assessments for fleet owners and supplements its programs with outreach and education efforts. O&R's proactive, customer-focused approach leads to successful programs that exceed customer expectations and program goals. O&R's dynamic and flexible approach reduces adoption bottlenecks and meets customer needs. The Company strives to remain at the forefront of EV deployment by collaborating with internal and external stakeholders for proactive planning and implementing innovative solutions to address system impact.

O&R's E Mobility Team has won numerous awards for their work in transportation electrification.

O&R has been recognized for its successful programs and approach to supporting transportation electrification. The Company's E-Mobility team has won numerous awards including a 2023 Association of Edison Illuminating Companies ("AEIC") Achievement Award for its public-facing EV Charging Siting Tool and Chartwell's National EV Leadership Council recognized O&R's E-Mobility team with the National E-Mobility Utility Best Practices Award for their role as trusted transportation advisors.

Since the Company's 2023 DSIP, the Commission has introduced and/or approved multiple initiatives to advance EV adoption within NYS including the following:

- In November 2023, the Commission issued the Order Implementing Immediate Solutions Programs,[66] authorizing O&R to implement its Demand Charge Rebate ("DCR") and Commercial

[64] Department of Environmental Conservation, *2024 Statewide GHG Emission Report,* Summary Report, p. vi.
[65] O&R's EV website provides valuable information on available programs for both residential and commercial customers, https://www.oru.com/en/our-energy-future/electric-vehicles.
[66] Case 22-E-0236, *Proceeding to Establish Alternatives to Traditional Demand-Based Rate Structures for Commercial Electric Vehicle Charging (issued November 20, 2023) ("Rate Design Proceeding")*, Order Establishing Framework for Alternatives to Traditional Demand-Based Rate Structures (issued January 19, 2023) ("EV Rate Design Order").

Managed Charging Program ("CMCP") for commercial customers and charger owner/operators. The DCR provides operating cost relief to Direct Current Fast Chargers ("DCFC") operators and the CMCP encourages EV charging load shifting behavior. Both programs target commercial customers and/or charger owner/operators with significant EV charging loads.

- In August 2024, the Commission issued an Order[67] approving the Joint Utilities ("JU") Load Management Technology Incentive Programs ("LMTIP") Proposal[68] to incentivize EV charging demand management technologies. These technologies are capable of reliably balancing, curtailing, or deferring customer net EV charging demand.
- In August 2024, the Commission commenced a new Proactive Planning Proceeding,[69] directing the JU to develop a framework for planning for future infrastructure needs driven by transportation and building electrification. Through this proceeding, the JU proposed a Proactive Planning Framework to establish a process and methodology to identify and evaluate infrastructure upgrades needed to address increased electrification loads.[70]
- In October 2024, the Commission issued an Order[71] authorizing O&R to implement EV Phase-In Rates ("PIR") by October 2025. These new rates are designed specifically for EV charging and are intended to serve as a durable solution for supporting commercial EV charging business models as EV adoption continues.

Focus on EV adoption goes beyond the CLCPA to include other State and Federal initiatives. At the State level, NYS is a signatory of the Multi-State ZEV Memorandum of Understanding ("ZEV MOU"), which established a collective deployment target of 3.3 million Zero Emission Vehicles ("ZEVs") on the road by 2025.[72] NYS's share of the ZEV MOU target is 850,000 light-duty ZEVs. Moreover, NYS expanded its goal of 35 percent of new sales of light-duty vehicles to be ZEVs in 2026, to 100 percent by 2035, and established a target of 100 percent of new sales of Medium and Heavy-Duty ("MHD") vehicles to be zero emissions by 2045.[73] In addition, NYS's 2022-23 State Budget included a requirement that all new school bus purchases be zero-emission starting in 2027, and that all district-owned and contract-provided school buses be electric by 2035; both requirements allow for waivers or extensions if districts are unable to comply.[74] Figure 22 below showcases some of the EVs in O&R's company fleet that are used for promotions at the Company's outreach events.

At the federal level, several initiatives supporting EV adoption and EV charging infrastructure have helped advance the EV market landscape in NYS since 2023. The Infrastructure Investment and Jobs Act ("IIJA"),[75] enacted in November 2021, authorized $1.2 trillion to address national infrastructure needs. As part of

[67] Case 22-E-0236, *Order Establishing Load Management Technology Incentive Programs* (issued August 19, 2024).
[68] Case 22-E-0236, *JU EV Load Management Technology Incentive Program* (Filed May 19, 2023).
[69] Case 24-E-0364, *Order Establishing Proactive Planning Proceeding* (issued August 15, 2024).
[70] Case 24-E-0364, *Joint Utilities Proactive Planning Framework* (Filed December 13, 2024).
[71] Case 22-E-0236, *Order Implementing Electric Vehicle Charging Rates for Commercial Customers* (issued October 17, 2024).
[72] https://nescaum.org/documents/multi-state-zev-action-plan.pdf.
[73] NY State Senate Bill S7788, *Act to Amend the Environmental Conservation Law.* Full text of the legislation is available online. https://www.nysenate.gov/legislation/bills/2021/S7788.
[74] NY State Senate Bill S8006C. Full text of the legislation is available online https://www.nysenate.gov/legislation/bills/2021/S8006.
[75] Text – H.R.3684 – 117th Congress (2021-2022): Infrastructure Investment and Jobs Act (November 15, 2021). https://www.congress.gov/bill/117th-congress/house-bill/3684/text.

the IIJA, the National Electric Vehicle Infrastructure ("NEVI")[76] program has funded DCFC charging stations along interstate highway corridors through cooperation with the New York State Department of Transportation ("NYSDOT"), New York State Energy Research and Development Authority ("NYSERDA"), and the JU. This funding is currently paused amid the uncertainty of federal EV policies. Further, federal tax credits outlined in the Inflation Reduction Act ("IRA") include up to $7,500 per passenger vehicle,[77] [78] and 30 percent for commercial light- and medium-duty vehicles (up to $7,500) and heavy-duty vehicles (up to $40,000).[79]

1,074 L2 plugs and 40 DCFC plugs have been installed through O&R's PowerReady program.

Through O&R's EV programs, 1,074 Level 2 ("L2") plugs and 40 DCFC plugs have been installed at 96 locations throughout the O & R service territory.

Figure 22: O&R Zero Emission Vehicles

O&R achieved its original PowerReady Program plug deployment goal in February 2024, with uncontracted funds remaining. In January 2025, the Commission authorized the Company to continue contracting for level 2 plug deployments up to its full authorized budget using a modified incentive structure. EV adoption in the O&R service territory has more than doubled since January 2023, with more than 10,000 EV original registrations in the O&R service territory.[80]

---

[76] NYSERDA's NEVI website: https://www.nyserda.ny.gov/All-Programs/Charging-Station-Programs/National-Electric-Vehicle-Infrastructure-Program

[77] Text – H.R.5376 – 117th Congress (2021-2022): Inflation Reduction Act of 2022. (August 16, 2022): https://www.congress.gov/bill/117th-congress/house-bill/5376/text.

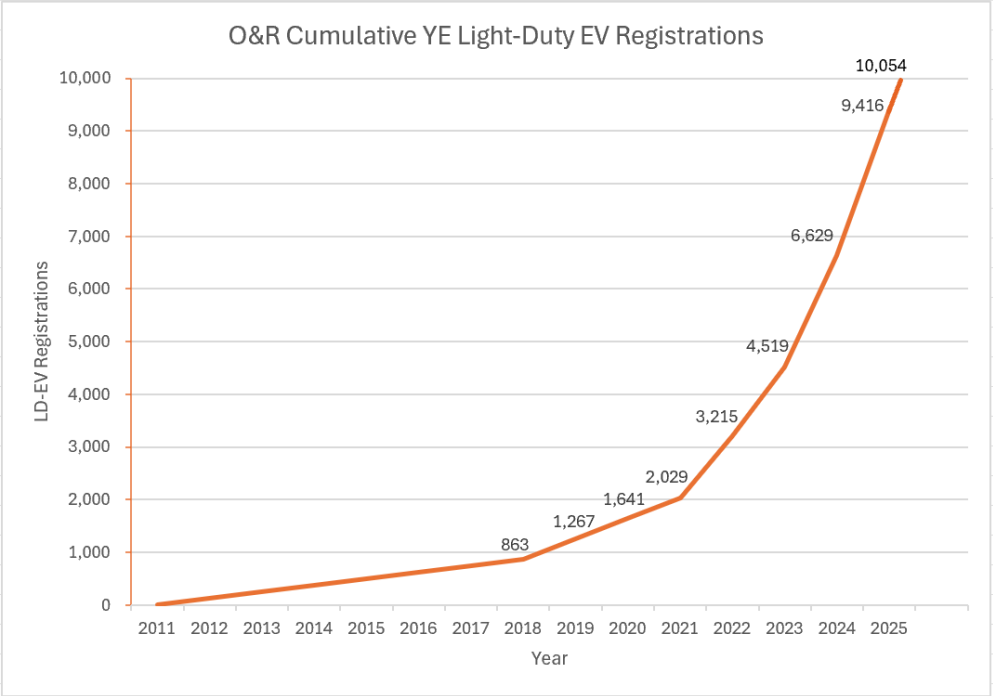
[78] https://www.irs.gov/credits-deductions/credits-for-new-clean-vehicles-purchased-in-2023-or-after.

[79] https://www.irs.gov/credits-deductions/commercial-clean-vehicle-credit.

[80] 'Original registration' is a vehicle that shows up in the database for the first time and could be a new sale or a vehicle imported from out of state (count includes Battery Electric Vehicles ("BEV") and Plug-In Hybrid Electric Vehicles "(PHEV")).

See the progression in EV adoption depicted by original registration since 2011 in Figure 23 below.[81]

Figure 23: Cumulative Original EV Registrations in O&R's Service Territory through 2024



Overall, O&R has achieved substantial progress in the E-Mobility space since the 2023 DSIP filing. In September 2024, the Company sponsored its first ever Electric Vehicle Partnership Awards,[82] during which O&R honored 10 developers and contractors from NYS and New Jersey for their commitment to the clean energy future. These developers assisted with the installation of thousands of commercial and residential EV chargers throughout the O&R service territory.

[81] https://atlaspolicy.com/rand/evaluateny/.

[82] O&R Hosts First-Ever Electric Vehicle Partnership Awards, Honoring NY and NJ Partners, https://www.oru.com/es/about-us/media-center/news/2024/09-23/oru-ev-partnership-award.

Implementation Plan, Schedule, and Investments

Current Progress

Summary of Achievements

- Continued to administer the SmartCharge New York ("SCNY") residential managed charging program encouraging and ingraining grid beneficial charging behavior and more than 5,000 customer enrollments.
- Implemented SmartCharge CMCP in 2024, encouraging peak load shifting for fleets, public charger operators, and other commercial charger operators.
- Installed a cumulative total of 1,074 Level 2 plugs and 40 DCFC plugs across 96 public sites in the O&R service territory, with a further 496 Level 2 plugs and 102 DCFC plugs committed.
- Successfully reached the Company's original Make Ready Program ("MRP") Level 2 plug target in February 2024, ahead of schedule.
- Received Commission approval in January 2025 to continue Level 2 charger incentives using a modified incentive structure.
- Hosted the inaugural Electric Vehicle Partnership Awards in September 2024, recognizing 10 developers and contractors for contributions to EV infrastructure buildout.
- Provided fleet electrification assessments to support commercial and municipal planning efforts.

Utility Capabilities In-Focus:

Customer Programs – O&R is designing and managing EV programs that are provisioned and designed to encourage program enrollment that focus on managed charging and continued infrastructure buildout to support EV penetration.

Market Participation – As flexible and distributed electric loads, EVs can support market participation by shifting charging behavior in response to price signals or grid needs. Metering and billing EV programs can support distribution-level optimization, and, over time, serve as a controllable resource that contributes to broader system objectives.

O&R is focused on enabling a reliable and accessible EV charging network while addressing the key economic and logistical barriers to transportation electrification. The Company facilitates charger deployment at commercial sites, public access locations, and fleet depots through targeted incentives and planning support. O&R offers managed charging programs and rate relief mechanisms that encourage shifting EV load to off-peak periods and provide operating cost support, supporting grid efficiency and long-term affordability. The Company also provides fleet electrification assessments and collaborates with municipalities, transit operators, and developers to accelerate adoption in the medium- and heavy-duty sectors. A suite of informational tools—such as the Electrification Capacity Map and technical siting resources—help customers and developers evaluate project feasibility and navigate interconnection.[83] O&R's EV enablement efforts span the following four key areas:

- Load shifting and operating cost support;
- Commercial and public infrastructure programs;

[83] https://www.oru.com/en/business-partners/hosting-capacity.

- Fleet initiatives; and
- Resources and information.

Load Shifting and Operating Cost Support

To manage potential peak demand growth because of EV adoption effectively, the Company encourages efficient grid charging behavior and load shifting through its managed charging initiatives, as discussed below. In addition, the Company offers operating cost relief initiatives to support the increased deployment of EV chargers needed as EV adoption increases, as discussed below. Since July 2023, O&R has sunset one program and launched three programs, in addition to updating existing programs to meet current market needs.

SmartCharge New York ("SCNY")

O&R developed its Managed Charging Program,[84] designated SCNY, for residential customers in response to the Managed Charging Order.[85] SCNY promotes grid-beneficial charging behavior and aligns with the Company's efforts to minimize system reliability risks, provide customer benefits, and support NYS's clean energy and decarbonization goals.

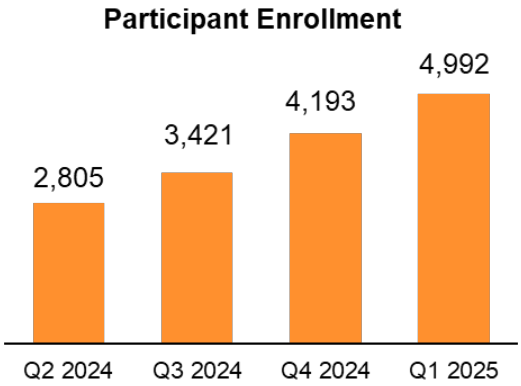
SCNY offers participants two types of on-going incentives: (1) a primary incentive for avoiding on- peak (2:00 p.m. to 6:00 p.m.) EV charging during the summer weekdays (June through September); and (2) a secondary incentive to encourage overnight off-peak (midnight to 8:00 a.m.) charging. The Company will provide participants with software-based solutions that monitor charging behavior. The Company is collaborating with EV.energy, a leading EV technology company, to implement SCNY. EV.energy's responsibilities include marketing, application processing, incentive disbursement, and charging data gathering. Residential customers with qualifying EV(s) or EV supply equipment ("EVSE") that currently are not taking electric service on O&R's EV time-of-use ("TOU") rate, described below, are eligible.

More than 5,000 participants have enrolled in SmartCharge New York.

Since launching in April 2023, SCNY has achieved strong performance metrics for enrollment, load shift, and customer satisfaction,. As of April 2025, more than 5,000 participants have enrolled. Enrolled participants have shifted EV load off-peak, with only one percent of enrolled EV charging occurring during the summer peak. SCNY received an 85 percent Satisfaction Score reflecting participants' overall positive attitude towards the program. The Company is authorized to administer SCNY through the end of 2025 and currently is seeking a one-year extension to avoid a pause in the program which may discourage future enrollment, disrupting the program benefits to both EV drivers and the electric grid. Figure 24 illustrates SCNY's program participation and market share of eligible EVs from 2024 through the current year.

[84] EVSE Proceeding, O&R's Managed Charging Implementation Plan (Updated Plan filed January 30, 2025).

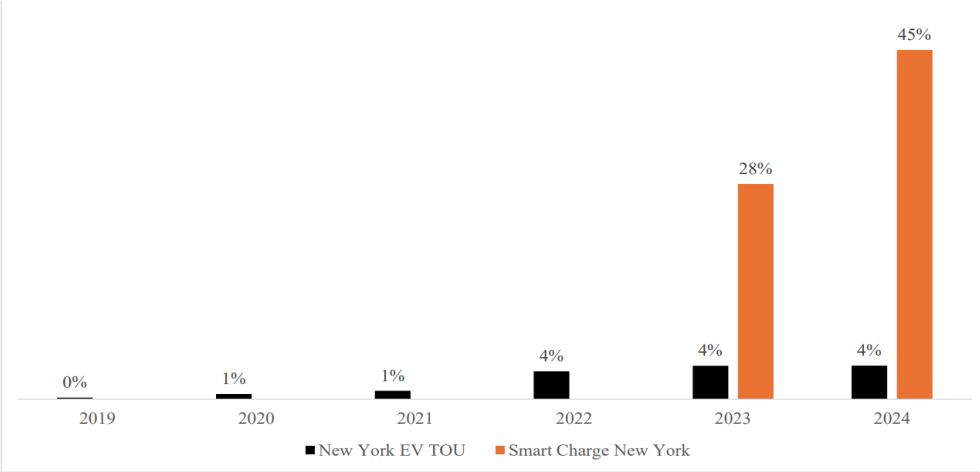
Figure 24: Cumulative Number of EV Customers Enrolled in SCNY Q2 2024 through Q1 2025



Customer preference for receiving off bill savings over on bill savings is exemplified by the number of enrolled participants in SCNY and O&R's EV TOU rate. In a short amount of time, 10 times the number of participants have in enrolled in SCNY as compared with EV TOU.

Figure 25 below presents enrollment data as a percentage of market penetration for O&R's managed charging program and TOU rates, the longest running managed charging programs in NYS.

Figure 25: Enrollment in O&R EV Offerings as % Market Penetration



Immediate Solutions

On November 20, 2023, the Commission issued an Order authorizing O&R to implement a Demand Charge Rebate and a CMCP, both of which are outlined in the JU Immediate Solutions Program Design and O&R's Immediate Solutions Implementation Plan,[86] [87] [88] the latter of which was submitted jointly with CECONY. The Immediate Solutions Programs encourage commercial EV charger adoption by providing operating cost support and encourage grid beneficial charging behavior that shifts EV charging load to off-peak periods.

[86] Case 22-E-0236, *Order Implementing Immediate Solutions Programs* (issued November 20, 2023).
[87] Rate Design Proceeding, JU Immediate Solutions Program Design (Filed March 21, 2023).
[88] Rate Design Proceeding, Con Edison and O&R Immediate Solution IP (Filed March 21, 2023).

SmartCharge Commercial ("SCC")

In response to the Immediate Solutions Order, O&R launched its CMCP, designated SCC, in January 2024. SCC is available to eligible commercial EV chargers. Like SCNY, SCC promotes grid-efficient charging behavior that encourages shifting of EV charging load to off-peak periods through incentives for participants' off-peak charging. Eligible chargers include chargers for public spaces, workplaces, transit vehicles, multi-unit dwellings ("MUDs"), and industrial locations. SCC delivers two types of incentives: (1) a kWh-based off-peak charging incentive that incentivizes participants to shift EV charging load to overnight off-peak periods (i.e., midnight to 8:00 a.m.); and (2) a kW-based substation peak avoidance incentive that incentivizes participants to reduce EV charging load during the associated four-hour substation peak period. The incentives are based on 15-minute interval charger data. This data requirement was expanded to allow for incentives to be calculated based on charger session level data.[89] The Company pays incentives on a quarterly basis. In addition, SCC offers use-case specific adders for public L2 and transit charging sites. These adders are available until the PIR becomes available.[90]

As of April 2025, 310 L2 plugs and 8 DCFC plugs are enrolled in SCC across 45 project sites. O&R estimates the L2 enrollments to encompass 28 percent of all applicable plugs in the O&R service territory. Prior to the launch of PIR, the Company will reach out to all SCC participants that receive an adder to notify them of the termination of the adders and the availability of the PIR. Eligible participants can participate in SCC and the PIR.

Demand Charge Rebate ("DCR")

In January 2024, O&R also launched its DCR, which offers participants a 50 percent rebate for demand charges. Publicly accessible DCFCs that are separately metered or sites with a charging ratio of at least 50 percent (i.e., publicly accessible DCFCs that are metered with additional site load with chargers representing at least half of the load) are eligible to participate in the program. The Company pays rebates quarterly. Participants can join both DCR and SCC.

As of April 2025, 80 plugs are enrolled across 9 project sites in DCR. The DCR will be available until the PIR is available to customers (i.e., October 2025). Prior to the launch of PIR, the Company will reach out to all DCR participants to notify them of the termination of DCR and the option to enroll in PIR.

SmartCharge Tech ("SCT")

In response to the Load Management Technology Incentive Order which approved the JU's EV LMTIP with modifications, O&R launched its SCT program in November 2024.[91] [92] O&R's LMTIP is intended to support EV charger owner/operators in managing their charging load by shifting that load to off-peak periods. SCT will work along with SCC to encourage this behavior. Eligible technologies include demand management technologies capable of reliably balancing, curtailing, or deferring a customer's net EV charging demand (*e.g.*, load control software, load limiting hardware, energy storage, and battery storage-integrated EV chargers).

[89] Case 22-E-0236, *Proceeding to Establish Alternatives to Traditional Demand-Based Rate Structures for Commercial Electric Vehicle Charging*, Order Approving Expanded Commercial Managed Charging Program Eligibility Criteria (issued September 20, 2024).
[90] The PIR will be available in October 2025.
[91] Case 22-E-0236, *Order Establishing Load Management Technology Incentive Programs* (issued August 19, 2024).
[92] Rate Design Proceeding, JU EV Load Management Technology Incentive Program (Filed May 19, 2023).

Prospective SCT participants must be enrolled in SCC, DCR, or PIR when available. SCT incentivizes participants to install eligible load management technologies on commercial EV charging stations for public, workplace, multifamily, industrial, and fleet charging.

Participants may receive incentives up to 90 percent of eligible costs, while sites in DACs may receive up to 100 percent for eligible costs. Both customer side costs and JU side costs are eligible. Incentives for software-based technologies will be provided for a period of up to five years. To date, O&R has received 5 SCT applications, two of which the Company committed funds for and all of which encompass battery storage solutions.

SCT is funded using previously authorized and unspent funds from the DCFC Per-Plug Inventive ("PPI") program.

EV Rate Design

Residential EV customers have three primary rate options for electric service to charge EVs with an installed home charger—the residential service class rate, the EV whole home TOU rate, and the EV separate meter TOU rate.[93] To encourage customers to charge their EVs during off-peak periods and realize the savings potential from the EV whole home TOU rate, O&R offers a "price guarantee" for the first year of participation in the EV whole home TOU rate. Specifically, the Company compares the customer's bills on the EV whole home TOU rate with bills recalculated using the residential service class rate. If the customer paid more on the EV whole home TOU rate, the difference is refunded to the customer. The EV whole home TOU rate may encourage customers to examine opportunities to move their electricity usage to off-peak times. As of April 2025, 485 EV owners participate in the EV whole home TOU rate. The Company continues to use available data, including AMI data, to gain information on customers' EV charging behavior and enhance future communications to customers regarding the benefits of switching to the EV whole home TOU rate.

DCFC Per-Plug Incentive ("PPI")

To encourage the deployment of DCFCs, the Commission ordered a PPI for qualified DCFC chargers through the DCFC Program Order.[94] The PPI program provided an annual, declining PPI to qualifying public DCFC operators. In the Demand Charge Alternatives Order, the Commission required the utilities to stop enrolling new participants in the PPI as of March 2023. PPI participants were given a choice to continue in the PPI program for the remainder of the program term or to enroll in the Company's DCR and/or SCC program.[95] All three remaining participants at the time of DCR and SCC implementation (i.e., January 19, 2024) opted to leave the PPI program and enroll in DCR. Consequently, the Company terminated the PPI program.

[93] Customers may choose the EV whole home TOU rate for the entire residence with a one-year price guarantee, or the EV separate meter TOU rate solely for EV charging along with installation of a second meter but without the one-year price guarantee.

[94] EVSE Proceeding, Order Establishing Framework for Direct Current Fast Charging Infrastructure Program ("DCFC Program Order") (issued February 7, 2019).

[95] Case 22-E-00836, *Proceeding to Establish Alternatives to Traditional Demand-Based Rate Structures for Commercial Electric Vehicle Charging*, Order Implementing Immediate Solutions Programs (issued November 20, 2023).

Facilitating Charging Infrastructure

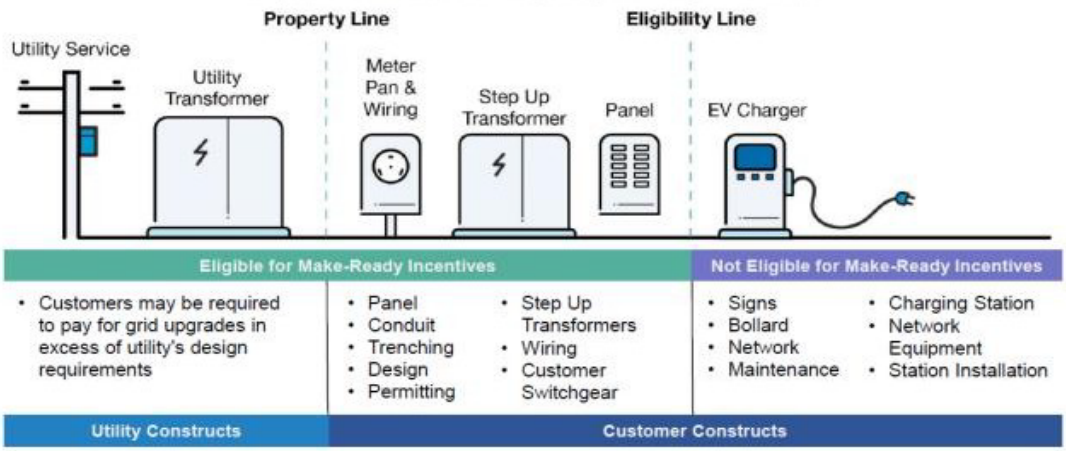
Publicly accessible charging infrastructure is needed to support the anticipated growth of EVs within NYS. Charging station availability and resulting range anxiety remain key barriers to widespread EV adoption. To address range anxiety and other barriers to EV adoption, the Company encourages and enables the development of EV chargers.

Make-Ready Program – PowerReady

The EV Make-Ready Program supports stakeholders' needs for EV charging in public, workplace, and muti-unit dwellings to accommodate an increased deployment of EVs within NYS by reducing the up-front costs of building EV charging stations. The PowerReady incentive offsets a large portion of, or in some cases, all, of the infrastructure costs associated with preparing a site for EV charger installation.

The Company's Make Ready Program, called "PowerReady," supports the adoption of light-duty EVs within the O&R service territory by providing incentives for eligible L2 and DCFC charging stations to reduce the upfront costs of charging station deployment. Infrastructure eligible for incentives includes equipment and labor behind the customer's property line, up to the EV charger, as illustrated in Figure 26 below. Currently, the PowerReady Program incentive levels cover between 50 and 90 percent of eligible costs.

Figure 26: Make-Ready Program Eligibility



In November 2023, the Commission issued a Midpoint Order[96] adjusting the plug targets for all the JU. The Order increased O&R's DCFC plug targets and decreased O&R's L2 targets. In addition, the Midpoint Order requires EV chargers to meet certain communications standards to be eligible for incentives. The Midpoint Order also established a Downstate Micromobility Make-Ready program to be administered by O&R and CECONY.

In February 2024, the Company was the first utility to reach its Midpoint Order Level 2 plug target.[97] The Company sought, and received Commission approval in January 2025, to continue contracting for Level 2

[96] Case 18-E-0138, *Order Approving Midpoint Review Whitepaper's Recommendations with Modifications* (issued November 16, 2023) ("Midpoint Order").

[97] See the NY EV Make-Ready Program Participation Guide p. 5 for additional details. Accessible online at: https://www.oru.com/en/our-energy-future/electric-vehicles/new-york/commercial-ev-drivers/power-ready-program.

plugs, under a modified incentive structure, until O&R's Commission-authorized budget is exhausted. As of May 2025, O&R's PowerReady Program incentivized, or committed to incentivize, 1,570 L2 plugs and 142 DCFC plugs, and has more than 90 applications in the queue. In addition, the Company has exhausted approximately 80 percent of its $17,708,845 budget.

The Commission began the Make Ready Program end-of-program review in March 2025 to evaluate five aspects of the program: (1) the PowerReady Program's effectiveness; (2) progress toward plug goals; (3) budget modifications; (4) the impact of proprietary technologies; and (5) the ramping down of the incentive allocations. The Commission also stated that the end-of-program review should include a proposal regarding cost containment. The stakeholder comment period ended in April 2025 and stakeholders are awaiting the next steps.

Fleet Initiatives

The electrification of commercial fleets is crucial for decarbonizing the transportation sector. O&R supports customers throughout all stages of their fleet conversions. This includes providing educational resources (discussed in the Education and Outreach section below), assessment tools to evaluate costs and benefits of fleet conversion, tools to inform charger siting, incentive programs to support upfront costs, and rate options to manage charging.

Medium- Heavy-Duty Make-Ready Pilot Program ("MHD Pilot")

The Midpoint Order authorized updates to the MHD Pilot to offer an incentive of 50 percent of customer-side costs in addition to 90 percent of utility-side costs for certain eligible projects. This additional customer-side incentive makes the MHD Pilot attractive to more customers. The MHD Pilot and other future full-scale successor programs will be important factors in NYS's ability to meet the aggressive policy mandates for MHD and School Bus electrification before 2035. The MHD Pilot's primary objective is to reduce diesel emissions within DACs; decreasing barriers to electrification for entities that serve DACs not only supports the needs of MHD fleets owner/operators, but also the communities throughout NYS that are impacted by air quality issues. In addition, the Fleet Assessment offering, discussed in more detail below, included in the MHD Pilot will continue to support fleets by evaluating current fleets to estimate the cost to electrify them.

One project with a fleet of four electric school buses and located in a DAC received an incentive through the MHD Pilot. O&R continues to accept applications for its MHD Pilot through the earlier of the end of 2025, or exhaustion of its authorized budget of $5 million.

Additional information on the MHD Pilot Program is available on O&R's EV website.[98]

Fleet Assessment Services ("FAS") Program

O&R offers a FAS Program that includes a site feasibility and rate analysis for light-, MHD fleet operators interested in electrification. The FAS Program helps fleet operators evaluate certain costs and benefits associated with fleet electrification, including an analysis of infrastructure needs for installing EV charging and projected charging costs. To date, O&R has performed 43 fleet assessment evaluations. O&R, along

[98] https://www.oru.com/makeready.

with the other JU members, have developed a common application form that owners and operators can find online on O&R's EV website.[99]

The Company canvasses the O&R service territory to identify potential MHD fleet candidates for electrification, conducting proactive outreach and marketing campaigns to help fleet operators plan electrification from initial assessments to full operation. This canvassing has led to the development of an internal map that the Company leverages for fleet outreach. Fleet assessment services also help the Company to plan proactively for future grid expansions. Knowing the location of potential future electrified fleets and their projected load curves assists with planning efforts, improving long-term grid reliability. Future electrified MHD fleets can also be prime candidates for commercial managed charging participation.

Micromobility Make Ready Program

O&R launched its Micromobility Make Ready in February 2024. O&R and CECONY are authorized to launch a Downstate Micromobility Make Ready Program that incentivizes the buildout of publicly accessible chargers for e-bikes, e-scooters, and other electrified micromobility solutions. The total authorized budget for the Downstate Pilot is $23 million. The program incentivizes up to 100 percent of utility-side costs and 50 percent of customer side costs. To receive incentives, projects must be publicly accessible and meet specific DAC/MUD requirements. O&R has actively marketed the program, hosting a webinar and E-bike test drives, among other activities. However, no applications have been submitted to date.

O&R's Fleet Conversion

O&R is committed to 100 percent light-duty vehicles and is transitioning its fleet to EVs by 2035. In addition, the Company will explore opportunities and alternative technologies to reduce the use of fossil fuels for its MHD trucks. As of April 2025, approximately 50 percent of the Company's light-duty vehicles were EVs, and the Company has five MHD EV trucks in service.

Disadvantaged Communities ("DACs")

DACs are disproportionately impacted by air pollution from internal combustion engine ("ICE") transportation infrastructure siting. O&R continues to promote the inclusion of customers in DACs in its EV program offerings and to scale the deployment of EV infrastructure in DACs. In the MRP, described above, the Company offers higher incentives for EV charging sites located within one mile of a DAC. In addition, the Company has identified "strategic locations" for targeted outreach, which may result in increased societal benefits, such as expanding access to rural and hard-to-reach communities. For example, the Company customized outreach to every MUD in DACs in the O&R service territory. Through proactive engagement, O&R enrolled a school bus fleet located in a DAC in its MHD Pilot Program in 2023. Considerations to further incorporate DACs in EV initiatives continue to be an ongoing focus for the Company.

Education and Outreach

The Company is in a unique position to increase awareness of the positive impacts of EVs in the O&R service territory through community outreach and education activities, as well as being a trusted advisor for transportation electrification inquiries. Since filing its 2023 DISP, the Company has implemented a more proactive engagement approach that includes customers, municipalities, Authority

[99] https://www.oru.com/our-energy-future/electric-vehicles/new-york/commercial-ev-drivers/fleet-owners- and-operators.

Having Jurisdiction ("AHJs"), and developers. Since 2023, the Company attended more than 100 outreach events, including three Ride & Drive events. In addition, the Company hosted a webinar with municipalities and contractors to discuss our Micromobility program.

To engage developers, O&R's Electrification Capacity map, formerly known as Electric Vehicle Charging map, serve as a guide for developers by identifying available capacity for EV charging stations by geographical location. The map also indicates the location of energized and under construction EV chargers that participate in O&R's PowerReady program. Other publicly accessible EV chargers are also included based on Atlas Public Policy data.

Ride & Drive Events

The Company's Ride & Drive events provide customers with an opportunity to test drive an EV without visiting a dealership and being pressured about purchasing a vehicle. The Company partnered with Electric Car Insider ("ECI") in 2023 to provide O&R customers with an opportunity to test drive EVs and confer with EV owners. In 2024, O&R partnered with EV Options ("EVO") for better customer service and experience. These events help the Company identify customers interested in purchasing EVs and EVSE and assist these customers in making the transition to driving an EV. Approximately 12 to 19 different EVs were available to test drive at each event, all of which are currently available for purchase in New York. ECI's and EVO's staff—along with the EV owners—help demonstrate, explain, and answer questions regarding the EVs, EV charging, and the EV purchasing process.[100]

Since 2023, O&R has seen Ride & Drive attendee engagement hit unprecedented levels. During the three Ride & Drive events hosted in 2023 and 2024, attendees completed more than 2,800 test drives. Vendors provided attendees with a unique look into EV ownership, as many of the participating staff were EV owners able to share their personal experiences. These events were well received, and customers specifically enjoyed the absence of pressure associated with the usual car shopping experience.

At each of the Ride & Drive events, the Company fielded customer questions about available incentives and rates, as well as NYS's goals in promoting EVs. Educational materials were available to communicate the benefits of EVs, rebate information, different EV charger characteristics, and the total cost of EV ownership to customers. These materials showcased the benefits of EVs, such as less maintenance and fuel cost savings as compared to a typical ICE vehicle.

70 percent of Ride & Drive event survey respondents stated that they would likely consider an EV as their next automobile.

After each Ride & Drive event, O&R sent attendees a post-event survey to track the success of the event—measured by their likelihood of purchasing or leasing an EV. In 2024, 70 percent of respondents stated that they were very likely to consider an EV as their next automobile. Charging station availability was the leading concern of EV adoption by survey respondents. Figure 27 shows pictures showcasing participation at recent Ride & Drive events.

[100] Refer to the O&R Electric Vehicle Guest Drive Event video for more information on past events: https://www.youtube.com/watch?v=TdRGP4IiGEc.

Figure 27: O&R Ride & Drive Event

Community Outreach

The Company's all-in approach to EVs encompasses multiple internal and external stakeholders. For example, O&R's E-Mobility team collaborated with the Regional Affairs and Economic Development groups to engage all customers for equitable clean energy benefits in the O&R service territory. O&R participated in various economic development campaigns with Sullivan County Partnership, Orange County Partnership, Orange County Chamber of Commerce, and Rockland Business Association. The Company developed education and outreach collateral for municipal and community leaders to advance their understanding of transportation electrification. Such materials included information on EVs, EV charging infrastructure, Power-Ready incentives, and charging incentives for both residential and commercial customers.

Importantly, O&R, as a trusted advisor, works with AHJs as they update local zoning laws to facilitate the location and installation of EV chargers. These updates will be critical as more residential developments include EV chargers in their development plans.

Online Tools

One of the Company's primary tools available to educate customers on the benefits of EV ownership is the O&R EV website,[101] which provides customers with useful information about EV programs, rate plans, incentives, nearby charging infrastructure, and available customer rebates. Since 2023, the EV website has been updated to include additional incentives for customers such as SmartCharge Commercial. Demand Charge Rebate, FlexCharge Rewards, and the Micromobility Program. The O&R webpages are now easier to navigate because they include custom vanity URLS.

In addition to the EV website, the Company continues to leverage digital communications to provide useful tips to EV owners through home energy reports ("HERs"). O&R uses a Home Energy Analysis ("HEA") tool to identify EV customers and an EV Marketing module to communicate the benefits of driving an EV, educate customers on TOU rates, and inform them of available EV incentives. The Company established specific email addresses for each program that it administers where customers can send program-specific questions. These customer inquiries provide the Company with direct insights into customers' EV needs and concerns and help inform the design of Company EV programs, rates, and rebates. The Company continues to use a holistic marketing approach to reach customers through email, social media, event sponsorships, on-bill messaging, and bill inserts, among other things. See Table 11 below for an overview of some of the useful program, training, and incentive resources accessible through O&R's website.

[101] https://www.oru.com/en/our-energy-future/electric-vehicles/new-york.

Table 11: O&R EV Program Resources

Resources	Details
O&R's EV website[102]	EV resources for New York residents
SCNY[103]	Program information and enrollment link
O&R PowerReady Website[104]	Program information and resources (*e.g.,* approved contractors, implementation plan)
Rate Options for Charging at Home[105]	Standard residential rate or EV TOU rate options for residential EV charging
DAC Map[106]	Climate Justice Working Group's ("CJWG") DAC map of New York
Fleet Services[107]	Tools and services for fleet owners and operators, including a link to the Site & Fleet Electrification Calculator and the MHD Pilot Program
EV@oru.com	Email address for any EV related questions
Electrification Capacity Map[108]	Hosting Capacity Map for O&R's EV charging capacity along with locations of existing or under construction EV chargers

O&R's Workplace Charging

O&R employees can be advocates for the acceptance and promotion of EV technology. As such, O&R encourages EV adoption among its employees and will continue to provide a robust workplace charging infrastructure to support EV commuting. Employees have access to 28 L2 charging plugs distributed across seven Company operating centers for which employees can set up an account and pay for charging.[100] The Company expects the trend of employee EV ownership to continue to grow, so O&R has committed to increasing the availability of workplace charging stations at select service locations and facilities.

Recognitions and Achievements

O&R has garnered several prestigious awards for its innovative programs and outstanding achievements. The Company's commitment to excellence has been recognized both internally and externally, showcasing its dedication to enhancing customer service and promoting sustainable energy solutions.

The PA Consulting Group awarded O&R the National Outstanding Customer Engagement Award for developing digital tools that help customers adopt cleaner heating and cooling options, as well as assist developers in siting electric vehicle chargers. Additionally, the Association of Edison Illuminating Companies ("AEIC") honored O&R with the National Innovation in EV Charger Siting award for its efforts in helping developers identify optimal locations for EV chargers on the grid. O&R also received the 2023 AEIC Achievement Award for its public-facing EV Charging Siting Tool, which aggregates a wealth of EV-related information and data on O&R's hosting capacity map to support developers in project siting.

[102] https://www.oru.com/en/our-energy-future/electric-vehicles.

[103] https://www.oru.com/en/our-energy-future/electric-vehicles/new-york/electric-vehicle-charging-rewards.

[104] https://www.oru.com/en/our-energy-future/electric-vehicles/new-york/commercial-ev-drivers/power- ready-program.

[105] https://www.oru.com/en/our-energy-future/electric-vehicles/new-york/residential-ev-drivers/rate-options- for-charging-at-home.

[106] https://climate.ny.gov/resources/disadvantaged-communities-criteria/.

[107] https://www.oru.com/en/our-energy-future/electric-vehicles/new-york/commercial-ev-drivers/fleet-owners-and-operators.

[108] https://www.oru.com/en/business-partners/hosting-capacity.

Moreover, Chartwell's National EV Leadership Council recognized O&R's E-Mobility team with the National E-Mobility Utility Best Practices Award for their role as trusted transportation advisors.

To engage developers, O&R hosted its inaugural E-Mobility Awards on September 19, 2024. This event recognized the achievements of developers and municipalities for their work in the EV charging sector. Honoring excellence, awards such as Commercial Plug-In Pioneer, Neighborhood Charging Pioneer, and several others were presented to deserving organizations, highlighting their significant contributions to advancing EV infrastructure.

Future Implementation and Planning

Summary of Future Actions

- Expand participation in SmartCharge Commercial through ongoing enrollment and program feedback.
- Launch implementation of the EV Phase-In Rates by October 2025, as directed by the Commission in the 2024 EV Charging Rates Order.
- Continue to implement SCT, the LMTIP, supporting customer adoption of load modifying technologies.
- Continue proactive outreach and engagement for SmartCharge New York to build on successful enrollment and increase and ingrain off-peak charging behavior.
- Enhance technical advisory services and siting resources for fleets and public charging developers, including one-on-one consultations and tailored assessments.
- Continue collaboration with and encourage FAS for municipalities, developers, and transit

O&R looks forward to developing and implementing successors and continuation of the Company's existing programs to avoid a pause in program offerings and continue to further the State's clean energy goals including widespread EV adoption. As the Company evaluates lessons learned from current offerings to inform future program iterations, the Company is mindful of equitable access to transportation access as well as the affordability for all New Yorkers.

The Proactive Planning Proceeding will help advance widespread EV adoption by anticipating the need for future grid upgrades to support building electrification and EV plug ins – both heavy loads. Proactive Planning allows the Company to plan and build the necessary infrastructure before the load is needed, so that new EV plug ins–particularly electrified MHD fleets–can draw power from the grid as soon as their charging infrastructure is installed. Overall, the proactive planning process seeks to avoid situations where power cannot be delivered on time for newly established heavy loads, like MHD depots. For more details on Proactive Planning, please see the Integrated Planning section. Longer term, the Company is also assessing the potential of future Vehicle-to-Grid ("V2G") applications as part of its broader DER strategy to capture the potential for EVs to become bidirectional grid assets.

Load Shifting and Operating Cost Support

As EV adoption increases, especially MHD vehicles, and charger deployment grows, programs that shift EV charging load to off-peak periods will be critical to managing the impact of that load on the Company and its systems. Providing operating cost relief and enabling managed charging for commercial customers is vital for continuing and increasing the pace of electrification. Managed charging programs pursue a common goal across different vehicle classes and program mechanisms; to establish EVs as a flexible grid resource and achieve the objectives of the Grid of the Future ("GOTF") proceeding.

Residential Managed Charging and SCNY

On April 9, 2025, O&R along with the other JU members filed a petition requesting approval of a one-year extension of their residential managed charging programs, including SCNY, until the end of 2026, and initiate a process to reauthorize the residential managed charging programs beyond 2026. The success of O&R's SCNY residential managed charging program, along with the potential grid impact of EV charging on the grid, support the need for continued managed charging programs. Lessons learned from current programs will help to inform the next iterations.

SmartCharge Commercial ("SCC") Program

O&R's CMCP (SmartCharge Commercial) program continues to see an enrollment increase as additional EV charger sites are energized. SCC incentivizes commercial EV charging sites to shift the charging load to off-peak periods. Encouraging this behavior will only increase in importance as MHD vehicles begin to electrify, placing high demand on substations. The Company will continue its outreach efforts to commercial EV charger sites in the O&R service territory.

The Company will monitor market conditions to assess the need to adjust underlying incentives, and will also re-evaluate as the PIR becomes available and the DCR sunsets. In addition, the use case adders will end once the PIR is available. O&R will notify all existing participants that are receiving the adders of the adder termination.

In January 2025, the Commission began its review of the CMCP and DCR programs administered by the JU. The review will be "approached from the standpoint of a rebuttable presumption that solutions remain necessary unless evidence demonstrating that one of the following scenarios has occurred: (1) market conditions have improved; (2) EV charging business models have changed such that relief from traditional demand charges is no longer needed; or (3) other compelling evidence is provided."[109] Comments submitted by stakeholders supported CMCP. The Company will continue to monitor the review process.

Demand Charge Rebate ("DCR")

The DCR will sunset once the PIR is available to customers. Prior to sunsetting, the Company will notify existing DCR participants of the availability of the PIR, providing information, and provide them the option to enroll in the PIR. The PIR will be available in October 2025.

SmartCharge Tech ("SCT")

O&R's LMTIP (SmartChage Tech) received several applications since launching in November 2024, with five projects all planning to implement on-site battery storage solutions for CMCP/DCR-participating chargers. LMTIP supplements O&R's CMCP, with projects providing further demand reduction capabilities on the customer side, and helping participants respond to price signals.

LMTIP serves as a valuable program for reducing barriers to load management by lowering upfront costs of load management-enabling hardware and software. LMTIP supplements ongoing commercial managed charging programs by incentivizing technologies that offer greater control over EV charging peak management. The Commission began its review of the JU's LMTIP programs in March 2025. The Company is monitoring the process.

[109] Case 22-E-0236, *Notice Commencing Review Process and Soliciting Comments* (issued January 31, 2025).

EV Phase-In Rate ("PIR") Solution

The Company will implement the EV PIR Solution in October 2025. At that time, the Demand Charge Rebate and SmartCharge Commercial use-case-specific adders that are described above will sunset. The EV Phase-In Rate Solution will start as a TOU energy-only rate structure and will phase in an increasing level of demand charge as a customer's load factor increases, until the customer's annual load factor reaches a level of 25 percent or greater. After the highest load factor tier, the customer will be subject to traditional demand rates. Customers with EV charging load that is not separately metered must have a Charging Ratio of 50 percent or more to be eligible. *See* the discussion of Charging Ratio above under Demand Charge Rebate.

Facilitating Charging Infrastructure

Make-Ready Program – PowerReady

Continued deployment of EV charging infrastructure is critical to increased adoption of EVs. State-level support for EV adoption, including EV and charging infrastructure incentives, will be important for maintaining EV charging network buildout momentum. The PowerReady Program has been NYS's single largest funding mechanism for EV charging deployment to date, and continued NYS and utility investment in all types and use cases of EV charging will be critical to meet the broad and diverse needs of New Yorkers.[110]

The strong demand for chargers in the O&R service territory indicates an on-going need for utility investment to continue market momentum and reduce range anxiety. The need for incentives is evidenced by the fact that many projects on the PowerReady waitlist at the time it reached the plug targets dropped off the waitlist or cancelled their projects. After the Commission authorized O&R to continue the PowerReady program, additional projects applied. Authorization of a successor program before the conclusion of the current program will avoid market gaps and best-serve stakeholders.

The Commission authorized the Make-Ready Program to operate until the Commission authorized budget is depleted for L2 plugs. The Program can incentivize DCFC plugs until the earlier of meeting the DCFC plug targets, exhausting the Commission-authorized budget, or December 31, 2025. The Commission began the end-of-program review in March 2025 with a stakeholder webinar. Over the course of the review, feedback from the JU, industry stakeholders, interest groups, and government entities will inform the next steps for a future funding EV charging infrastructure in NYS through 2030 and beyond. O&R's experience in the first five years of the MRP, and especially since the Midpoint review, indicates utility-led infrastructure support and investment remains necessary to progress the industry. Lessons learned from administering make ready programs inform the next phase of utility make ready programs.

The JU filed a petition to continue to fund PowerReady Program projects with unspent funds should the program review not conclude until after the program end date of December 31, 2025. This petition seeks to avoid a temporary funding gap in the market. Meanwhile, The Commission authorized O&R permission to spend its entire Commission-authorized budget on continued L2 plug incentivization.

A majority of O&R's residential customers live in single-family homes. The Company has found that residential customers generally charge at home, supporting the authorization of incentives for residential make ready projects. Supporting EV owners in their charging habits can encourage EV adoption.

---

[110] Case 18-E-0138, *Indicated New York Utilities' Comments on the Make-Ready Program End of Program Review* (Filed April 25, 2025).

Micromobility

O&R continues its outreach to potential participants in the Micromobility Make Ready program. The Company is evaluating lessons learned and whether adjustments are needed to make the program accessible to a wider audience.

Commercial and Fleet Initiatives

MHD Vehicles Make Ready Pilot Program

MHD electric vehicles are important to decarbonizing the transportation sector and minimizing the disproportionate share of the burden DACs bear from truck and bus pollution. Electrifying MHD vehicles, particularly those of large commercial fleets operating out of centralized depots, can result in multi-MW loads that far exceed existing electric services, strain the localized electric grid, and result in costly or lengthy upgrades that present barriers to beneficial electrification. The MHD Vehicles Make Ready Pilot program supports the electrification of this transportation sector and continued incentives can support increased adoption. To that end, the JU filed a petition in May 2025 to request expanded eligibility for customer-side incentives under the MHD Pilot.[111]

O&R will continue its service territory canvassing and outreach to identify fleets and their locations. MHD fleet operators' interest in fleet assessments and electrification continues; however, converting assessments to projects has been a challenge. The customer-sided incentive structure continues to pose a barrier to projects. O&R's one completed project received an incentive for 14 percent of its eligible cost (6 percent of its total cost) under the existing program structure. The upfront cost to electrify is high and utility incentives are small under the current framework. O&R will continue to investigate ways to support MHD fleet operators as they navigate the potential to electrify.

FAS Program

O&R plans to continue its FAS Program alongside its MHD Pilot. The FAS Program serves as an entry point for prospective MHD Pilot participants. By its nature, FAS is primarily a forward-looking program, planning for future implementation of fleet charging infrastructure. As mentioned in the Current Progress section, fleet assessments help the Company proactively plan for future grid expansions. Knowing the location of potential future electrified fleets and their projected load curves assists with planning efforts, improving long-term grid reliability. Future electrified MHD fleets can also be prime candidates for commercial managed charging participation.

Disadvantaged Communities

The Company continues to focus on providing access to charging and clean transportation in DACs through program incentives and targeted outreach, as described in the Current Progress section above. In addition, O&R recognizes that in order to expand equitable EV opportunities in DACs, the Company will need to pursue solutions other than light-duty vehicles and at-home charging, both of which may not be readily accessible for all customer segments. The Company continues to explore MHD solutions beneficial to DACs. This will support NYS's target of 100 percent of new sales of MHD vehicles to be zero emissions by 2045 and further enable NYS's focus on investments in DACs.

---

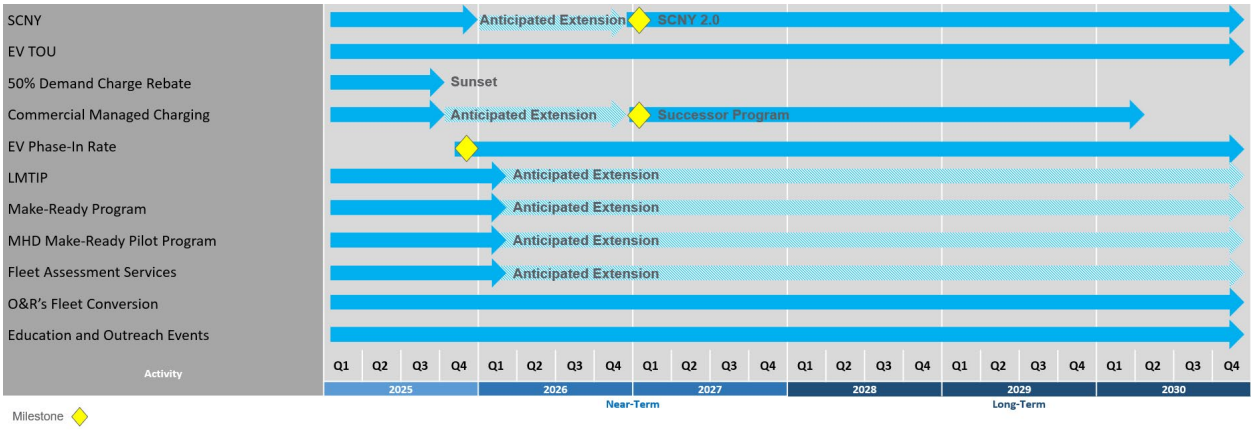
[111] Case 18-E-0138, *Proceeding on Motion of the Commission Regarding Electric Vehicle Supply Equipment and Infrastructure*, JU Petition Requesting Eligibility Changes to Medium and Heavy-Duty Pilot, (Filed May 23, 2025).

Education and Outreach

The Company plans to continue to build on its strong relationships with its customers and communities for EV engagement. The multifaceted, proactive approach conducted over the last two years has been effective at reaching and educating customers, developers, and municipalities regarding the benefits and opportunities of EVs and the Company's program offerings. O&R's proactive marketing efforts have resulted in the highest enrollment in residential managed charging in NYS. The Company will continue to leverage its in-person and digital channels to inform potential participants about program offerings. Program information, including Frequently Asked Questions, customer testimonials, and program guides will be posted on O&R's EV website. The Company will review outreach opportunities on a rolling basis to focus on events and outreach activities with high impact returns to program enrollment.

Integrated Implementation Timeline

Figure 28: Five-Year Plan for EV Integration



Risks and Mitigation

Table 12 below summarizesT the risks that could affect the timely implementation of the future actions described above as well as the measures the Company has or will take to mitigate these risks.

Table 12: Electric Vehicle Integration Risks and Mitigation

Risk	Mitigation
Loss or reduction in participation in residential or commercial managed charging programs	Conduct program reviews to assess participation trends and update incentive structures to sustain engagement
EV adoption slows, not keeping pace with CLCPA Scoping Plan targets	Support EV adoption by expanding charging access and reducing operating costs; monitor market signals including vehicle cost and charging capability
Grid buildout does not keep pace with electrification of commercial fleets	Participate in CGPP and apply proactive planning to anticipate infrastructure needs; use CYME and DERMS to improve load visibility
Vendor attrition or permitting delays impact charging site delivery timelines	Maintain engagement with developers during siting and interconnection; monitor vendor status and adjust milestones as needed
Supply chain lead times for charger	Educate participants on expected procurement timelines;

Risk	Mitigation
hardware or switchgear delay program deployment	adjust PowerReady Program schedule and staging windows accordingly
Reduction in federal or state policy support (*e.g.*, NEVI or IRA uncertainty)	Monitor policy developments and coordinate with NYSERDA, DPS, and JU to align messaging and program design
Evolving OEM processes and models may disrupt availability of charging data (required for managed charging enrolment and regulatory reporting)	Monitor updates and proactively engage with EV owners, program participants, OEMs, and third-party vendors to resolve issues that may disrupt charging data acquisition.

EV Adoption versus State Goals

The integration of EVs into the market presents several interconnected risks that can significantly impact the availability, affordability, and overall success of EV adoption and related infrastructure. These risks include fluctuations in market dynamics, supply chain disruptions affecting production and distribution, changes in regulatory policies that may alter incentive structures, and potential system impacts on electric grids that could arise from increased EV usage. External factors, such as economic conditions, may negatively impact the private sector's investment in EVs and EV promotion, which in turn may affect the pace of adoption needed to reach the ZEV targets and support the clean energy transition.

NYS's EV goals will require a robust public charging infrastructure. The Midpoint Order called for 1,546 Level 2 plugs and 340 DCFC plugs to be installed in the O&R service territory to support NYS's ZEV MOU target of 850,000 light-duty vehicles deployed by 2025. Deployment of this charging infrastructure will depend on favorable charging station economics. The Commission's Rate Design Order supports station initial utilization economics until EV adoption reaches a sufficient level to further enable charging infrastructure buildout.

Market Volatility and Supply Chain Disruptions

Market volatility may arise from fluctuating economic conditions, which may negatively impact the private sector's investment in EVs and EV promotion, which in turn may affect the pace of adoption needed to reach the ZEV targets and support the clean energy transition. To address market volatility, developing flexible strategies that can adapt to changing economic conditions is essential. Building strong partnerships among EV market participants, the community, and O&R will support long-term integration efforts. O&R will work closely with third parties to enhance public and private charging infrastructure, which is vital for enhancing EV growth.

Supply chain disruptions can hinder the production and distribution of EVs and necessary components, leading to delays in availability and increased costs. To mitigate supply chain risks, stakeholders should explore diversification of supply sources and invest in local manufacturing capabilities. Collaboration among manufacturers, suppliers, and JU can help develop contingency plans for potential disruptions, supporting a steady flow of materials and components necessary for EV production.

Policy Changes

The policy and regulatory landscape surrounding EVs is dynamic and can significantly influence the adoption and integration of EVs into the market. Changes in government policies, funding allocations, and regulatory frameworks can produce uncertainty for stakeholders, potentially impacting investment decisions, infrastructure development, and consumer incentives.

Regulatory shifts related to emissions standards and charging infrastructure requirements may pose compliance challenges for manufacturers and utilities. Sudden changes in policy may necessitate significant adjustments to business strategies and operational practices, resulting in additional burdens. Fluctuations in funding for EV-related initiatives, such as public charging infrastructure projects, can hinder long-term planning and investment in the necessary infrastructure. Conflicting policies at the local, state, and federal levels can further complicate compliance for stakeholders operating across multiple jurisdictions, leading to confusion and inefficiencies.

To navigate this ever-changing landscape, O&R will continue to implement proactive engagement strategies with policymakers and regulatory agencies to advocate for stable and supportive EV policies. Continuous monitoring of legislative developments will enable the Company to quickly adapt to new requirements or shifts in the regulatory environment. Developing flexible business models that can respond to changing policies and investing in education and outreach efforts will be essential for building public support. Ultimately, by addressing the risks associated with policy changes and remaining adaptable to evolving regulations, O&R can continue to foster the successful integration of EVs into the market and contribute to broader clean energy goals.

System Impact

O&R supports NYS's light-, and MHD ZEV goals. Achievement of these goals could lead to a significant increase in peak loads, transformer and substation impacts, and reliability issues. One substantial risk associated with this growth is the potential for unmanaged MHD vehicle charging to exacerbate summer peak demand. To address this risk, the Company currently incorporates EV adoption as a load modifier into its forecasting and planning processes and continues to refine its methodologies to align with market demands. *See* the Advanced Forecasting and Integrated Planning sections of this DSIP for more details. O&R engages stakeholders and proactively considers solutions that meet customer and system short- and long-term needs.

To promote grid-efficient charging behavior, O&R offers managed charging solutions that encourage shifting EV charging to off-peak periods. In addition, O&R's SCT program is designed to support the Company's commercial managed charging program by providing incentives for eligible technologies (*e.g.,* energy storage projects) that are capable of reliably balancing, curtailing, or deferring a customer's net EV charging demand.

Furthermore, O&R uses its Electrification Capacity Map to guide developers in deploying publicly available chargers in areas with adequate distribution capacity. This transparency in EV siting benefits developers and minimizes the cost associated with service upgrades.

Stakeholder Interface

O&R consistently and regularly engages stakeholders through proactive customer and developer outreach and meetings with AHJs to inform them of EV initiatives and solicit feedback, as described in the Education and Outreach section above. O&R meets on a monthly basis with developers who are active in the O&R service territory to support their needs and discuss new programs and/or program changes. O&R has canvassed its service territory to identify fleets with the potential to electrify and will continue these efforts. O&R meets one-on-one with interested owner/operators.

O&R hosted its inaugural E-Mobility Awards to recognize the achievements of developers and municipalities for their work in the EV charging sector and honor excellence. The Company participates in and/or hosts numerous Community outreach events to share information and educate the community about its programs.

Collaboration with key organizations such as JU, NYSERDA, New York Power Authority ("NYPA"), DPS Staff, and municipal governments focuses on joint efforts in PowerReady implementation, fleet transition coordination, load shifting programs, and alignment with the Coordinated Grid Planning Process ("CGPP"). The Company participates in technical conferences hosted by DPS Staff and JU webinars, to increase stakeholders' understanding of utility programs.

The JU maintains a dedicated website for the EV MRP, managed charging programs, LMTIPs, and other programs and will continue to engage stakeholders as new EV programs, such as the statewide PowerReady Program and Managed Charging Program, are extended. O&R has established a dedicated email address (ev@oru.com), program-specific email addresses, and a central landing page (www.oru.com/ev) for all stakeholders to access resources and information.

Additional Detail

This section contains responses to items specific to EV Integration.

1. **Using a common framework (organization, format, semantics, definitions, etc.) developed jointly with the other utilities, identify and characterize the existing and anticipated EV charging scenarios in the utility's service territory.**

    a. **The type of location (home, apartment complex, store, workplace, public parking site, rest stop, etc.);**

Due to the primarily residential nature of the O&R service territory, a majority of charging takes place at single-family homes. In addition, the Company views the availability of public charging infrastructure at locations convenient for EV drivers to be critical for increased EV adoption, by addressing range anxiety concerns. The Company has incentivized EV charging sites at publicly accessible locations (*e.g.,* shopping malls, grocery stores), workplaces, fleet locations, commercial locations, MUDs, and travel services.

The Company categorizes projects under the following framework:

- Public
    - Government fleet
    - Government office
    - Library
    - Municipal parking lot/garage
    - Public park
    - School
    - Street parking/curbside
    - Other
- Workplace/Fleet/Commercial
    - College/University
    - Commercial fleet
    - Dealership/car rental
    - Hotel
    - Industrial/manufacturing
    - Medical facility/hospital
    - Mixed-use (Retail + Offices)
    - Office building
    - Other

    - Paid parking lot/garage
    - Place of worship
    - Recreation facility
    - Restaurant
    - Retail
    - Stadium
    - Warehouse/logistics
- MUDs
- Travel Services
    - Airport
    - Charging hub
    - Gas station
    - Highway travel plaza
    - Other
    - Park and ride
    - Rest stop
    - Rideshare
    - Transit hub

The Company anticipates continued growth in these locations, and will also continue its FAS to support fleet electrification.

b. The number and spatial distribution of existing instances of the scenario;

As of May 2025, 1074 L2 plugs and 40 DCFC plugs have been incentivized through O&R's PowerReady program. An additional 496 L2 plugs and 102 DCFC plugs have been committed. O&R's Electrification Capacity Map shows sites that have received PowerReady incentives, as well as other publicly accessible charger locations. Because the Company uses publicly available data to identify locations that did not receive a PowerReady incentive, the map may not be exhaustive.

The Company also leverages publicly available data from Electric Power Research Institute ("EPRI"), NYSERDA, Atlas Public Policy, and the US DOE to understand the EV market and its growth within both the O&R service territory and NYS.

Table 13 below provides a breakdown of completed and incentivized plugs and projects through the PowerReady program.

Table 13: Completed and Incentivized Plugs and Projects through PowerReady

Category	L2 Plugs	DCFC Plugs	Projects
Commercial Properties/Workplace/Fleet	390	24	51
Multi-Unit Dwelling	556	0	28
Public Properties	128	16	20

c. The forecast number and spatial distribution of anticipated instances of the scenario over the next five years;

The Company considers the impact of EV charging in its system and substation forecasts and planning processes. The Company derives the adoption rates of light-duty and MHD EVs from current registration data available on Atlas Public Policy's platform, EValuateNY, expected growth rates considering local and

NYS goals, other public proceedings, as well as insights from external studies including EPRI and MJ Bradley. The Company allocates the number of EVs by zip code to substations, and the peak impact of charging is determined by analyzing assumed charging behaviors, research on technological advancements and market trends, and the customer EV charger installation queue.

As previously noted, because of the primarily residential nature of the O&R service territory, the Company anticipates that the majority of the charging will take place at home. The Company also anticipates that multi-family home dwellers will seek out publicly available chargers because they lack the convenience of at-home charging. Developers will play a crucial role in deploying publicly available chargers and may target areas by analyzing driving patterns, high foot traffic areas, vehicle registration patterns, and area demographics, including income.

d. The type(s) of vehicles charged at a typical location (commuter car, bus, delivery truck, taxi, ride-share, etc.);

Due to the heavily residential makeup and commuter population demographic, O&R expects that most of the EVs in the O&R service territory are light-duty vehicles. Given that O&R does not own or manage any chargers, the Company is unaware of the types of EVs that charge at a particular location.

e. The number of vehicles charged at a typical location, by vehicle type;

O&R does not own or manage any chargers and therefore does not have access to this information.

f. The charging pattern by vehicle type (frequency, times of day, days of week, energy per charge, duration per charge, demand per charge);

O&R collects charging pattern data for residential customers with light duty EVs enrolled in the SCNY Program. For each charging session, the device records:

- Start date and time;
- Duration of charging session;
- Charging power level (kW);
- Total charging energy (total electricity consumed in kWh);
- 15-minute interval charging energy (kWh);
- Starting and ending SOC; and
- GPS coordinates of the charging session location.

For publicly available chargers, if a customer receives an incentive through MRP, the Company collects the following metrics on a quarterly basis:

- The number of sessions daily;
- Start and stop times of each charge;
- The amount of time each EV is plugged in per session;
- Peak kW per charging session;
- kWh per charging session; and
- Plug outage information. Plug outage information should include the number and duration of outages and is to be differentiated by expected outages (for maintenance) and unexpected outages.

It is important to note that although the Company collects this information at the charger level, the Company is unaware of the EV type charging.

In addition, for all other chargers in the O&R service territory, given that O&R does not own or manage any chargers, the Company does not have access to this information.

g. The number(s) of charging ports at a typical location, by type;

For current installations in the O&R service territory, there is a wide variety of charging ports per charger and project scale. As the EV charging market matures, the typical number of charging ports per location will continue to evolve. As of April 2025, an average of 12 L2 plugs per location and 5 DCFC plugs per location were installed through the PowerReady program.

h. The energy storage capacity (if any) supporting EV charging at a typical location;

To date, no energy storage systems are deployed in the O&R territory supporting EV charging. The Company has received applications for this scenario in its SmartCharge Tech program.

i. An hourly profile of a typical location's aggregated charging load over a one-year period;

Due to the variety of EV charger sites, including number and type of plugs, customer type, use case of the location, and participation in managed charging programs, the Company does not have an hourly load profile of a typical location.

j. The type and size of the existing utility service at a typical location;

The type and size of the existing electric service varies based on the location, customer type, and customer demand profile. As such, the Company does not analyze this type of data.

k. The type and size of utility service needed to support the EV charging use case;

The electric service and infrastructure requirements depend on the EV charging demands and load profiles. DCFCs are likely to require infrastructure upgrades to accommodate high kW load. Although L2 chargers may have a lower kW load than DCFCs, they may require an upgrade to sustain the load over a longer period of time. However, most existing services for residential customers will be able to accommodate any residential L1 and L2 chargers without any additional utility upgrade.

2. Describe and explain the utility's priorities for supporting implementation of the EV charging use cases anticipated in its service territory.

The Company's priorities for supporting EV adoption are to expand customer options and access to EV charging, in part through developing Make-Ready infrastructure for EVSE, and encouraging off-peak EV charging. The Company's EV program offerings are designed to support multiple market segments, including passenger, fleet, MHD vehicles, and be mutually beneficial to the customer and the electric grid. These initiatives are summarized in Table 14 below and further detailed in the Current Progress and Future Implementation and Planning sections above.

Table 14: EV Program Summary

Program	Overview
SCNY	Incentivizes grid-beneficial charging behavior of residential EV drivers
EV TOU with price guarantee	Encourages residential customers to charge EVs during off-peak periods and realize the savings potential
SCC	Incentivizes commercial chargers to shift EV charging load to off-peak periods
EV Phase-In Rate	Provides operating cost relief to reduce barriers to charging infrastructure, particularly to stations with low load factors

Program	Overview
SmartCharge Tech	Incentivizes demand management technologies to support shifting EV charging load to off-peak periods
PowerReady	Supports the development of EVSE by reducing upfront costs of charging station deployment by providing incentives for eligible L2 and DCFC EV charging stations for light-duty vehicles
MHD Pilot Program	Focuses on DACs and offers incentives to mitigate the cost of developing EV charging capacity for qualifying MHD fleets

3. Identify and describe all significant resources and functions that the utility and stakeholders use for planning, implementing, monitoring, and managing EV charging at multiple levels in the distribution system.

a. Explain how each of those resources and functions supports the utility's needs.

Electrification Capacity Map[112] provides information on locations for siting EV charging stations, including available grid capacity, existing participating public chargers, and chargers under construction. The map also shows Alternative Fuel Corridors and the boundaries of DACs. This specific suite of information, the EV Charger Siting Tool, won a 2023 AEIC Achievement Award.

Company programs, such as SCNY, EV TOU, and SCC, encourage behavior that benefits the grid, both at the system and substation level. All of O&R's programs are showcased on the Company's website, with detailed information on how to participate.

O&R's AMI EV Identification pilot program tests whether artificial intelligence ("AI") can identify customers with EVs and increase program outreach results. The pilot has been successful, with an estimated 8,800 EVs identified out of 9,100 registered in the O&R service territory. Currently, the pilot results have supported the development of targeted outreach to these customers for participation in SCNY.

b. Explain how each of those resources and functions supports the stakeholders' needs.

The Company continues to leverage available resources for planning, implementing, and managing EV charging as it relates to the distribution system. The Company's internal teams collaborate so that future EV charging projects optimize system resiliency and minimize system impacts.

External stakeholders, particularly PowerReady and MHD Pilot prospective program participants, can use O&R's EV Charging Costs Calculator113 to receive a high-level estimate of total costs needed to electrify. The calculator incorporates utility bills analysis, rate comparison, fuel savings analysis and estimated incentives to identify the total costs, and savings, of program participation.

O&R's Electrification Capacity map provides developers with available capacity information, as well as the location of nearby charging stations, providing critical data for siting EV charging stations.

In addition, O&R's outreach and education efforts, which include O&R's website with program information and its targeted marketing efforts, are valuable resources for stakeholders seeking to install EV chargers or manage their EV charging.

[112] O&R Hosting Capacity and System Data website: https://www.oru.com/en/business-partners/hosting-capacity.
[113] Orange & Rockland Charging Calculator: https://charging.oru.com/.

4. **Identify the types of customer and system data that are necessary for planning, implementing, and managing EV charging infrastructure and services and describe how the utility provides those data to interested third parties.**

To plan, implement, and manage EV charging infrastructure, the Company analyzes as much data as available through program data collection and AMI while adhering to privacy standards. The Company uses this data not only for program reporting but also for performing analysis to support grid planning. The Company incorporates these analyses into forecasts and strategic plans (e.g., Long Range Plan) and as a constant focus to stay up-to-date on data analysis for planning purposes.

Subject to the appropriate privacy standards, the Company makes available customer and system data to interested third parties using three primary methods. Developers can access updated hosting capacity data on the Company's Electrification Capacity Map which show active charger locations and current feeder load capacities. Commercial site operators can take advantage of the Company's fleet assessment services and gain an understanding of system data. In addition, all customers can reach O&R for EV-related information at ev@oru.com. While primarily used by residential customers, this communication channel is open to all customers to leverage O&R's EV expertise.

To further increase access to data to interested third parties, O&R has been deeply involved in supporting NYS's Integrated Energy Data Resource ("IEDR"). For more information about data sharing, please refer to the Data Sharing sections of this DSIP.

5. **Describe the resources and functions needed to support billing and compensation of EV and EVSE owners/operators.**

Customers on the EV TOU rate are billed via the Company's billing system. Incentives for participation in SCNY, PPI, SCC, and DCR are provided outside the billing system, via a separate payment mechanism. The Company is updating its billing system to include PIR, which will be available in October 2025.

To support enrollment in EV programs, the Company implemented new secure application portals through which customers / applicants can apply to programs and track their enrollment status.

6. **By citing specific objectives, means, and methods describe in detail how the utility's accomplishments and plans are aligned with New York State policy, including its established goals for EV adoption.**

O&R's accomplishments and plans are aligned with NYS policy, helping NYS reach its climate targets and EV adoption goals. O&R's Clean Energy Commitments define this alignment. Initiatives 4, 5 and 6 describe the Company's commitment to widespread EV adoption:

1. Initiative 4 - All in on electric vehicles and support the installation of more than 500,000 chargers in our territory by 2050 .
2. Initiative 5 - Support our customers and government partners to transition their car, bus, and truck fleets to electric, improving air quality, particularly in environmental justice communities.
3. Initiative 6 - Advocate and support policy changes for 100 percent of vehicles sold by 2030 to be electric as a member of the Zero Emission Transportation Association ("ZETA").

O&R's efforts align with the following major State policies:

Climate Leadership and Community Protection Act ("CLCPA"):

The Company's EV programs reduce emissions by facilitating widespread EV adoption in its service territory. The transportation sector accounts for 26 percent of total NYS GHG emissions,[114] decarbonizing the transportation sector serves as a critical component in reaching the CLCPA's goals. As the grid shifts to low-carbon power sources, driving an EV becomes increasingly less emissions-intensive than driving an ICE vehicle. Additionally, advances in green manufacturing can lower the upfront GHG emissions of EV manufacturing. Overall, widespread EV adoption, enabled by utility programs, will help NYS achieve its CLCPA goals.

Light Duty Vehicle ZEV Rules / Advanced Clean Cars II:

To help meet NYS's rules phasing out ICE sales by 2035, the Company's programs reduce consumer barriers to purchasing EVs. Range Anxiety remains a significant barrier to widespread EV adoption. O&R's PowerReady program has incentivized more than 1,500 L2 and 100 DCFC plugs in the O&R service territory. The visibility and availability of many public chargers helps to remedy the real and perceived issues of range anxiety, assuring potential EV buyers that public charging stations are readily available.

Advanced Clean Trucks / Multi-State MHD ZEV MOU / Electric School Bus Initiative

The Company's MHD Pilot Program encourages MHD electrification through its Fleet Assessment Service and MHD incentive program. O&R's Fleet Assessment Service has helped fleet owners, particularly school districts, identify the costs and benefits of electrification. Additionally, these assessments help the Company plan for potential service and grid upgrades required to provide the necessary power to electrified MHD fleets. Continued development of MHD offerings can help the State move forward toward achievement of its MHD electrification goals.

7. Describe the utility's current efforts to plan, implement, and manage EV-related projects. Information provided should include:

a. A detailed description of each project, existing and planned, with an explanation of how the project fits into the utility's long range EV integration plans;

b. The original project schedule;

c. The current project status;

d. Lessons learned to-date;

e. Project adjustments and improvement opportunities identified to-date; and

f. Next steps with clear timelines and deliverables;

The Company's current efforts to plan, implement, and manage EV-related projects are discussed in the Current Progress and Future Implementation sections above and summarized in Table 15 below.

[114] New York State Department of Environmental Conservation, *Statewide Greenhouse Gas Emissions Report* (published March 1, 2024).

Table 15: Overview of O&R's EV Programs' Statuses

SCNY	
Overview	Incentivizes residential grid-beneficial charging behavior.
Schedule	O&R's SCNY launched in April 2023 and will end at the end of 2025.
Status	As of April 2025, approximately 5,000 participants are enrolled.
Lessons Learned	Residential managed charging is necessary, in both the short and long-term, for managing the significant grid impacts of widespread EV adoption. Customers highly approve of the earnings-based incentive structure.
Adjustments/Improvements	Explore adding an active managed charging component to the program.
Next Steps	The Company will work with DPS Staff, the JU, and other stakeholders to develop the next iteration of the Residential Managed Charging program, ideally, avoid a gap in program offerings between iterations.
EV TOU	
Overview	Encourages customers to charge EVs during off-peak periods and realize the savings potential.
Schedule	Launched in 2019.
Status	As of April 2025, 485 EV owners are enrolled in the program.
Lessons Learned	Customers prefer earning through SCNY over saving through TOU rates when it comes to grid beneficial charging.
Adjustments/Improvements	None identified.
Next Steps	The program will continue to serve as an alternative to SCNY.
SCC	
Overview	Incentivizes commercial chargers to shift EV charging load to off-peak periods.
Schedule	Launched January 2024
Status	As of April 2025, 318 plugs are enrolled across 45 project sites.
Lessons Learned	Commercial managed charging is necessary, in both the short- and long-term, for managing the significant grid impacts of widespread EV adoption. Commercial managed charging will only grow in importance as commercial MHD fleets begin to electrify.
Adjustments/Improvements	Evaluating updates so that the program works in conjunction with PIR and SCT.
Next Steps	The Company will work with DPS Staff, the JU, and other stakeholders to review the current program and evaluate potential updates to the program to maintain and expand upon the valuable grid management capabilities delivered by SCC.
DCR	
Overview	Provides operating cost support for DCFCs.
Schedule	Launched January 2024.
Status	As of April 2025, 80 plugs are enrolled across nine project sites.
Lessons Learned	The Company gained valuable experience administering the program.
Adjustments/Improvements	N/A
Next Steps	The program will sunset upon the launch of the EV Phase-In Rate in October 2025.

PowerReady	
Overview	Supports the deployment of EVSE by reducing, via incentives, upfront costs of eligible L2 and DCFC EV charging stations for light-duty vehicles.
Schedule	Will run through program budget exhaustion.
Status	As of May 2025, the following counts of L2 and DCFC plugs were completed or committed: L2: 1,570 plugs DCFC: 142 plugs
Lessons Learned	Demand for public charging infrastructure remains high in the O&R service territory, with projects moving forward and reapplying after almost a year of program pause. L2 incentives have been largely sufficient for encouraging projects, but DCFC plugs have not followed suit, which have more expensive customer-sided costs. Avoiding gaps in program offerings will continue program successes.
Adjustments/Improvements	A Residential Make-Ready component may encourage the increased adoption of EVs, moving NYS forward towards its goals. O&R's affiliate, Rockland Electric Company, offers a successful residential Make-Ready program in New Jersey, which can be leveraged for lessons learned.
Next Steps	O&R will work with DPS Staff, the JU, and other stakeholders to develop a successor to the Make-Ready program. The demand for infrastructure incentives remains high, and a successor program offers the opportunity to support continued demand and enhance the customer experience.
MHD Pilot	
Overview	Offers incentives to mitigate the cost of deploying EV charging capacity for qualifying MHD fleets, focusing on DACs.
Schedule	Launched in July 2020.
Status	As of April 2025, one participant received incentives.
Lessons Learned	The current program is limited in its ability to serve the needs of School Bus Operators. The limited nature of the incentive hampers the economics of deployment and the ability to do future proofing. Despite the incentive structure changes already implemented, customer-sided costs that cannot be covered under the current incentive structure continue to depress program participation.
Adjustments/Improvements	Expanded eligibility to include shared hubs and updated DAC requirements particularly for fleets not housed in a DAC but service a DAC.
Next Steps	The Company, along with the JU, continues to evaluate hurdles to and propose solutions for the current program structure and will begin planning for a full-fledged program based on Pilot lessons learned.
Fleet Assessment Services	
Overview	Provides planning assistance for fleet owners considering electrification.
Schedule	Launched in July 2020.
Status	As of April 2025, O&R has completed 43 fleet assessments.
Lessons Learned	There is interest in the O&R service territory, especially among school districts, to electrify their fleets. Fleet assessments have struggled to convert interest into projects because of cost barriers that the MHD Pilot cannot fully remedy under its current structure.

Adjustments/Improvements	Further expansion of the data provided and overall assistance, offering more personalized services to improve the chances of conversion to an infrastructure project.
Next Steps	Develop alongside changes to the MHD Pilot, while preserving eligibility for full LDV fleets.
LMTIP	
Overview	Provides incentives for installation of load management technologies on eligible commercial EV charging stations.
Schedule	Launched in November 2024.
Status	As of April 2025, five projects have applied, with two of those committed. All projects are for on-site battery storage solutions.
Lessons Learned	The value of load management technology is growing, contributing to an increasing level of flexible grid resources. Since launch, the program has garnered high demand.
Adjustments/Improvements	Interest in the program supports an extension with additional budget funds, optimally with adjustments to the per-project LMTIP incentives.
Next Steps	Work with DPS Staff, the JU, and other stakeholders to complete the LMTIP review process and develop further program iterations.
PIR	
Overview	Provides new rates designed specifically for commercial EV charging.
Schedule	Slated to launch October 2025, with outreach and other pre-launch activities scheduled in the preceding months.
Status	In development.
Lessons Learned	TBD
Adjustments/Improvements	TBD
Next Steps	O&R is focused on preparing PIR for launch in October 2025.
Micromobility Program	
Overview	Testing if the cost of micromobility infrastructure is a barrier to micromobility adoption, providing incentives for micromobility charging infrastructure.
Schedule	Launched November 2023, scheduled to conclude December 2026.
Status	O&R has not received any program applications; may end pilot early.
Lessons Learned	O&R has conducted extensive outreach through a variety of mediums. The lack of interest may indicate that micromobility infrastructure costs are not an immediate barrier to adoption in O&R's service territory. Other non-utility concerns, such as the lack of bike lanes, perceived safety of micromobility, and lack of awareness, also may be barriers.
Adjustments/Improvements	O&R is evaluating to determine if adjustments are warranted.
Next Steps	Propose adjustments resulting from O&R's evaluation of the program.
FlexCharge Rewards Pilot	
Overview	Working with a third-party vendor (WeaveGrid) to support its NYSERDA PON, the pilot tests whether the program can facilitate cleaner, lower cost charging and increase lifespan of distribution assets using WeaveGrid's software solution.
Schedule	Launched December 2024, scheduled to conclude July 2026.
Status	Pilot encompasses 2,000 residential and 500 commercial customers across the working group.
Lessons Learned	TBD

Adjustments/Improvements	TBD
Next Steps	TBD
AMI EV Identification Pilot	
Overview	Tests if AI can identify customers with EVs and increase program outreach results.
Schedule	Launched November 2023, scheduled to conclude December 2025.
Status	Estimated 8,800 EVs identified out of 9,100 registered in O&R territory.
Lessons Learned	AI, in conjunction with AMI, can succeed in identifying EVs in the O&R service territory.
Adjustments/Improvements	Technical adjustments until 100 percent of EVs are identified in the O&R service territory.
Next Steps	Using the results of the pilot to develop targeted outreach to known EV owners for our other programs. In the future, this process could serve as a component of an active managed charging program.
Motor Pilot	
Overview	Testing if presence at dealerships yields increased, low-cost enrollments in residential programs.
Schedule	Launched in December 2024, concluded in March 2025.
Status	Pilot discontinued early – the partnering company ceased business operations on April 1, 2025.
Lessons Learned	Potential exists for dealership outreach, but more hurdles exist than originally anticipated.
Adjustments/Improvements	N/A
Next Steps	TBD – a potential new pilot program possible.

8. Explain how the utility is coordinating efforts of NYSERDA, NYPA, NY DEC, and DPS Staff to facilitate statewide EV market development and growth.

The Company, along with the other JU members, frequently collaborates with NYSERDA, NYPA, the New York Department of Environmental Conservation, and DPS Staff, particularly on issues such as the costs and benefits of EV deployment, EVSE incentive programs, and EVSE rates.

The Company continues to engage with these entities in the development, implementation, and review of its EV programs, such as the PowerReady Program end of program review, the Demand Charge Alternatives programs review, and a residential managed charging program extension.

Since December 2024, O&R has participated with WeaveGrid, NYSERDA, and several other stakeholders on NYSERDA's PON 5354, focusing on Vehicle Grid Integration Advancements. The pilot, implemented as O&R's FlexCharge Rewards Pilot Program, tests if utilities can facilitate cleaner, lower cost charging through WeaveGrid's software solution and subsequently increase the lifespan of distribution assets. The pilot seeks to optimize local distribution benefits across residential and commercial customer segments, thereby encouraging increased EV adoption.

Clean Heat

Introduction/Context and Background

Since 2020, Orange and Rockland Utilities, Inc. ("O&R" or "the Company"), in partnership with New York State Research and Development Authority ("NYSERDA") and New York's Joint Utilities ("JU"), has played a central role in advancing the New York State ("NYS") Clean Heat Program—a cornerstone initiative aimed at decarbonizing building energy use through electrification. This collaborative effort stems from the State's broader climate mandates under the Climate Leadership and Community Protection Act ("CLCPA"), with regulatory oversight provided by the New York Public Service Commission ("PSC" or "the Commission"). Critical directives such as the 2020 and 2025 New Efficiency:New York ("NENY") Orders,[115] [116] the Utility Thermal Energy Network and Jobs Act ("UTEN and Jobs Act"),[117] and the Gas Planning Proceeding[118] have shaped utility responsibilities, requiring the development of long-term strategies to transition away from fossil fuels. O&R, in alignment with these mandates, has embraced a statewide, structured approach that promotes heat pumps as a primary heating solution and supports customers through education, incentives, and installation resources.[119]

Over the past four years, O&R's leadership in program execution has delivered measurable success. In 2024, the Company achieved 197 percent of its Clean Heat Program energy savings target, delivering more than 37,000 MMBtu—nearly double its goal. This continues a trend of performance, with the Company averaging 201 percent of its annual target from 2021 to 2024. The majority of installations involved air source heat pumps ("ASHPs"), highlighting their growing popularity and applicability across residential sectors. Heat pump water heaters and ground source heat pumps ("GSHPs") also played a role, and the Company further expanded its market impact by introducing midstream distribution strategies and incentives for system decommissioning. As a result, the average cost per MMBtu dropped significantly, allowing O&R to stretch its budget while maintaining high participation.

In tandem, O&R has incorporated non-pipe alternatives ("NPAs") into its gas capital planning process and, in 2024, launched its NPA Electric Advantage Program.[120] NPAs leverage customer-side solutions, such as energy efficiency and electrification, in targeted areas of the gas distribution system to offset the need for additional pipeline capacity and other gas capital investments. The Company filed its NPA Framework,[121] outlining the Company's screening and suitability criteria for NPA projects, as well as its

---

[115] Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative* ("EE Proceeding"), Order Authorizing Utility Energy Efficiency and Building Electrification Portfolios Through 2025, (issued January 16, 2020).
[116] Case 18-M-0248, *In the Matter of the 2026-2030 Non-Low- to Moderate-Income Energy Efficiency and Building Electrification Portfolios,* Order Authorizing non-Low- to Moderate-Income Energy Efficiency and Building Electrification Portfolios for 2026-2030 (issued May 15, 2025).
[117] NY Senate: UTEN and Jobs Act – Laws of 2022, Chapter 375 (enacted July 5, 2022): https://www.nysenate.gov/legislation/bills/2021/s9422
[118] Case 20-G-0131, *Proceeding on Motion of the Commission in Regard to Gas Planning Procedures*, Order Adopting Gas System Planning Process (Filed May 12, 2022).
[119] O&R Energy Future: Save With Clean Heating and Cooling Technology: https://www.oru.com/en/our-energy-future/clean-heating-and-cooling.
[120] O&R Electric Advantage Website: https://www.oru.com/en/save-money/rebates-incentives-credits/new-york-customers/electric-advantage.
[121] Case 20-G-0131, *Orange and Rockland's Proposals for Non-Pipe Alternative Screening and Suitability Criteria* ("NPA Framework") (Filed August 10, 2022).

NPA Implementation Plan[122] to target farm tap (i.e., high-pressure gas lines) and leak prone pipe ("LPP") gas capital projects. O&R coordinates its NENY, NYS Clean Heat, and NPA project portfolios in order to streamline customer enrollment and maximize solution impact.

As another innovative heating-electrification alternative, O&R is developing a UTEN pilot in the Village of Haverstraw ("Haverstraw UTEN Pilot") in accordance with the UTEN and Jobs Act. A Utility Thermal Energy Network ("UTEN") is a utility-owned geothermal system, with all the advantages of a customer-owned GSHP, but utility scale and ownership eliminates the upfront cost barrier, making the clean energy transition more readily available to all customer classes. The staged UTEN pilot process ordered by the Commission[123] presents a unique opportunity to explore the technical and economic viability of UTENs, promote equitable access to clean energy, and enable the State to gain operational experience.

Looking ahead, O&R is poised to play a pivotal role in shaping NYS's clean energy landscape. The Company is strengthening workforce development, refining marketing and outreach strategies, and deepening its engagement with low- and moderate-income ("LMI") communities. New educational campaigns, bundled energy efficiency offerings, and adaptive program structures are all part of this effort. As customer adoption grows, O&R is also integrating these trends into its electric forecasting models, preparing its electric grid for new load demands. Through its continued commitment to innovation, collaboration, and community engagement, O&R is not just meeting its regulatory obligations—it is actively shaping a more sustainable, electrified energy future for the region.

Implementation Plan, Schedule, and Investments

Current Progress

Summary of Achievements

- Exceeded energy savings goals by achieving 141 percent of its total NENY Clean Heat MMBtu goal from 2020 to 2024.
- Lowered the cost of energy savings significantly over the life of the program, achieving an average program cost of $124/MMBtu over the total period of 2020-2024—34 percent below the original NENY target of $188/MMBtu budget.
- Expanded electrification through NPAs. Launched the Electric Advantage Program, incentivizing customers to fully electrify by replacing gas systems, with four pilot projects started in 2024.
- Advanced the Haverstraw UTEN Pilot projects consisting of two ambient loop systems using bore fields, surface water and wastewater thermal energy sources for clean district-level energy.

Utility Capabilities In-Focus:

Planning & Forecasting – Electrification of heating through heat pumps and overall building electrification are having significant impacts on electric load forecasts, especially in winter months. O&R is using this data to integrate electrification scenarios into planning and forecasting models.

[122] Case 21-G-0073, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Orange and Rockland Utilities, Inc. for Gas Service*, Orange and Rockland Utilities, Inc. Non-Pipeline Alternatives Implementation Plan ("NPA Implementation Plan") (April 19 2024).

[123] Case 22-M-0429, *Order Providing Guidance on Development of Utility Thermal Energy Network Pilot Projects* (issued September 14, 2023) ("UTEN Guidance Order").

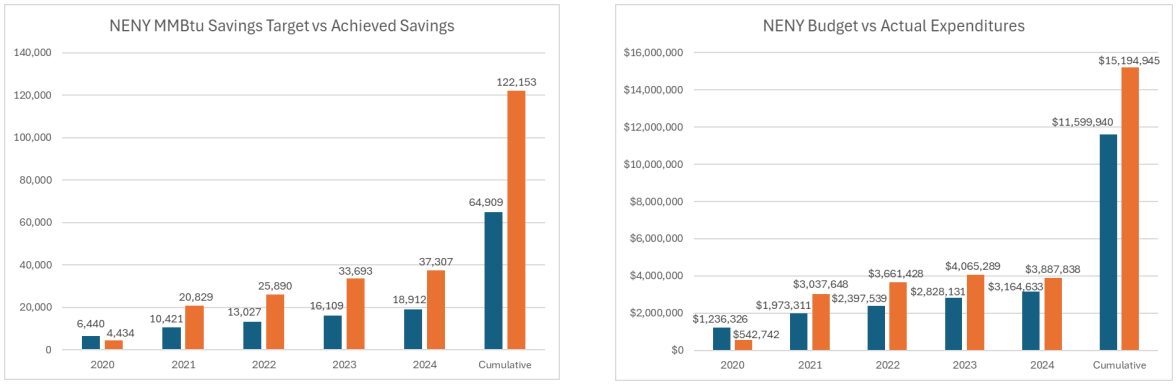
Customer Programs – O&R actively engages customers and community stakeholders on the benefits of clean heat technologies and weatherization opportunities to design better programs and incentivize enrollment.

Market Participation – O&R supports NYSERDA-led initiatives by promoting market development through contractor training, quality assurance, and customer education.

NYS Clean Heat Pump and O&R Heat Pump Implementation

2024 marked the fourth full year the NYS Clean Heat Program has been administered by utilities, following the transfer from NYSERDA in April 2020. Since the Clean Heat Program was established, , the Company has exceeded the target of 86,657 MMBtu, claiming 122,149 MMBtu, or 141 percent of the goal.[124] Since the Company's 2023 DSIP filing, cumulative spending fell from an average of $141/MMBtu from the period of 2020-2022 to $124/MMBtu for the total period through 2024, 45 percent below the NENY budget of $188/MMBtu indicating the Company's continued improvement in implementation efficiency. In addition, the Company has developed a customer-facing heat pump calculator, enabling customers to easily compare the cost of a heat pump conversion to their current system and fuel costs. The tool is fully customizable, providing customers the ability to adjust numerous variables, including the size of the home, air tightness, average thermostat set point, fuel prices, and system installation costs. Furthermore, O&R developed the second iteration of its Propensity Tool, enabling the Company to identify candidates for building electrification, both residential and commercial, and conduct targeted outreach. Figure 27 below shows the Company's historical success in achieving the Clean Heat Program's targets.

Figure 29: Clean Heat Program Historical Achievement (2020-2024)



The NYS Clean Heat Program promotes efficient electric heat pump adoption for space and water heating. O&R operates in coordination with NYSERDA-led efforts to promote market capabilities through contractor training, quality assurance, and customer education. Central to the program are incentives, such as contractor promotions and discounts, that support the uptake of qualifying heat pump technologies.[125] The technologies and custom measures eligible for incentives through the NYS Clean Heat Program are described below.

[124] Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative,* New York State Clean Heat Program 2024 Annual Report (Filed April 1, 2025).

[125] For more information about the NYS Clean Heat Program participating contractor network, visit the NYS Clean Heat website at, https://cleanheat.ny.gov/resources-for-applications/.

Air to Water Heat Pumps ("AWHP"): Provide both water and air heating/cooling, using recycled heat to lower energy costs. They are ideal for new construction or major renovations due to infrastructure requirements and offer long-term savings despite high upfront costs.

Air Source Heat Pumps ("ASHP"): Provide heating and cooling by transferring outdoor air heat through a vapor-compression cycle. Incentive eligibility requires inclusion on the Northeast Energy Efficiency Partnership ("NEEP")[126] Cold Climate list or compliance with program criteria.[127] They offer a versatile, energy-efficient heating, ventilation, and air conditioning ("HVAC") solution.

Ground Source Heat Pumps ("GSHP"): Use ground or groundwater for efficient heating and cooling, maintaining performance in cold climates. Suitable for full-building use across sectors, GSHPs deliver consistent efficiency regardless of outdoor temperatures.

Heat Pump Water Heaters ("HPWH"): Replace traditional water heaters, using a heat pump for most heating and a backup electric resistance coil for peak demand. They are installable in various building types and spaces and available through retail and contractor channels.

Heat Recovery Ventilator ("HRV"): Exchange indoor and outdoor air while reclaiming heat and moisture via air-to-air exchangers. They reduce heating/cooling loads and maintain ventilation efficiently.

Energy Recovery Ventilator ("ERV"): Function like HRVs but only transfer heat, not moisture. They also cut energy loads while ensuring adequate ventilation.

O&R has completed 1,475 total projects over the course of the program from 2020 to 2024. In 2024, the Company completed 319 projects with ASHP installations included in more than 95 percent of all projects, while GSHP installations accounted for 5 percent of projects. Full load with integrated controls projects accounted for 30 percent of projects. Full load with fossil fuel displacement accounted for 55 percent. Heat pump water heaters accounted for the remaining 15 percent of projects. Residential projects accounted for 90 percent of all projects.[128]

The Company continues to make process improvements and expand program offerings. For example, the Company added HPWH midstream initiatives to establish new HVAC equipment distributors and retailer channels to access rebates. It also added incentives for integrated HPWH controls and the decommissioning of existing fossil fuel systems as part of HPWH installations. The Company works in collaboration with the other Joint Efficiency Providers (a collective group that includes the New York Electric Utilities and the NYSERDA) to continue to develop, support, and improve the NYS Clean Heat Program.

Utility Thermal Energy Network

In 2022, the Commission directed NYS's largest utilities, including O&R, to propose UTEN pilot projects in order to explore the business model of thermal energy networks as an alternative to traditional gas service

---

[126] Northeast Energy Efficiency Partnerships Cold Climate Air Source Heat Pump List website: https://neep.org/heating-electrification/ccashp-specification-product-list.

[127] Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative*, New York State Clean Heat Program Manual Version 13 (Filed April 1, 2025).

[128] Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative,* New York State Clean Heat Program 2024 Annual Report, p. 23, (Filed April 1, 2025).

and provide NYS with insightful technical and economic lessons. In response to the Commission's UTEN Guidance Order, O&R proposed the Haverstraw UTEN Pilot.[129] In April 2024, DPS Staff granted O&R permission to proceed with development of the engineering design for the Haverstraw UTEN Pilot system.[130]

The Haverstraw UTEN Pilot[131] as proposed will comprise two single pipe ambient temperature loop systems—an eastern loop near the Hudson River and a western loop near Village Hall. Each loop spans two to three blocks, enabling building connections on both sides of the street. Each project has its own set of unique characteristics including a mix of buildings and use of thermal resources. Both loops target existing structures that will require retrofitting, while the eastern loop will also serve a new mixed-use development. The system will draw thermal energy from geothermal boreholes, the Hudson River, and a wastewater heat recovery system. O&R will be responsible for installing, operating, and maintaining the thermal distribution infrastructure and building services. Participating customers will benefit from highly efficient geothermal heat pump systems, provided at no cost, which will utilize the Company-supplied heat transfer medium.

O&R is progressing in stage two: pilot project engineering design and customer protection plan. The Company is working with a design engineering firm on detailed design of the distribution loops, infrastructure assets, and operational controls requirements. O&R has collaborated on the UTEN design with Village of Haverstraw officials and anchor customers and has more broadly engaged the community through various education and outreach events. In addition, the Company is developing its customer agreement template that outlines the responsibilities of the Company and participating customers, as well as the exit options / transition plan for customers during and after the pilot period. The customer agreement considers different customer segments (*e.g.*, single-family, multi-family, commercial) and proposes a customer cost guarantee. O&R recognizes the importance of protecting pilot participants from unforeseen increases in energy usage due to UTEN usage and also to protect electric ratepayers from subsidizing unreasonable costs. The Company routinely engages with DPS Staff and the JU on the pilot's progress, successes and challenges, and its monthly reports are filed within the UTEN Proceeding. The Company is preparing its stage 2 filing with the Commission this summer and will await approval and further guidance for stage 3: customer enrollment and pilot project construction.

Non-Pipe Alternatives

In 2024, O&R began implementation of 4 NPA projects.

O&R launched its NPA program in April 2024 and has prioritized LPP and farm tap removal gas capital projects as its initial NPA projects. O&R is executing these types of NPA projects under the Electric Advantage Program which currently consists of four projects.[132] In its Electric Advantage Program, participating customers are incentivized to fully electrify (i.e., "whole-home electrification") and disconnect completely from the gas distribution system. To date, the Company has completed three installations disconnecting

[129] Case 22-M-0429, *Proceeding on Motion of the Commission to Implement the Requirements of the Utility Thermal Energy Network and Jobs Act*, O&R UTEN Pilot Proposal Supplemental (Filed May 19, 2023).
[130] Case 22-M-0429, *Proceeding on Motion of the Commission to Implement the Requirements of the Utility Thermal Energy Network and Jobs Act,* UTEN Stage 1 Compliance Letters_OR_Haverstraw, (Filed April 9, 2024).
[131] O&R Haverstraw UTEN Pilot website:
https://www.oru.com/en/our-energy-future/thermal-energy-networks/haverstraw-project.
[132] Case 21-G-0073, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Orange and Rockland Utilities, Inc. for Gas Service*, O&R NPA Program Q1 2025 Report (Filed April 30, 2025).

these customers from the gas distribution system. The Company is actively engaged with several interested customers, conducting site assessments and drafting customer agreements to further increase customer participation.

O&R is working to improve this program by refining and standardizing its customer-centric implementation process, which includes custom incentive packages and alignment with other O&R program offerings (*e.g.*, energy efficiency ("EE"), Clean Heat) covering electric replacements for gas-consuming appliances, energy efficiency upgrades, and envelope improvements. Working closely with an experienced implementation vendor, O&R tailors each project to customer-specific building conditions and preferences, promoting high-quality design and execution. Customer engagement follows a structured path: from municipality coordination and door-to-door outreach to detailed site assessments, custom agreement development, and comprehensive installations. Throughout, quality assurance is rigorously applied via multiple inspections. As each project concludes, the customer's gas service is removed, and their electric usage will be monitored to inform future program enhancements.

As the program progresses, O&R will deepen its outreach and improve customer and stakeholder engagement to increase participation rates. Initial efforts have shown that many customers require extensive education, especially regarding new technologies, cost impacts, and reliability concerns. As a result, the Company plans to adapt incentive packages to address common customer concerns, such as including backup generators or offering appliance flexibility. Feedback loops such as post-installation surveys and project-close evaluations will inform continuous improvement. Encouraged by positive feedback from early participants, O&R will continue using testimonials and educational materials to encourage undecided customers. Additionally, the Company intends to build on strong municipal partnerships and improve coordination with specialty contractors to reduce logistical hurdles. Looking forward, O&R's focus will be on scaling the Electric Advantage Program across new projects, refining its engagement model, so that full-building electrification is both accessible and attractive to a broader customer base.

Customer and Contractor Engagement

O&R's EE initiatives in 2024 placed strong emphasis on engagement with customers, contractors, and key stakeholders to encourage participation and support NYS's climate goals. Customers were engaged through personalized tools, targeted email campaigns, and the expanded My ORU Store, which served as user-friendly, multi-purpose and multi-media platforms offering incentives and educational content. The Company deployed more than seven million marketing emails across 86 campaigns, tailored to customer needs, usage patterns, and service types, and these efforts resulted in nearly 220,000 visits to the Marketplace website. The Company also increased outreach to LMI customers via co-administered programs, *e.g.*, EmPower+ with NYSERDA, and through enhanced rebates and simplified access to EE products. Small business and commercial customers benefited from customized Marketplace offerings and turnkey direct install solutions, with additional support through in-person outreach and demand management consultations. O&R also enhanced engagement by leveraging near real-time AMI data, enabling both customers and O&R to better understand energy usage and identify opportunities for efficiency improvements.

Contractor and trade ally engagement remained a cornerstone of O&R's strategy, with a focus on expanding the reach of EE and demand response programs. In 2024, O&R conducted webinars and in-person events to educate contractors on program offerings, particularly the statewide Clean Heat Program and new midstream electric and gas programs. The Company provided direct communications through email, webinars, and its website, encouraging contractors to stock and recommend energy-

efficient equipment. O&R also collaborated with Vermont Energy Investment Corporation to support large commercial and industrial customers through Strategic Energy Management coaching, helping them develop clean energy plans and implement efficiency upgrades. Stakeholder collaboration extended to partnerships with Veolia, the local water utility, to offer co-branded promotions and joint outreach. These efforts helped remove capital and informational barriers, especially in DACs, through targeted support and rebates. Overall, O&R's stakeholder engagement strategy was comprehensive and adaptable, fostering deeper participation and building long-term relationships across customer and contractor networks.

Future Implementation and Planning

Summary of Future Actions

- O&R aims to scale the Clean Heat Program to meet 6.4 TBtu energy savings by 2030, prioritizing bundled offerings with weatherization to lower barriers and enhance customer savings.
- The Company will seek approval to proceed into construction for the Haverstraw UTEN Pilot and is open to seeking other opportunities as the commission allows for UTENs, focusing on DACs and testing diverse thermal resources like boreholes and wastewater.
- Building on 2024's initial Electric Advantage Program projects, O&R plans to expand outreach, improve contractor coordination, and explore additional NPA opportunities to support gas system decarbonization.
- O&R is incorporating electrification scenarios into advanced electric system forecasts, especially to understand winter peaking impacts and optimize system planning and reliability.

Clean Heat Program

The May 2025 Order Authorizing non-Low-to-Moderate-Income ("LMI") Energy Efficiency Building Electrification ("EE BE") portfolios for 2026-2030 builds on the success of the Clean Heat Program from 2020 to 2025 and adjusts its focus. The Clean Heat Program will be the branding for the BE program for the residential customer class (1-4 family units) while other customer classes, like commercial and industrial, will receive BE incentives from the Company's EE BE sectoral programs in a manner more tailored for the sector's specific needs. The EE BE Order further directs the NY State Clean Heat Program to evolve by March 1, 2026, to offer differentiated incentives such that significantly higher incentives are provided for projects meeting a minimum weatherization level. This differentiated incentive approach is expected to be phased out by March 1, 2028, at which time the program will require minimum building weatherization levels as a pre-requisite to receive incentives. Decisions regarding the EE BE portfolio from 2020 to 2025 was handled in Case 18-M-0084 and those regarding the 2026-2030 portfolio in Case 25-M-0248.

UTENs

O&R will continue to progress stage 2 of the Haverstraw UTEN Pilot and prepare for stage 3.

Non-Pipe Alternatives

Looking beyond 2025, O&R will build upon the foundational work of its initial NPA projects launched in 2024 under the Electric Advantage program. As customer implementation efforts progress, the Company plans to re-engage those who previously declined or have yet to opt in, leveraging participant testimonials to illustrate program benefits. Recognizing the intensive customer engagement required to overcome

negative customer perceptions associated with electrification, O&R intends to use lessons learned from successful engagement with participating customers to improve the Company's customer engagement strategy in future projects. The Company will also explore new tools and processes to streamline project delivery, particularly the coordination among diverse trade allies involved in building electrification.

O&R has established a cross-functional NPA team integrating different operating groups within the Company to optimize the identification and execution of new NPA opportunities. In tandem with these efforts, O&R will continue expanding the Electric Advantage Program by pursuing additional LPP and farm-tap removal projects, as well as new types of NPA opportunities, including system reinforcement, main extension, and service lines. A technical conference planned for 2025 will serve as a platform to share updates with stakeholders, gather feedback, and refine the Company's NPA strategy based on lessons learned and stakeholder input. Through these forward-looking initiatives, O&R remains committed to advancing building electrification and accelerating the transition away from gas infrastructure.

Customer Heat Electrification on Forecasting

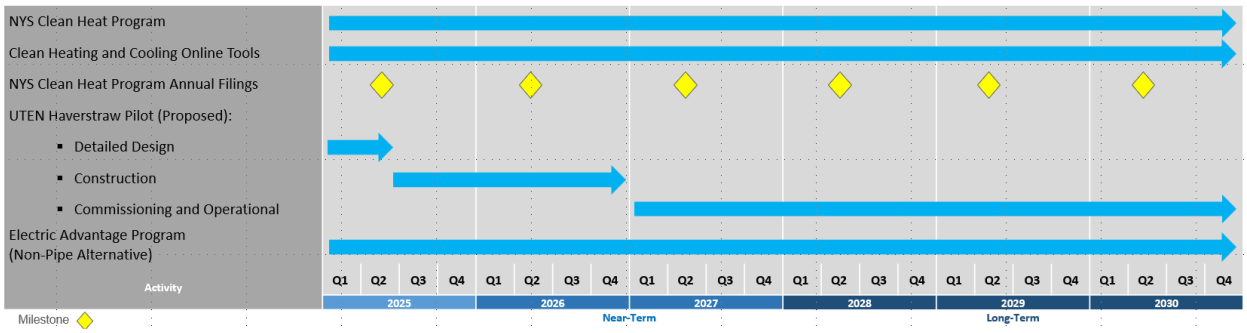
O&R evaluates emerging technologies and business models to support the clean energy transition, it is actively incorporating these developments—particularly building electrification—into its electric system forecasts. A key area of focus is understanding how the increasing adoption of electric heating, largely through heat pumps, will impact system load, especially during winter when demand peaks. Interestingly, because heat pumps are also more energy efficient for cooling, their widespread use could help alleviate summer peak demand as well. These considerations are integral to O&R's advanced forecasting, integrated planning, and its ongoing commitment to maintaining a safe and reliable electric grid. To this end, O&R leverages New NENY targets, historical Clean Heat program savings data, and advanced analytics to refine its forecasting models. As customer adoption of clean heating technologies grows, O&R recognizes the need for continual reassessment and enhancement of its forecasting approach. For further details, refer to the Advanced Forecasting section.

DAC and LMI Customers

O&R will continue to provide LMI customers with energy saving kits through food banks as part of its LMI Customer Engagement program. Educational presentations and outreach will be focused on low-income and DAC communities and include topics such as current programs, energy saving tips, renewable energy education, and careers in the energy industry. Additional details concerning O&R's LMI and DAC programs are available in the Energy Efficiency Integration and Innovation sections of this DSIP.

Integrated Implementation Timeline

Figure 30: Five-Year Plan for Clean Heat Integration



Risks and Mitigation

Table 16 below summarizes the risks that could affect the timely implementation of the future actions described above as well as the measures the Company has or will take to mitigate these risks.

Table 16: Clean Heat Risks and Mitigations

Risk	Mitigation
Rapid market evolution leading to stakeholders being unaware of programs or unsure of what the best option is for them.	• Maintaining flexibility in program structures. • Maintaining stakeholder engagement through robust digital campaigns, webinars, and education programs.
Project capital and operating costs to customers make energy savings and overall returns less attractive.	• Remote energy audits, additional strategic partnerships with large energy users, investments in new energy-saving technologies, and market channel strategies. • Continued emphasis on achieving deeper savings.
Continued inflation, tariffs, and other economic hardships impacting customers' abilities to invest in energy-saving projects.	• Continued coordination with DPS Staff, the JU, and NYSERDA to provide innovative solutions that may include low-cost financing and increased incentives to spur participation.
Current funding levels inadequate to support target energy savings.	• O&R is reevaluating its EE, LMI, and Clean Heat portfolios to adjust these programs to be in step with the market and will seek additional resources through grants and other programs as necessary to support program expansion.
Lack of workforce knowledge and skills to implement and manage new technologies and programs.	• Coordinating with NYS efforts to train a quality skilled labor force and continuously expand the pool of clean heat technology contractors. • Continuing efforts from the 2024 O&R Rate Case to develop new positions and hire employees to implement and oversee programs.

Stakeholder Interface

O&R's outreach strategy employs both print and digital media to target different customer segments, raise contractor awareness, and support heat pump technologies. The Company's program webpage is a central resource, offering details on requirements, incentives, and participation guidelines. O&R also conducts targeted direct mail campaigns—including through letters and postcards—to customers identified as likely to adopt heat pumps but who haven't engaged with past programs. Other printed materials such as technology fact sheets and point-of-purchase accompany in-store promotions at major retailers. The Company further promotes incentives by attending local outreach events such as home shows and industry conferences. To assist customers in making informed decisions, a Heating Comparison Calculator is available on the program website, that provides customers with an opportunity to compare costs between fossil fuel and electric heat pump options.

Digitally, O&R maintains a robust presence through email, online advertising, and social media platforms. Email campaigns target eligible customers with messages that highlight available incentives and explain

qualifying technologies. Communication with contractors and distributors is also comprehensive, using channels such as direct mail, emails, the website, webinars, and live events, as well as co-branding and partnership efforts with other utility-related organizations. Social media campaigns may include banner ads, short videos, and targeted content on social media sites, such as Instagram and Facebook, complemented by paid search engine placements. This multi-faceted approach helps expand awareness and encourage program participation by enhancing program visibility and educating both consumers and other stakeholders about heat pump technologies and incentives.

O&R has developed a specific outreach program to pursue NPA opportunities. This program heavily involves community stakeholders, especially municipal officials within the O&R service territory. By fostering these established relationships, the Company engages municipalities early in the process to facilitate project approvals, overcome canvassing restrictions, and assist with permitting for installations. This cooperation not only supports efficient project execution but also enhances customer trust by addressing general inquiries and facilitating a transparent process.

For direct customer outreach, the Company assigns a dedicated representative to serve as the single point of contact throughout the NPA program's participation process. Marketing materials, including brochures and door hangers, inform potential customers about the Electric Advantage Program's benefits, such as energy savings and building envelope improvements. Site assessments conducted by an implementation vendor identify opportunities for eligible upgrades and help tailor project scopes. If customers express hesitancy due to appliance preferences or other concerns, the Company collects feedback and explores alternative incentive packages, including the use of propane appliances, to address customer needs while still achieving gas consumption reductions. This flexibility extends to future programs that incorporate dual-fuel or partial electrification solutions.

The Company has also committed to hosting a technical conference of its NPA Program in 2025. The intent of this technical conference is to promote the further expansion of the Company's NPA program by providing insights into the Company's NPA approach and solicit feedback. Staff, community leaders, and other stakeholders will be invited to this conference to discuss the status of ongoing NPA projects as well as the Company's plans for NPA expansion.

Additional Detail

This section contains responses to items specific to Clean Heat.

1. **Using a common framework (organization, format, semantics, definitions, etc.) developed jointly with the other utilities, identify and characterize the existing and clean heat installation scenarios in the utility's service territory. Each scenario identified should be characterized by:**

    a. **The type of location (single family residence, multifamily residence, commercial space, office space, school, hospital, etc.);**

Within the Clean Heat Implementation Plan, the following installation scenarios are described in terms of their applicability to various building types:

- Residential – one to four dwelling units;
- Multifamily – five or more dwelling units;
- Small Business and Non-profit ("Small Biz"); and
- Commercial and Industrial ("C&I") buildings.

b. The number and spatial distribution of existing instances of the scenario;

See the Company's response to Question 1d below for number of projects of each type.

c. The forecast number and spatial distribution of anticipated instances of the scenario over the next five years;

While O&R does not currently forecast the number or spatial distribution of anticipated clean heat installation scenarios over the next five years, the Company incorporates the total gross fossil fuel reductions as a result of the clean heat program into the building electrification forecast, which also encompasses electrification external to the program. The increased load is forecasted at the distribution load area in the case of electric peak and at the customer service class level in the case of electric volume.

d. The types of clean heat solutions installed at a typical location (ASHP, GSHP, HPWH, etc.);

The NYS Clean Heat Program for O&R currently offers incentives categorized by technology type, system size, and incentive structure. Below are the categories O&R's 1,475 installed projects to date (2020-2024) fall within:

- Category 1 Cold Climate Air Source Heat Pump ("ccASHP"): Partial Load Heating (74 projects);
- [Discontinued] Category 2 ccASHP: Full Load Heating (596 projects);
- Category 2a ccASHP: Full Load Heating with Integrated Controls (98 projects);
- Category 2b ccASHP: Full Load Heating with Decommissioning (388 projects);
- Category 3 GSHP: Full Load Heating (75 projects);
- Category 4 Custom Space Heating Applications (22 projects);
- Category 4a Heat Pump + Envelop (2 projects);
- Category 5 HPWH up to 120 gallons of tank capacity (162 projects);
- Category 7 GSHP Desuperheater (23 projects);
- Category 8 Dedicated DHW WWHP (2 projects); and
- Category 9 Simultaneous Installation of Space & Water Heating (33 projects).

e. An hourly profile of a typical location's aggregated clean heating load over a one-year period;

The Company is currently working with its affiliate Con Ed to conduct a granular electrification forecast study, with one of the specific items to be studied being the 8,760-hour load profile for each building type. There is currently no timeline associated with this study.

f. The type and size of the existing utility service at a typical location; and

Clean Heat customers span the range of all O&R customers from small detached single-family homes to large commercial developments. As such, the utility services for clean heat customers varies widely.

g. The type and size of utility service needed to support the clean heating use case

The type and size of utility service needed to support clean heating use cases will depend on the level of electrification (*e.g.*, 100 amp versus 200 amp) and the various sizes of dwelling units (*e.g.*, apartments versus homes). The right size level of utility service needed will likely become clearer as Company heat pump installations are realized.

2. Describe and explain the utility's priorities for supporting implementation of the clean heating use cases anticipated in its service territory

In its 2020 and 2025 NENY Orders, the Commission initiated a common statewide heat pump framework for NYS, designed to guide the efforts of the JU. The Joint Efficiency Providers support NYS's clean energy policies and its efforts to advance the deployment of clean heat technologies. O&R's planned savings in 2024 and 2025 reflect a transfer in funding from the 2019-2023 unspent NENY Electric EE budget to the 2024-2025 NYS Clean Heat budget, allowing O&R to reach a total spending of 101 percent of the NENY Target for the program from 2020 to 2024. The Company filed updated budgets and targets in the NYS Clean Heat Statewide Heat Pump Program Implementation Plan[133] on September 11, 2024. This example, along with other recommendations for increased program flexibility, are discussed in the Company's NENY Interim Review Comments[134] and demonstrate its commitment to supporting use cases within the O&R service territory. Furthermore, O&R's involvement in the Proactive Planning Proceeding will enable the Company to support the implementation of clean heat through identifying and evaluating infrastructure upgrades needed to address building and transportation electrification. For more details on Proactive Planning, please see the Integrated Planning section.

3. Identify and describe all significant resources and functions that the utility and stakeholders use for planning, implementing, monitoring, and managing clean heating at multiple levels in the distribution system

a. Explain how each of those resources and functions supports the utility's needs

O&R is dedicated to meeting its electrification goals by acquiring projects, providing the necessary metrics on deployments, expenditures, and energy savings, enhancing the overall customer experience, and maintaining its fiduciary responsibility to its shareholders. To accomplish this, O&R requires a substantial and high-quality workforce, which is achieved through the Company's external stakeholder engagement, sector-specific program teams for interfacing between customers, contractors, and implementation contractors, as well as support functions, data management, and marketing teams.

O&R recognizes the growing impact of clean heat in its forecasting and planning processes. Clean heat is at the intersection of both electric and gas planning and represents a potentially significant, if unproven, source of grid flexibility. As the Company's program matures, the Company will look to enhance its planning processes and demonstrate that participating clean heat resources can shift demand to meet bulk power and/or local distribution needs.

b. Explain how each of those resources and functions supports the stakeholders' needs

From the perspective of stakeholders, the Company provides resources and tools to enable customer decision-making and support quality installations. Examples include its heating and cooling calculator,

---

[133] NYS Clean Heat: Statewide Heat Pump Program Implementation Plan, Version 8 (Filed March 16, 2020; Updated September 1, 2024)
https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={C0D0DD91-0000-CE7F-B46C-A10CAC42BAF3}.

[134] Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative,* Comments of Consolidated Edison Company of New York, Inc, and Orange and Rockland Utilities, Inc, on the New Efficiency New York Interim Review (Filed March 27, 2023).

product offerings on the My ORU Store, building a contractor network, and clean heat recommendations in HERs outreach.

4. Identify the types of customer and system data that are necessary for planning, implementing, and managing clean heating and infrastructure and services and describe how the utility provides this data to interested third parties.

O&R leverages customer data to help determine program eligibility such as name, address, and account number. In turn, customers can monitor their consumption data through AMI, allowing them to engage in more efficient energy habits. Aggregated customer billing data made available to contractors and other interested third parties through Green Button Connect ("GBC") can provide valuable insights into customer consumption profiles and potential marketing opportunities.

The Company utilizes customer data to derive the inputs used to model the BE modifier for the electric and gas volume and peak forecasts.

5. By citing specific objectives, means, and methods describe in detail how the utility's accomplishments and plans are aligned with New York State policy, including its established goals for clean heat adoption.

O&R supports the continuation of the Clean Heat Program and sees it as vital for NYS to achieve its climate goals. The Company will continue to work with the Commission, DPS Staff, participating contractors, stakeholders, and customers to expand the heat pump market. In accordance with the May 2025 non-LMI BE EE Order, O&R will continue its approach of coordinating residential weatherization offers with BE incentives offered through the NY State Clean Heat Program. This will complement CECONY's existing efforts to invest in deeper electrification efforts that advance progress on CLCPA goals.

The Company will also continue to work with the DPS Staff, participating contractors, stakeholders, and customers to adapt its BE Program as the portfolio shifts from one sanctioned by the 2020 NENY Order to one governed by the 2025 EE BE Orders. By the beginning of 2025, the Company had exceeded its NENY 2020-2025 program energy savings goal by 141 percent (122,149 total MMBtus saved).

6. Describe the utility's current efforts to plan, implement, and manage clean heat-related projects. Information provided should include:

a. A detailed description of each project, existing and planned, with an explanation of how the project fits into the utility's long-range clean heat integration plans;

O&R has a high volume of clean heat projects that are similar in scope and technology application. The Company implements these projects through its prescriptive, custom approach, and qualified contractor network so that all projects meet uniform standards. Through this process, all projects have standardized energy savings calculations and documentation in order to apply consistent quality control methods after the final installation. The Company's initiatives are in alignment with the NYS Clean Heat Program and play an important role in achieving NENY targets.

b. The original project schedule

The 2020 NENY, which provided budgets and targets for the period from 2020 to 2025, O&R's energy savings target was 86,657 MMBtu. In the 2025 NENY[135], which provides budgets and targets for the period from 2026 to 2030, the Commission approved O&R's proposal budget of $109,989,575 for both electric and gas programs, with a target Lifetime MMBtu savings of 14,558,400 MMBtu.

c. The current project status

By the beginning of 2025, the Company had exceeded its NENY 2020-2025 program energy savings goal by 141 percent (122,149 total MMBtus saved) and is shifting funding from its existing electric portfolio to the Clean Heat Program.

d. Lessons learned to-date

The Company has closely monitored program metrics to forecast accurately the performance of its Clean Heat Program and been diligent in taking action to adjust to market conditions. In addition, the Company identified the need for dedicated resources to support clean heat initiatives.

In addition, the Company will leverage lessons learned from the Clean Heat Program to inform the NPA Program. Unlike Clean Heat, the NPA Program actively targets specific customers to electrify their heating systems and all other natural gas end uses, aiming to eliminate the need for gas capital investments. Targeted NPA customers often hesitate to participate due to concerns about the capabilities and performance of cold climate heat pump technology. Addressing these concerns requires extensive education and multiple touchpoints between the Company, customer, and installation contractor. As the NPA Program evolves, the Company will assess the impact of electrification on customers' energy consumption. Although it is difficult to identify specific customer behaviors, such as heating and cooling demand, from aggregate consumption data, the Company will use customer surveys to gain a better understanding of these impacts.

e. Project adjustments and improvement opportunities identified to-date; and

The Company made incentive-level adjustments to manage its authorized Clean Heat Program budget and to align with market conditions. Adjusting incentives and monitoring implementation costs enabled the Company to stretch the budget and exceed targets, lowering the $/MMBtu from $121 in 2023 to $104 in 2024[136].

f. Next steps with clear timelines and deliverables

O&R looks forward to building on the progress achieved to date based on the original NENY order and the May 2025 NENY[137] Order Authorizing Energy Efficiency and Building Electrification Portfolios. The Company continues to focus on customer and contractor engagement to bolster this market and is

[135] Case 18-M-0248, *In the Matter of the 2026-2030 Non-Low- to Moderate-Income Energy Efficiency and Building Electrification Portfolios,* Order Authorizing non-Low- to Moderate-Income Energy Efficiency and Building Electrification Portfolios for 2026-2030 (issued May 15, 2025).
[136] Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative,* New York State Clean Heat Program 2024 Annual Report (Filed April 1, 2025).
[137] Case 18-M-0248, *In the Matter of the 2026-2030 Non-Low- to Moderate-Income Energy Efficiency and Building Electrification Portfolios,* Order Authorizing non-Low- to Moderate-Income Energy Efficiency and Building Electrification Portfolios for 2026-2030 (issued May 15, 2025).

addressing cost concerns through rebate programs. The Company is also in coordination with NYS's efforts to train a skilled labor force and expand the pool of clean heat technology contractors.

O&R also continues to coordinate with NYSERDA to evaluate and scale LMI customer electrification through 2030. This includes working toward a Building Electrification Roadmap outlining key policy approaches to that end, which includes increasing awareness and education on clean heat technologies for the LMI community.

Finally, the Company recognizes the value in marketing and packaging clean heat technologies with other EE offerings and weatherization services. For C&I customers this includes providing whole building solutions that will help them develop holistic energy management strategies.

7. Describe how the utility is coordinating with the efforts of NYSERDA, NYPA, DEC, DPS Staff, or other governmental entities to facilitate statewide clean heat market development and growth.

The Company regularly coordinates and collaborates with NYS agencies, the JU, authorities, and stakeholders on electrification efforts across the O&R service territory. The Clean Heat Program is implemented in close coordination with a portfolio of NYSERDA-led market development initiatives which are designed to build market capacity that deliver building electrification solutions. Market development efforts include, but are not limited to, workforce development efforts that support clean heat technologies and marketing and education initiatives for customers and other stakeholders. When projects are eligible for both Clean Heat Program incentives as well as NYSERDA program funding sources, projects may be eligible to receive funding from both – provided that each program supports achievement of distinct outcomes.

In addition, the Company is exploring expanding its close coordination with NYSERDA on market development for UTENs. The Company's Haverstraw UTEN Pilot will also investigate the NYS Department of Environmental Conservation ("DEC") permitting process for different thermal resources (*e.g.*, bore holes, rivers) and potentially provide DPS Staff with important data for regulatory framework development.

The Company will continue to closely coordinate clean heat efforts with NYSERDA, NYPA, DEC, DPS Staff, and other stakeholders.

Energy Efficiency Integration and Innovation

Introduction/Context and Background

Energy Efficiency ("EE") is a cornerstone of Orange and Rockland Utilities, Inc.'s ("O&R" or "the Company") strategy to deliver affordable, reliable energy while advancing New York State's ("NYS") ambitious climate goals. Guided by key policy directives such as the Climate Leadership and Community Protection Act ("CLCPA"),[138] which sets aggressive greenhouse gas reduction targets, and the New Efficiency: New York ("NENY") Order, [139] which mandates statewide energy efficiency benchmarks, O&R has developed and implemented programs that have consistently exceeded the energy savings targets established in the initial 2020 NENY Order. Since the program's inception, O&R has continuously evaluated and refined its efforts to reduce emissions, manage long-term grid costs, and enhance building energy performance through a comprehensive portfolio of electric and gas efficiency initiatives, beneficial electrification, demand response, and non-wires and non-pipes alternatives. These efforts are designed to deliver meaningful, accessible solutions that improve energy savings, customer comfort, and system reliability.[140]

Central to O&R's strategy to date has been its System Energy Efficiency Plan ("SEEP")[141] portfolio which aligns with New York State's ("NYS's") ambitious climate and energy savings goals and accelerate the clean energy transition. The SEEP encompasses a broad portfolio of electric and gas efficiency programs that will be transitioning to building electrification and weatherization measures to support the electrification of heating and to mitigate winter peak grid constraints. Initiatives will target beneficial electrification of heating and water heating with programs designed to reduce the heating and cooling needs that drive customer's energy use and corresponding bills. These programs will be offered in conjunction with our demand response ("DR") programs, non-wires alternatives ("NWA") and non-pipes alternatives ("NPA") to maximize the effectiveness of the portfolio of programs and their impact on the grid. In addition, the Company refined the recently created C&I Propensity Tool, launching the second iteration of the tool in 2024. The updated version expands past commercial customers, including small business and residential customers. Additionally, the updated version includes increased functionality to track and target projects in disadvantaged communities ("DACs"), while also enabling load analysis capabilities to better identify customers that could benefit the most from building electrification and envelope measures.

O&R's success to date has been fueled by a blend of residential and commercial initiatives, including strong participation in the C&I Electric Midstream offering that provides instant rebates for LED upgrades, beneficial electrification, and instant markdowns on do it yourself ("DIY") weatherization measures that also help increase awareness of the long-term benefits of weatherization. With the transition to more complex and expensive building electrification and weatherization measures, we will engage the trade ally community and provide tools necessary to move customers beyond lighting to whole building solutions that will support the transition from fossil fuels to full electrification, reduce energy consumption and greenhouse gas emissions. At the same time, the My ORU Store[142] digital platform

---

[138] New York State Senate Bill S6599 Climate Leadership and Community Protection Act: https://www.nysenate.gov/legislation/bills/2019/S6599.

[139] Case 18-M-0084, Order Adopting Accelerated Energy Efficiency Targets (Filed December 13, 2018) ("NENY Order").

[140] Information on rebates and incentives available to O&R residential and business customers is available on the Company's website at, https://www.oru.com/en/save-money/rebates-incentives-credits/new-york-customers

[141] Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative*, O&R 2024 SEEP Annual Report (Filed April 1, 2025).

[142] O&R's My ORU Store Website: https://ny.home.myorustore.com/.

connected customers and stakeholders to instant rebates and efficient products, making energy savings more accessible to everyday consumers. On the equity front, O&R strengthened its commitment to low- and moderate-income ("LMI") communities by coordinating with the EmPower+ program and distributing weatherization kits through food banks, resulting in thousands of project referrals and completions across NYS.[143]

Looking forward, O&R is preparing for an expanded role in the clean energy transition, exploring deeper, more holistic energy savings strategies. These include transitioning away from lighting measures to a broader "whole-building" approach, bundling heating, ventilation, and air conditioning ("HVAC"), insulation, and customized retrofits to maximize energy impacts. The My ORU Store will transition from a one-stop shop for energy efficient appliances to a valuable resource that educates customers on the long-term benefits of electrification and weatherization and pairs customers with trade allies for a personalized approach to fully electrify. O&R works alongside organizations like the Vermont Energy Investment Corporation to help large commercial and industrial customers develop and implement strategic energy management plans. Advanced data tools, including the C&I Propensity Model and Building Energy Usage Portal ("BEUP"), are being deployed to further refine program targeting and customer engagement. A new Residential Weatherization Program, launching in 2025, provides targeted incentives to reduce energy loss in homes through insulation and air sealing upgrades and prepare them for the transition from fossil fuels to beneficial electrification.

O&R is also embarking on a new software platform solution that will support state-wide clean energy goals, increase the awareness of the long-term benefits of beneficial electrification and prepare customers for the transition to full electrification. This Customer Analytics, Reporting and Engagement ("CARE") software platform will deliver a dynamic customer experience to both educate and enable stakeholder involvement in the transition to a clean energy future. The scope of tools provided through CARE will improve customers' digital experience and reflect the differing needs and experiences of customers and trade allies. The contractor community will play a significant role in meeting the electrification and weatherization goals of the Company and the State. The software platform will provide the tools to facilitate decision-making and encourage participation in beneficial electrification, weatherization upgrades and energy efficiency initiatives.

As O&R navigates future demands on the electric grid, its focus on demand-side solutions remains critical. The Company's suite of Dynamic Load Management ("DLM") programs will continue to evolve, offering customers incentives to reduce load during peak times while helping O&R manage system constraints. With growing electrification projected expected to shift winter peaks above summer levels, perhaps as early as 2035, DLM plays an increasingly vital role in maintaining grid reliability. Simultaneously, O&R will expand its outreach and participation strategies to provide equitable access to its programs, particularly for DACs and LMI customers. Ongoing collaborations with trade allies, contractors, and regional energy hubs will help deliver customer-focused, cost-effective clean energy solutions while advancing NYS's ambitious climate goals.

[143] EmPower+ helps low- and moderate-income households save energy and money toward energy improvements made to their primary residence. https://www.nyserda.ny.gov/All-Programs/EmPower-New-York-Program.

Implementation Plan, Schedule, and Investments

Current Progress

Summary of Achievements

- From the period of 2020-2024, O&R has surpassed target savings for both its gas and electric portfolios each year. Over this period, the Company achieved 130 percent of its Electric Portfolio target, and 113 percent of its Gas Portfolio target.
- Referred more than 16,700 LMI customers to the EmPower+ program and delivered no-cost weatherization kits and enrolled more than 1,100 LMI households in EE upgrades. Achieved greater outreach and education through the ORU Marketplace and school-based outreach programs.
- Launched a second-iterations of the C&I Propensity Model that expands past commercial customers to include small business and residential customers, and also includes increased functionality to track and target projects in disadvantaged communities ("DACs")
- Successfully ran the ninth full DLM capability period with high participation and performance, especially in residential programs like Bring Your Own Thermostat ("BYOT"). In addition, proposed new residential energy storage incentives and launched preparatory efforts for 2025 expansion.

Utility Capabilities In-Focus:
Planning & Forecasting – O&R's portfolio of customer programs designed to promote and *incentivize* energy efficiency initiatives help the Company better *forecast* energy needs and *integrate* those needs into future grid planning processes.
Customer Programs – O&R's EE portfolio includes six electric programs and three gas programs designed to target residential and/or commercial and industrial ("C&I") customers and incentivize their participation in energy-saving practices.
Market Participation – O&R supports third-party and contractor-led delivery models that expand access to energy efficiency offerings and enable broader participation in clean energy programs.

System Energy Efficiency Plan ("SEEP") portfolio program updates

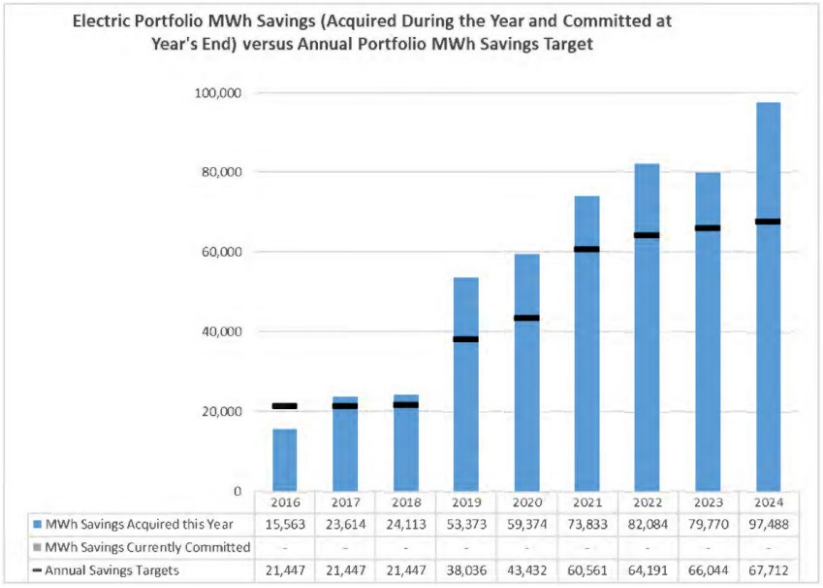
O&R's SEEP contains EE and DR initiatives, as well as additional initiatives and EE opportunities advanced through the Company's NWA solutions, beneficial electrification and LMI programs. The Company continues to expand its SEEP portfolio to achieve the NENY energy targets and to engage customers on a more personal level by providing:

- Tools to help them better understand how they use energy;
- Recommendations to manage energy needs more efficiently;
- A streamlined customer experience designed to increase participation; and
- Increased program offerings.

The Company's EE portfolio includes six electric programs and three gas programs specifically targeting residential and/or commercial and industrial ("C&I") customers. The flexibility built into the program implementation allows the Company to manage and add new delivery mechanisms and initiatives to the existing framework of program offerings to increase participation. The Company fostered program participation by providing limited-time offers to spur participation throughout the year, adding new eligible measures across programs and coupling with manufacturer rebates when possible. As a result, from the period of 2020-2024, the Company's electric portfolio achieved 392,545 MWh, or 130 percent of the NENY electric target, and its gas portfolio achieved 309,108 MMBtu, or 113 percent of the NENY gas target, while remaining under its portfolio budgets.[144] Figure 31 and Figure 32 below shows the MWh and MMBtu savings of the electric and gas portfolio, respectively, since 2016.

From 2020-2024, O&R's Electric Portfolio achieved 392,545 MWh in energy savings (130% of the NENY target), and its Gas Portfolio achieved 272,944 MWh (113% of the NENY target).

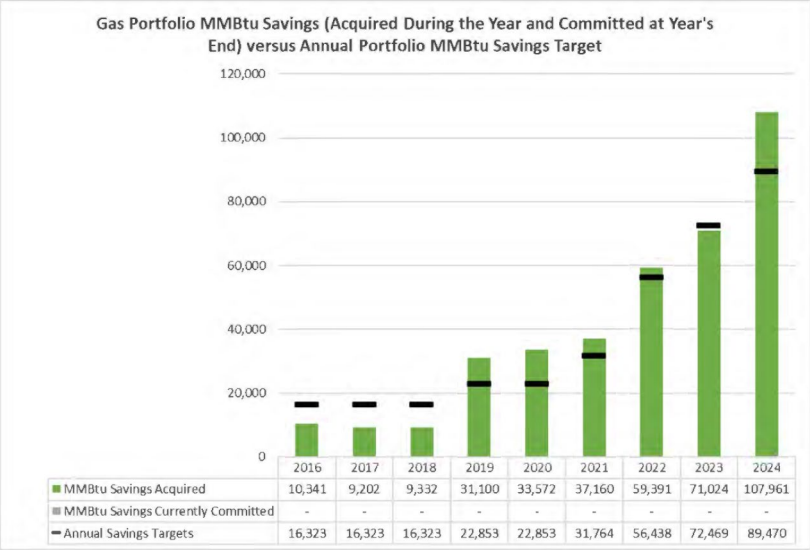
Figure 31: Annual MWh Savings of Electric Portfolio



	2016	2017	2018	2019	2020	2021	2022	2023	2024
MWh Savings Acquired this Year	15,563	23,614	24,113	53,373	59,374	73,833	82,084	79,770	97,488
MWh Savings Currently Committed	-	-	-	-	-	-	-	-	-
Annual Savings Targets	21,447	21,447	21,447	38,036	43,432	60,561	64,191	66,044	67,712

[144] Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative*, O&R 2024 SEEP Annual Report, p. 6, (Filed April 1, 2024).

Figure 32: Annual MWh Savings of Gas Portfolio



	2016	2017	2018	2019	2020	2021	2022	2023	2024
MMBtu Savings Acquired	10,341	9,202	9,332	31,100	33,572	37,160	59,391	71,024	107,961
MMBtu Savings Currently Committed	-	-	-	-	-	-	-	-	-
Annual Savings Targets	16,323	16,323	16,323	22,853	22,853	31,764	56,438	72,469	89,470

SEEP Portfolio – Electric Programs

The following are summaries of the Company's six electric EE programs.

1. **Residential Efficient Products Program**

The Residential Efficient Products Program targets energy savings throughout the residential electric customer base of the O&R service territory. The program provides rebates for ENERGY STAR® appliance upgrades, recycling of refrigerators, freezers and room air conditioners, and ENERGY STAR® products such as advanced power strips, air purifiers, dehumidifiers, pool pumps, dishwashers, showerheads, aerators, washing machines, and smart thermostats. The removal of lighting measures since the Company's last DSIP represented a challenge for the program, but participation and customer satisfaction with the program remained strong. By 2026, the program will focus exclusively on building envelope projects that include insulation and air sealing.

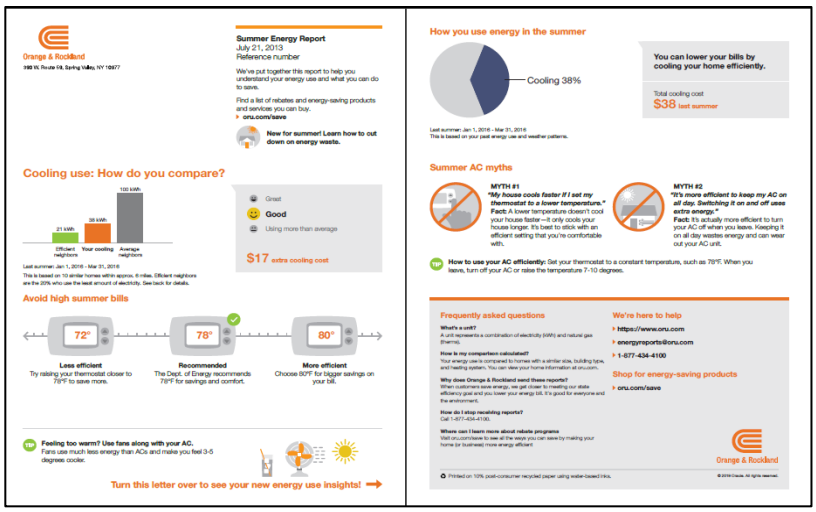
My ORU store platform expansions have helped to engage customers, offering enhanced rebates and lowering barriers to participation. Bundled instant rebates on HVAC control equipment purchases with seamless enrollment in demand response programs for eligible customers resulted in significant savings and increased program participation. In addition, platform enhancements such as improved features and functionality and new product additions provided an easy shopping experience and kept customers actively engaged.

2. **Residential Electric Behavioral Program**

The Residential Electric Behavioral Program, launched in 2019, targets energy savings through recommended voluntary behavioral changes personalized to each customer. The primary method to reduce consumption is a home energy report ("HER"). HERs provide customized energy saving recommendations to electric and gas customers to encourage behavioral changes in energy usage. HERs modules are also used to highlight limited-time offers on the online marketplace, Clean Heat rebates, weatherization incentives, and other program offerings, driving engagement and savings across sectors.

HERs benchmark customers' energy usage against their historical usage and the usage of similar homes in the area to encourage voluntary energy reduction. An example of a HER is shown in Figure 33Figure 33. Similar programs have been implemented throughout the country and have consistently produced a relatively small decrease in an individual customer's energy usage; however, over a large participant population, these individual small savings produce significant overall savings.

Figure 33: HERs Provided to Customers



3. Business Direct Install ("BDI") Program

O&R offers business customers with a peak demand of less than 110 kW a free on-site audit and audit report through the BDI program. The audit report includes recommendations specific to the customer's needs and the simple payback for their investments. This program covers up to 70 percent of the installed cost of lighting, refrigeration and cooling projects for business customers. Customers may apply for a short-term, no-interest payment plan offered by the implementation contractor so that their revenue stream is net positive upon installation, as a result of their bill savings.

While many small business customers eligible for this program continued to opt to participate in the C&I Electric Midstream program, the Company is seeing increased interest by small business customers to move beyond lighting-only projects.

4. C&I Electric Rebate Program

C&I customers that have relatively high energy usage realize the most benefit from EE improvements. The C&I Electric Rebate Program is designed to provide prescriptive and custom rebates to encourage all C&I customers to identify energy saving opportunities, develop long-term building performance improvement plans, and implement upgrade projects that are cost-effective to retrofit. Internal sales staff meet one-on-one with decision makers to promote HVAC, and other deeper energy retrofits. The targeted one-on-one approach has facilitated the achievement of program goals and developed long-term relationships with facility managers. For example, several large C&I customers have continually participated in O&R programs and seek Company advice when upgrading equipment or renovating facilities, while also participating in commercial DR programs.

O&R's C&I Propensity Tool enables the Company to identify energy savings opportunities for specific customers based on a variety of metrics, increasing program participation while simultaneously enhancing the customer experience. The Company refined and launched the second iteration of the tool in 2024. The updated version expands past commercial customers, including small business and residential customers. In addition, the updated version includes increased functionality to track and target projects in DACs, while also enabling load analysis capabilities to better identify customers that could benefit the most from building electrification and envelope measures.

5. C&I Electric Midstream Program

In 2019, O&R launched the C&I Electric Midstream Program to engage a trade ally network of distributors and contractors to increase participation in the program. In 2024, 38 distributors participated in this point-of-sale instant lighting incentive, providing contractors with indoor and outdoor LED lighting equipment at reduced prices. The midstream lighting program provides instant incentives on eligible lighting products, such as ENERGY STAR®-certified and Design Lights Consortium-listed lamps. While the program is implemented as a midstream program, customer eligibility is still verified before contractors provide instant rebates.

SEEP Portfolio – Gas Programs

Although gas programs are not the focus of this DSIP, the Company's SEEP portfolio offers three gas programs, which are described below.

1. Residential Gas HVAC Program

The Residential Gas HVAC Program targets energy savings throughout the residential customer base of the O&R service territory. The program provides rebates for ENERGY STAR® space heating and water heating appliance upgrades, weatherization upgrades, and low flow devices. In 2024 this program saw significant growth, nearly quadrupling savings compared to 2023 and accounting for 60 percent of total gas portfolio savings compared to 22 percent in 2023. Trade allies are integral to the success of this program and are made aware of program eligibility and rebate levels through newsletters, direct contractor outreach, and webinars.

In 2024, new in-store instant rebates for weatherization measures resulted in strong savings, leading to the Company achieving 170 percent of the planned target savings while only accounting for 48 percent of the planned budget expenditures. Marketplace engagement also remained strong, evidenced by website traffic and high customer satisfaction. O&R also saw success in pairing manufacturer discounts with EE rebates, a program initially discussed in the Company's 2023 DSIP filing.

2. Residential Gas Behavioral Program

The Company launched the Residential Gas Behavioral Program in 2019. The primary goal of this initiative is to encourage energy savings through voluntary behavioral changes in residential customers. This initiative is coordinated with the Residential Electric Behavioral Program, and similarly, uses the HER outreach methodology. Please see additional details in the Residential Electric Behavioral description above.

3. C&I Gas HVAC Program

The Company launched the C&I Gas HVAC Program in 2019 and targets energy savings throughout the C&I sector. The program provides rebates for ENERGY STAR® space heating and water heating appliance upgrades, low flow devices, and C&I custom gas projects. Trade allies that participate in the midstream model are made aware of program eligibility and rebate levels through newsletters, contractor breakfasts, and webinars.

Increasing participation in the Clean Heat Program resulted in reduced demand for gas HVAC measures; see the Clean Heat section of this DSIP. The Company will continue to engage large C&I customers with direct outreach and on-site meetings, with a focus on providing education and clarifying the options and the benefits of the Gas HVAC and Clean Heat programs.

Table 17 provides additional information on both the gas and electric programs that include performance and key highlights during 2024.

Table 17: O&R's NENY EE Program Performance – Electric and Gas Programs

	Program	Highlights	Verified Gross Electric Savings (MMBtu)	Verified Gross Gas Savings (MMBtu)	Total Verified Gross Energy Savings (MMBtu)
Residential Sector	***Residential Efficient Products***	• My ORU Store engagement remained strong with increased traffic and high customer satisfaction scores. • Bundled instant rebates on HVAC control equipment purchases with seamless enrollment in demand response programs for eligible customers resulted in significant savings and increased program participation. • Platform enhancements such as improved features and functionality and new product additions provided an easy shopping experience and kept customers actively engaged. • My ORU Store's platform expansions have helped to engage customers, offering enhanced rebates and lower barriers to participation.	**3,040**	(Electric Only)	**3,040**
	Residential Behavioral Program	• HERs provide customized energy savings recommendations to electric and gas customers to encourage behavioral changes in energy usage. • HERs have been tailored to promote EE and DR programs. • HERs modules highlighted limited time offers on the online Marketplace, Clean Heat rebates, weatherization incentives, and other program offerings. • Contributed 92% of the Residential Electric Portfolio savings and 28% of the Residential Gas Portfolio savings.	**35,874**	**26,475**	**62,349**
	Residential Gas HVAC Program	• New in-store instant rebates for weatherization measures drove strong savings. • Marketplace engagement remained strong, evidenced by website traffic and high customer satisfaction. • Marketplace paired manufacturer rebates with EE and DR rebates to reduce measure level cost and increase program participation.	(Gas Only)	**39,470**	**39,470**
Commercial Sector	***C&I Electric Rebate Program***	• Limited time offers and increased rebates drove participation.	**31,278**	(Electric Only)	**31,278**

Program	Highlights	Verified Gross Electric Savings (MMBtu)	Verified Gross Gas Savings (MMBtu)	Total Verified Gross Energy Savings (MMBtu)
C&I Electric Midstream Summary	• Limited time offers and increased rebates drove participation. • Conducted webinars to train participating distributor network, resulting in increased participation.	**260,598**	(Electric Only)	**260,598**
Business Direct Install ("BDI") (Program paused)	• Zero percent financing up to 24-months continued. • Enhanced incentive in Non-Wires Alternative area increased participation in Q1.	**1,839**	(Electric Only)	**1,839**
C&I Gas HVAC Program	• Limited time offers and direct customer engagement with large C&I customers drove participation. • Custom projects drove savings.	(Gas Only)	**14,408**	**14,408**

NWA Programs

The Company views EE DR initiatives as an important component of its NWA portfolio of solutions, which are aimed at deferring capital investment infrastructure upgrades. EE is often the least cost solution for providing the necessary DR to defer or avoid infrastructure investments and provide customers with continuous energy savings benefits over the life of the EE project. Because the reduction targets and needs of each NWA are unique, the solutions are developed on a case-by-case basis. Rebates in these areas are often higher to account for the additional deferral value of the capital investment and to increase participation to meet the DR necessary for the deferral.

O&R has targeted several areas for EE incorporated into NWAs; see the Beneficial Locations for DERs and NWAs section for more details. The West Warwick NWA, approved in the Company's 2021 electric base rate case,[145] is an example of energy efficiency paired with energy storage to defer capital infrastructure investment. In 2024, the Company completed EE activities in the West Warwick NWA, which utilized cost-effective strategies to reduce peak demand. This was coordinated under the BDI, C&I Electric, and C&I Gas HVAC programs.

LMI Customers

O&R remains committed to developing and administering new programs that align with the CLCPA's[146] goal of achieving 35 to 40 percent benefits for DACs, and expanded engagement with LMI customers. O&R filed its Statewide LMI implementation plan along with the JU in November 2024 with the Commission. The Company made significant progress against implementation plan targets for 2024 and for the cumulative period of 2020 to 2024. In total, O&R's LMI Program offerings contributed 273 MWh of electric savings and 5,743 MMBtu of gas savings in 2024. A detailed list of the Company's 2024 LMI efforts can be

[145] Case 21-E-0074, *Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plans, with Additional Requirements* (issued April 14, 2022).
[146] Note 13, *supra*, p. 16.

found in the annual Statewide LMI Portfolio Report.[147] Table 18 provides detailed figures around Achieved Gas Verified Savings vs the Implementation Plan Projections. [148]

Table 18: Achieved Gas Verified Savings vs Implementation Plan Projections (MMBtu)

	2024 Savings	2020-2024 Savings	2020-2025 Implementation Plan Projection	% Achieved to Implementation Plan Projection
Existing 1-4 Family Homes	3,885	10,032	12,367	81%
Existing Affordable Multifamily Buildings	1,148	1,318	1,239	106%
Affordable New Construction	-	-	-	N/A
Customer Awareness, Outreach & Engagement	168	822	962	85%
Total	**5,201**	**12,172**	**14,568**	**84%**

In 2024, O&R continued its partnership with local food banks to distribute vouchers for a free can of Spray Foam and/or a free Weatherization Kit from the ORU Marketplace. The Weatherization Kit contains two self-stick door sweeps, two corner door jam pads, a rope door and window caulk, a deluxe window film kit (accommodates up to five windows), four switch plate gaskets, eight outlet gaskets, two adhesive closed cell weather strips, and two pipe insulation wraps. The vouchers also provide information about the EmPower+ program.

O&R referred 16,763 pre-identified LMI customers directly to the EmPower+ program in 2024. 1,135 customers enrolled and completed projects.

EmPower+ provides no-cost EE services to LMI households in NYS with funding through NYS's Clean Energy Fund, the NENY Orders, the Regional Greenhouse Gas Initiative, NYS appropriation funding, and the Office for Temporary and Disability Assistance. The Low-Income tier of EmPower+ provides incentives of up to $10,000 for home energy upgrades for customers with income below 60 percent State Median Income ("SMI"). The Moderate-Income tier provides incentives of up to $5,000 for households with income between 60 and 80 percent SMI or Area Median Income ("AMI"). O&R referred 16,763 pre-identified LMI customers directly to the EmPower+ program in 2024. 1,135 customers enrolled and completed projects through the EmPower+ program. O&R continues to see the Empower+ program run at higher-than-expected costs. An additional $600,000 for electric and $1,250,000 for gas was sent in September of 2024 after funding ran out early in 2024. The Company closed multiple AMEEP projects in 2024 for both electric and gas. O&R has a pipeline of Attic Insulation and non-comprehensive projects for AMEEP in 2025.

[147] Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative*, Statewide Low- and Moderate-Income Portfolio Report 2024 (Filed April 1, 2025).
[148] Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative*, Statewide Low- and Moderate-Income Portfolio 2024 Annual Report (Filed April 1, 2025).

LMI Customer Engagement Program

O&R completed an impact evaluation of its LMI Customer Engagement Program in April 2025.[149] The goal of this program is to advance energy affordability and provide LMI residents and customers in disadvantaged communities to ("DACs") access energy efficiency programs to lower their bills, while supporting climate policy to transition to carbon-free electricity systems and reduce greenhouse gas emissions. The program includes two delivery initiatives, Food Bank, and Online Marketplace (or, "My ORU Store"). The Food Bank provides weatherization and LED lamp kits to LMI qualified customers through seasonal events at local Food Bank distribution centers within O&R's service territory. This initiative was the primary driver of LMI Customer Engagement savings representing 99 percent of energy savings and 98 percent of demand savings. However, LED energy savings have been discontinued for future years, and as such the Company expects future participation to largely come from the Marketplace. The overall impact evaluation established gross evaluated energy savings of 2,937,393 kWh, gross evaluated demand savings of 528 kW, and gross evaluated natural gas savings of 681 MMBtu.

The ORU Marketplace, provided enhanced rebates on smart thermostats, energy kits, air purifiers, weatherization items and Advanced Power Strips. The Marketplace processed 101 orders for 92 identified low-income customers in 2024. In addition, O&R participated in 11 school presentations ranging from kindergarten to 12th grade. The topics varied by grade level, with all grades receiving information on careers in the clean energy industry focusing on energy efficiency and renewable energy. Program information and educational material was sent home with the students to share with their parents. To increase awareness of the LMI Marketplace, customers who participated in Empower+ also received a coupon code to redeem on the Marketplace.[150]

Customer Engagement Marketplace Platform

The My ORU Store remains a critical component in the Company's residential EE portfolio. My ORU Store provides customers with a one-stop-shop to purchase energy-efficient products online with instant rebates applied at the time of purchase. Custom offers, instant incentives, and manufacturer discounts have allowed customers to find affordable products to help them better manage their energy use. Through a multi-channel marketing approach, including targeted personalized emails, customers are made aware of the variety of products and programs that can help them reduce their consumption and lower their energy bills. O&R earned the 2024 Energy Star Partner Award[151] by the federal government's ENERGY STAR® program for helping O&R customers make energy efficient choices to upgrade to ENERGY STAR® products. The Company's My ORU Store enables customers to shop online and receive instant discounts for ENERGY STAR® certified smart thermostats, advanced power strips, air purifiers, and dehumidifiers. O&R also partners with local retailers within the O&R service territory to provide ENERGY STAR® certified products at a reduced cost for customers.

Energy savings products including thermostats, dehumidifiers, air purifiers, advanced power strips, and low flow devices are rebated instantly at the time of purchase. The My ORU Store also connects customers with home service providers through the safety and convenience of a digital platform. The platform offers links to a solar and storage marketplace providing free online assistance to customers interested in solar and/or battery storage equipment. Customers are also provided with a solar and storage expert who can

---

[149] O&R Low-Moderate Income Customer Engagement Impact Evaluation, prepared by Applied Energy Group, (Filed April 24, 2025).
[150] Case 18-M-0084, Statewide Low- and Moderate-Income Portfolio 2024 Annual Report, filed April 1, 2025.
[151] Article, *Orange and Rockland Utilities, Inc. Earns 2024 Energy Star® Partner Award*, https://www.oru.com/en/about-us/media-center/news/2024/03-26/oru-earns-2024-energy-star-partner-award.

guide them through the entire process from inquiry to installation. The Company continues to collaborate with Veolia to offer mutual customers combined rebates on water and energy saving measures sold on the My ORU Store. This partnership helps raise awareness of water and energy conservation among the residential customer segment.

The My ORU Store also offers customer enrollment in Smart Savers, the Company's residential DR program. If qualified, a customer can purchase a smart thermostat and enroll in the program at checkout to receive both the EE incentive and DR enrollment bonus. By reducing the cost barrier, customers are more readily adopting energy efficient technologies and behaviors.

Through a partnership with Sealed, the My ORU Store offers home weatherization and insulation, efficient equipment upgrades, and heat pump installations that enhance whole home efficiency. In 2022, the Company expanded the residential marketplace to better serve LMI customers with enhanced rebates and targeted offers. In addition, the Company launched an entirely new business platform with custom do-it-yourself ("DIY") products and programs dedicated to helping local businesses easily adopt energy efficient technologies and save money.

Demand Response and Dynamic Load Management

Demand Response ("DR") is the act of reducing energy consumption from the grid.[152] DLM is a subset, or implementation method of DR and refers to managing and balancing the supply of electricity on the network with the electrical load by adjusting or controlling the load rather than the power station output. This is accomplished through incentive programs that aim to reduce energy consumption from the grid by encouraging customers to make temporary reductions of their electricity usage during peak demand periods. O&R recognizes that achieving a successful clean energy transition will rely heavily on expanding and modernizing electric infrastructure to support a substantial rise in energy demand. DLM programs are offered in conjunction with our energy efficiency programs to maximize the impact of our outreach and education efforts. To meet the increased demand resulting from electrification, there is a need to not only build new system capacity to meet increases in customer demand but to provide adequate opportunities to participate in DLM programs. Details on these DR and associated DLM programs are included in the Grid Operations section of this DSIP.

Future Implementation and Planning

Summary of Future Actions

- Continue transition to whole-building and deep-energy retrofits to move beyond lighting-based savings and into holistic upgrades in areas like refrigeration, HVAC, and insulations.
- Expand weatherization programs that target building envelop improvements, targeting areas like insulation, duct-sealing, and air-sealing.
- Strengthen marketing and outreach to broaden participation in DR and DLM programs.
- Transition programs to target beneficial electrification across residential and C&I sectors.
- Develop the CARE software platform to deliver a dynamic customer experience to both educate and enable stakeholder involvement in the transition to a clean energy future.

[152] New York ISO Demand Response Webpage: https://www.nyiso.com/demand-response.

New Efficiency: New York ("NENY")

As directed by the 2023 Order,[153] O&R filed its non-LMI EE BE Portfolio Proposal in November 2023.[154] On May 15, 2025, the PSC issued two orders authorizing utility-administered EE BE portfolios for the 2026-2030 period.[155] [156] Both orders authorized the cumulative EE BE program budgets for the non-LMI and LMI portfolios including the O&R specific cumulative budget for the 2026-2030 period. They also both maintain the established Strategic Framework previously included in the 2023 Order that 85 percent of portfolio budgets must be allocated to measures that can be defined as "Strategic", though some deviations will now be allowed for certain measures and appliances.[8]

In the non-LMI Order, the PSC approved, with modifications, the base portfolio that O&R submitted as part of its previously filed proposal. The non-LMI Order directed all utilities to submit a preliminary non-LMI EE BE Implementation Plan, consistent with the Order's requirements, within 60 days. Additionally, the non-LMI Order endorsed a collaborative model between the utilities and the NYSERDA where each organization has "differentiated roles and responsibilities, but work in tandem to achieve the State's policy goals."[9] The LMI Order directed the utilities and NYSERDA to file a single LMI Implementation Plan detailing program plans for the 2026-2030 LMI portfolio within 120 days of the order. The Company will adapt its programs to be consistent with the Strategic Framework and the other dictates of these orders.

O&R is exploring program opportunities to transition beyond lighting to establish more of a whole building solution that provides deeper energy savings for residential and commercial customers. These bundled savings opportunities could include upgrading existing equipment such as refrigeration, motors, and HVAC systems, and initiating custom projects. The Company is engaged in partnership with the Vermont Energy Investment Corporation ("VEIC"), which was awarded funding through NYSERDA's Strategic Energy Management ("SEM") Program Opportunity Notice "PON" 4371. The partnership provides eligible large C&I customers with professional energy coaches, helping to develop and implement the SEM plan. The SEM plan applies the principles of continuous energy management improvement to develop a comprehensive approach resulting in significant, long-term energy savings benefits. This partnership will help large C&I customers develop holistic clean energy plans at no cost, significantly reducing capital barriers, and providing professional expertise that might otherwise not be available or affordable. O&R will provide incentives to accelerate the adoption of energy savings measures identified in the SEM plan. In addition, O&R has begun building and utilizing tools for customer EE engagement, such as the C&I Propensity Model that leverages AMI data and the ENERGY STAR® Portfolio Manager® that enables EE benchmarking. These tools will be used by O&R to better understand customers' energy usage, promote customer EE engagement, and make informed EE investments.

---

[153] Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative*, Order Directing Energy Efficiency and Building Electrification Proposals (Filed July 20, 2023).

[154] Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative*, O&R's Energy Efficiency and Building Electrification Portfolio Proposal Filing (Filed November 2, 2023).

[155] Case 25-M-0248, *In the Matter of the 2026-2030 Non-Low- to Moderate-Income Energy Efficiency and Building Electrification Portfolios,* Order Authorizing non-Low- to Moderate-Income Energy Efficiency and Building Electrification Portfolios for 2026-2030 (issued May 15, 2025)

[156] Case 25-M-0249, *In the Matter of the 2026-2030 Low- to Moderate-Income Energy Efficiency and Building Electrification Portfolio,* Order Authorizing Low- to Moderate-Income Energy Efficiency and Building Electrification Portfolio for 2026-2030

Weatherization

In order to realize the full energy and cost savings potential of EE and beneficial electrification, the Company will continue to expand weatherization offerings. Weatherization upgrades reduce energy loss through enhancements to building envelopes, primarily by increasing insulation and sealing air leaks. The Company's Residential Weatherization Program will begin in 2026 and will offer incentives to increase the adoption of insulation, air sealing, and duct sealing for residences. Customers can work with participating contractors to install eligible measures and receive a discount on the contractor's final invoice.

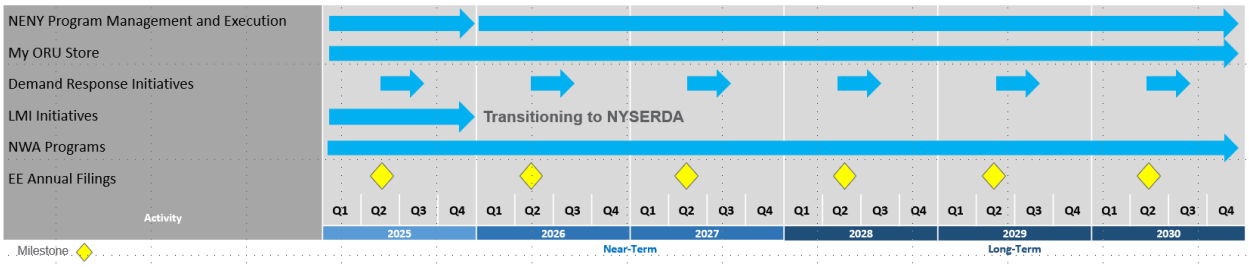
Demand Response and Dynamic Load Management

O&R plans to enhance its DLM programs by aligning new technologies and initiatives with existing offerings, ensuring broader customer engagement and maximizing overall benefits. The Company acknowledges that continued progress requires sustained effort, particularly in raising awareness and participation among customers. Benefit-cost analyses confirm that the DLM programs are cost-effective and deliver reliable, predictable results, reinforcing their value in managing summer peak demand and system contingencies. In 2025, O&R will expand its marketing and outreach strategies to build on current successes and foster broader adoption. DLM remains a cornerstone of O&R's strategy to support long-term energy goals by deferring infrastructure investments, promoting efficiency, and strengthening the grid's resilience and reliability. Through collaboration with regulators and stakeholders, O&R will continue to evolve these programs to deliver sustained value to New York customers.

In addition, O&R's CARE software platform will deliver a dynamic customer experience to both educate and enable stakeholder involvement in the transition to a clean energy future. The scope of tools will improve customers' digital experience and reflect the differing needs and experiences of customers and trade allies, and provide the tools to facilitate decision-making and encourage participation in beneficial electrification, weatherization upgrades and energy efficiency initiatives.

Integrated Implementation Timeline

Figure 34: Five-Year Plan for EE Integration and Innovation



Risks and Mitigation

Table 19 below summarizes the risks that could affect the timely implementation of the future actions described above as well as the measures the Company has or will take to mitigate these risks.

Table 19: Energy Efficiency Integration and Innovation Risks and Mitigations

Risk	Mitigation
Project complexity and ability of customers to have confidence in energy and cost savings, particularly for larger projects	Continual assessment and refinement of EE programs to identify areas where programs may not be clear and/or accessible.
Project capital and operating costs to customers make energy savings and overall returns less attractive	• Remote energy audits, additional strategic partnerships with large energy users, investments in new energy-saving technologies and market channel strategies • Continued emphasis on achieving deeper savings
Continued inflation, tariffs, and other economic hardships impacting customers' ability to invest in energy-saving projects	Continued coordination with DPS Staff, the JU, and NYSERDA to provide innovative solutions that may include low-cost financing and increased incentives to spur participation.

Stakeholder Interface

O&R continues to prioritize customer engagement through accessible EE and DR initiatives tailored for LMI households. In 2024, O&R partnered with local food banks to distribute vouchers for energy-saving products and provided information about the EmPower+ program, which offers up to $10,000 in no-cost home upgrades. These efforts led to more than 16,000 referrals and more than 1,100 completed customer projects, with additional funding allocated to meet higher-than-expected participation and costs.

O&R maintains a strong community presence through outreach programs, including school presentations on clean energy careers, and the distribution of program materials to families. The ORU LMI Marketplace and My ORU Store serve as key engagement platforms offering enhanced rebates, smart home products, and links to weatherization services. Customers are targeted through personalized marketing, store signage, and digital ads, promoting broad awareness of incentives and seamless enrollment in energy-saving programs like Smart Savers.

O&R continues its involvement in NYS's Statewide LMI Portfolio through regular stakeholder webinars, including the most recent held on December 5, 2024. Highlights included the $61 million Regional Clean Energy Hub initiative, co-designed with community-based organizations to serve DACs across 12 hubs. These hubs have hosted more than 2,100 outreach events and formed 100 new partnerships to support clean energy engagement and workforce development.

To further support program delivery, O&R collaborates closely with trade allies and contractors who promote EE solutions to customers. These partners help customers understand long-term savings from high-efficiency upgrades and often integrate rebates into their proposals, making energy-efficient options more appealing. O&R recognizes their contributions through award events and training sessions, reinforcing their vital role in achieving the company's energy savings and clean energy goals.

Additional Detail

This section contains responses to items specific to Energy Efficiency Integration and Innovation.

1. The resources and capabilities used for integrating EE within system and utility business planning.

The Company identifies areas for potential NWAs and NPAs and its EE team analyzes the customer demographics and historical usage to determine the potential impact that EE can contribute to reducing system peak and then utilizes the program portfolio to implement the solution. For example, if a significant amount of customer load is from small business customers in an NWA area and the peak reduction is needed during the traditional summer peak period, then the Company can offer an increased incentive to this business segment to participate in a direct install lighting program. The Company also forecasts the impact of its portfolio of clean energy programs to determine the future energy needs and integrates the impact on the electric and gas system planning.

2. The locations and amounts of current energy and peak load reductions attributable to EE and how the utility determines these.

The Company utilizes Demand Side Management ("DSM") software to track EE program performance at the measure level by customer to determine the achieved energy and demand savings based on the New York Technical Resource Manual ("TRM").[157] The DSM tracking system identifies the measures installed at each customer's premise and the associated energy and demand savings using the TRM along with an associated circuit and segment on the O&R system. This enables the Company to identify the amount of energy and peak load reductions attributed to each measure at the circuit and segment level.

3. A high-level description of how the utility's accomplishments and plans are aligned with New York State climate and energy policies and incorporate innovative approaches for accelerating progress to ultimately align with the CLCPA.

The Company has exceeded annual MWh savings targets since 2017 through its electric portfolio's suite of products and services offered to customers of all sizes and business types. The Company fostered program participation by providing offers to spur participation throughout the year, adding new eligible measures across programs and coupling with manufacturer rebates when possible. As a result, from the period of 2020-2024 the Company's electric portfolio achieved 392,545 MWh, or 130 percent of the NENY electric target, and its gas portfolio achieved 309,108 MMBtu, or 113 percent of the NENY gas target.

4. Summary information on energy efficiency programs offered by the utility, with direction to annual filings for more detailed information on energy efficiency programs.

See EE, LMI, and DLM program details discussed in Current Progress section above.

The following filings provide more detailed information on EE programs:

- 2024 SEEP Annual Report;
- Statewide LMI Portfolio 2024 Annual Report;
- DLM Annual Report; and

[157] New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs – Residential, Multi-family, and Commercial/Industrial Measures, v6 (issued April 16, 2018, effective January 1, 2019). http://www3.dps.ny.gov/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/72c23decff52920a85257f1100671bdd/$FILE/TRM%20Version%206%20-%20January%202019.pdf.

- Clean Heat Annual Report, see Clean Heat section for more details.

5. Describe how the utility is coordinating and partnering with NYSERDA's related ongoing statewide efforts to facilitate energy efficiency market development and growth.

The Company continues to work with NYSERDA to enhance existing programs and develop new programs that are complementary to NYSERDA offerings. The Company coordinates with NYSERDA on their joint LMI implementation plan, Clean Heat Plan, and its SEM PON with VEIC. O&R will refer low-income customers and provide supplemental funding to the Empower+ Program administered by NYSERDA. In addition, the PSC endorsed a collaborative model between the utilities and the NYSERDA where each organization has "differentiated roles and responsibilities, but work in tandem to achieve the State's policy goals"[158].

[158] Case 25-M-0248 - *In the Matter of the 2026-2030 Non-Low- to Moderate-Income Energy Efficiency and Building Electrification Portfolios*, Order Authorizing non-Low- to Moderate-Income Energy Efficiency and Building Electrification Portfolios for 2026-2030, pg. 4, (Filed May 15, 2025)

Data Sharing

Introduction/Context and Background

Sharing customer and system data fosters market development and supports New York State's ("NYS's") clean energy goals established under the Climate Leadership and Community Protection Act ("CLCPA"). Orange and Rockland, Inc. ("O&R" or "the Company") is committed to upholding strict privacy and cybersecurity standards as it facilitates data access for third parties to develop innovative products and services that benefit customers and enhance the electric grid. By enabling access to valuable system and customer data through secure protocols, O&R supports the transition to a cleaner, more resilient, and affordable energy system, attracting investment and expanding opportunities for cleaner energy solutions across all communities, including DACs.

Distribution system data includes information such as load, voltage, power quality, capacity, equipment status, and operating characteristics, collected at varying frequencies and system levels across the O&R service territory. Sharing this information with stakeholders through methods like hosting capacity maps, which display the amount of Distributed Energy Resources ("DERs") that can be accommodated on the system in a given area, can empower DER providers to make informed business decisions, target marketing efforts, support electric grid needs, and respond to non-wire alternatives ("NWA") solicitations. Continued enhancements to hosting capacity maps, such as color-coded zone identification, cost-sharing indicators, and interactive pop-up features, support continued innovation and infrastructure development. Additional information is available in the Hosting Capacity section of this Distributed System Implementation Plan ("DSIP").

Customer data includes customer energy usage data, customer-sited generation data, account, and load profile information. Customers' access to their granular data enables individuals to manage energy consumption, and if the customer opts to share that data with third parties, stakeholders can then develop solutions to optimize and provide flexibility to the grid to meet demands.[159] O&R's Advanced Metering Infrastructure ("AMI") has made customer data more available than ever in near-real time by delivering it directly to customers through platforms like the My Account portal. Customer can receive insights via Home Energy Reports ("HERs") and Weekly AMI ("WAMI") updates to help them keep track of their energy usage and gain insights into opportunities to improve energy efficiency. O&R safeguards customer-specific data by requiring consent before sharing it with third parties and by following rigorous privacy protocols. In August 2024, O&R earned Green Button Certification from the Green Button Alliance, confirming its data-sharing platform meets industry standards for secure, standardized access to energy usage data for customers and developers.

To further increase stakeholder access to customer date, the Commission ordered the development of the Integrated Energy Data Resource ("IEDR").[160] The system provides stakeholders with secure and user-friendly access to both utility and non-utility energy data, supporting clean energy initiatives through advanced analytics and prioritized use cases. Following the conclusion of its pilot in 2021, the program entered a two-phase development, with Phase 1 establishing a centralized data platform and Phase 2 focused on enhancing its functionality. O&R, through a program that is headed by their affiliate CECONY,

[159] O&R provides information on the benefits of, and process for sharing information on it's website at, https://www.oru.com/en/accounts-billing/share-energy-usage-data

[160] Case 20-M-0082, *Proceeding on Motion of the Commission Regarding Strategic Use of Energy Related Data*, Order Implementing an Integrated Energy Date Resource (issued February 11, 2021) ("IEDR Order).

has been involved in supporting IEDR development, participating in technical and strategic working groups, contributing large datasets, and preparing for further integration and automation efforts in 2025.

O&R remains committed to improving and expanding access to high-quality system and customer data to support the clean energy transition and the CLCPA's ambitious targets. Data-sharing programs are deliberate strategies to enhance stakeholder engagement and transparency, fostering collaboration between customers and industry developers to improve the energy landscape. Through continued engagement via online platforms, webinars, surveys, and other outreach efforts—along with enhancements to data-sharing tools and a strong focus on privacy and security—O&R will support the growth of innovative clean energy markets so that customers, DER providers, and communities have the information they need to thrive in a sustainable energy future. As data capabilities grow and customer needs evolve, O&R will adapt its offerings to further empower customers, improve grid resiliency, and accelerate NYS's path to a carbon-free future.

Implementation Plan, Schedule, and Investments

Current Progress

Summary of Achievements

- Enhanced data sharing platforms to give customers and third-party providers greater access to customer data. Customers receive tailored energy-saving recommendations, track real-time and historical data, access tips, and complete HERs. These tools benefit both customers and the electric grid.
- Successfully completed all requirements and received the Green Button Certification. This program is administered by the Green Button Alliance to verify that utilities' data-sharing platforms comply with the Green Button standard.
- Deployed the Building Energy Usage Portal ("BEUP"), which enables participating building owners to obtain their aggregated electric and/or gas energy usage.
- Supported Phase 1 of the IEDR which included the development of the Initial Public Version ("IPV") and Minimum Viable Product ("MVP") use-cases.
- Participated in the Utility Coordination Group ("UCG") and IEDR Technical Working Group to support the development of the IEDR, focusing on use case development, data architecture, and safeguarding data quality, privacy, and security.
- Transferred billing and accounting history data from 2022 to present to the IEDR. From 2023 to 2024 this includes more than 1 TB of data from the Company's AMI system.

Utility Capabilities In-Focus:

Hosting & Registration – Data collected and shared through O&R's hosting capacity maps help stakeholders analyze the system which enables them to make informed business decisions and support interconnectivity to support electric grid needs.

Customer Programs – Enhanced AMI data has enabled O&R to refine customer programs and boost participation by offering improved tools like Home Energy Reports ("HERs") and Weekly AMI ("WAMI") reports that promote energy efficiency.

Market Participation – O&R's participation in data-sharing initiatives like IEDR and BEUP support clean energy market growth by providing critical data to stakeholders to inform program design and measure performance.

System Data and Hosting Capacity Maps

O&R continued to enhance its system data sharing capabilities via hosting capacity map updates and associated key stakeholder education efforts on the use of, and updates to, the hosting capacity map. The Company provided the latest O&R hosting capacity maps in April 2025[161] and shared with the IEDR. Recent improvements include added visual display of New York Independent System Operator ("NYISO") load zone sub-regions, enhanced granularity of hosting capacity values to display flicker, overvoltage, voltage deviation, thermal, and anti-islanding constraints separately, and added nodal-level granularity within each feeder to supplement existing feeder-level views. These improvements are intended to advance broader NYS policy objectives by facilitating the integration of aggregated DERs into NYISO markets under Federal Energy Regulatory Commission ("FERC") Order 2222[162] and enabling timely, standardized data sharing through the statewide IEDR platform.

In addition, various utility-specific information can be found on the Joint Utilities ("JU") Website,[163] such as capital plans and reliability statistics. The Company's website and hosting capacity maps provide stakeholders with access to myriad relevant system data to include as inputs to their technical and business decisions. Additional details are available in the Hosting Capacity section of this DSIP.

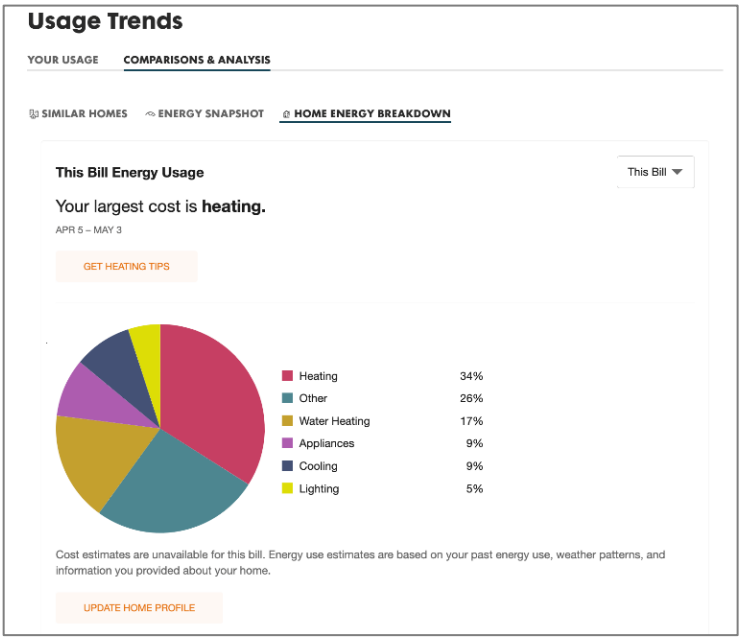
Customer Data

The Company enhanced data sharing platforms provide customers and third-party providers greater access to customer data, empowering informed energy choices and supporting DER development. Providing specific data and recommendations help customers make decisions that benefit both themselves and the electric grid. For example, the Company provides HERs, WAMI reports, and High Bill Alerts ("HBAs"). HERs show customers their energy consumption compared to similar homes, offer energy-saving tips, and facilitate enrollment in savings programs. These comparisons raise awareness and encourage voluntary reductions in consumption. Personalized messages motivate customers to improve their usage and benchmark against neighbors, resulting in increased energy savings and program participation. The Energy Efficiency section of this DSIP provides more detailed information on the HERs.

Customers can receive WAMI report emails that provide a weekly overview of their energy use and compare it to the previous week. HBAs, available to all customers with an email address and an AMI meter, help avoid high bills by alerting customers to increased energy use and offering tips and links to energy-efficient products. The Company continually evaluates report types to help customers make informed energy decisions. Through the My Account portal, customers receive tailored energy-saving recommendations, track real-time and historical data, access tips, and complete HEAs. Figure 35 provides a view of the account portal usage trends page.

[161] Maps are updated annually in April accessible through the O&R site https://www.oru.com/en/business-partners/hosting-capacity.
[162] FERC, Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators (RM18-9-000; Order No. 2222) (issued September 17, 2020).
[163] Joint Utilities website: https://jointutilitiesofny.org/.

Figure 35: Screenshot of Usage Information Available to Customers on their My Account Portal



O&R supports the clean energy market by enabling DER developers and community distributed generation ("CDG") Hosts to use customer-consented data for business decisions, product development, and subscription sizing, while anonymized data shared through NWA RFPs and aggregated municipal data supports broader clean energy initiatives and Community Choice Aggregation ("CCA") evaluations. Working closely with DPS Staff, the JU, and stakeholders, O&R continues to improve data access while upholding strong privacy standards, allowing building owners to request aggregated usage data online for energy planning. To enhance customer engagement, O&R provides real-time pricing and hourly metering customers with detailed usage reports and personalized energy-saving insights. In addition, O&R and CECONY offer energy service companies ("ESCOs") access to customer usage data through secure Application Program Interfaces ("APIs"), providing seamless, privacy-compliant data exchange.

Green Button Connect ("GBC") (Share My Data) and Green Button Download

The Company implemented the GBC protocol for sharing interval usage data with DER providers, branded as Share My Data, and expanded the data elements available via Share My Data through continuous enhancements. In August 2024, O&R alongside its affiliate CECONY (collectively, the "Companies"), successfully completed all requirements and received the Green Button Certification. This program is administered by the Green Button Alliance to verify that utilities' data-sharing platforms comply with the Green Button standard. This benefits both customers and developers by verifying secure and standardized access to energy usage data. For customers, it means they can easily share their data with third-party applications to gain insights into their energy consumption, reduce costs, and participate in energy efficiency programs. For developers, it provides a reliable framework to develop innovative solutions that leverage this data, fostering market development and supporting grid modernization efforts

Available datasets through the program include:

- Account number;
- Meter number;

- Service address;
- Energy or net energy usage data (kWh, net kWh, Ccf);
- Reactive power (kVAR);
- Service classification;
- Installed capacity ("ICAP tag");
- Total electric and gas bill costs;
- Billing history;
- Interval usage timestamp;
- Reading type (actual versus estimate); and
- Peak demand (kW).

Beyond these data sets, the Companies routinely engage stakeholders to identify and evaluate additional data to include in Share My Data. For example, in response to stakeholder feedback, the Companies intend to add a "Load Forecast Zone" field in the near future.

Additional enhancements to the Share My Data platform in Q3 of 2024 were initiated to further align with the Green Button Alliance's national standards. This involved integrating new data elements, optimizing system performance, improving APIs, and refining the web user interface and user experience. These modifications are driven by participant feedback from the Share My Data program, adherence to the Green Button Alliance's national standards, and the Companies' ongoing dedication to support third-party clean energy initiatives.[17] O&R and CECONY provide continual outreach and support to customers and third parties in advancing usage of the Share My Data platform. For example, the Companies provides technical assistance, communicates the advantages of the platform through various forums, and is also represented on the Green Button Alliance Board.

Since the last DSIP filing, customer data sharing has expanded and is currently used by 45 authorized third parties. Across the O&R and CECONY services areas, approximately 70,000 customers have consented to sharing that data with authorized-third parties, and that number is growing daily. The program has onboarded a municipal agency with a large volume of accounts to the Large Customer APIs, encompassing around 8,000 accounts and one ESCO has onboarded the ESCO APIs. The Companies are also seeing growing interest in energy usage data for academic research, which reflects additional uses for the platform. On average, the Companies receive more than 335,000 API calls daily which highlights the value stakeholders place in these data sets.

The Share My Data platform makes it easy for customers to view and share their energy usage data with third-party companies. The additional data granularity improves the quality of insights and recommendations from these companies on specific programs and/or services to increase energy efficiency and reduce overall energy costs.

Aggregated Customer Data and the Building Energy Usage Portal

O&R also continues to offer data necessary for energy benchmarking. In June 2024, the Company deployed a new platform known as the BEUP, which enables participating building owners to obtain their aggregated electric and/or gas energy usage. This program leverages AMI data that is automatically uploaded to the U.S. EPA ENERGY STAR® Portfolio Manager® ("ESPM") each month. Instructions for

building managers on how to register for the BEUP program are located on O&R's website.[164] Users can utilize the system to produce customized reports, download datasets, and benefit from an enhanced, user-friendly interface that improves productivity. Additionally, the system includes administrative tools and reporting features to support customer service.

Integrated Energy Data Resource and Data Access Framework

The Commission directed the:

> …implementation of an IEDR that securely collects, integrates, and provides useful access to a large and diverse set of energy-related information on one statewide data platform. The types of information and tools made accessible through the IEDR should provide useful insights related to the provision and use of electricity and natural gas in New York State.[165]

The IEDR seeks to provide stakeholders with "useful access to useful energy data" and will contain both utility and non-utility data. Users of the IEDR must comply with data protection and privacy standards to be established under and governed by the Data Access Framework ("DAF").[166] Access controls will be aligned with the legitimate needs of each user type while also preventing unwarranted access to information that does not serve the user's legitimate needs. The IEDR will offer data analytic tools that will enable the deployment of clean energy solutions in furtherance of NYS's clean energy goals. The establishment of the IEDR is focused on identifying and prioritizing use cases that provide value to stakeholders.

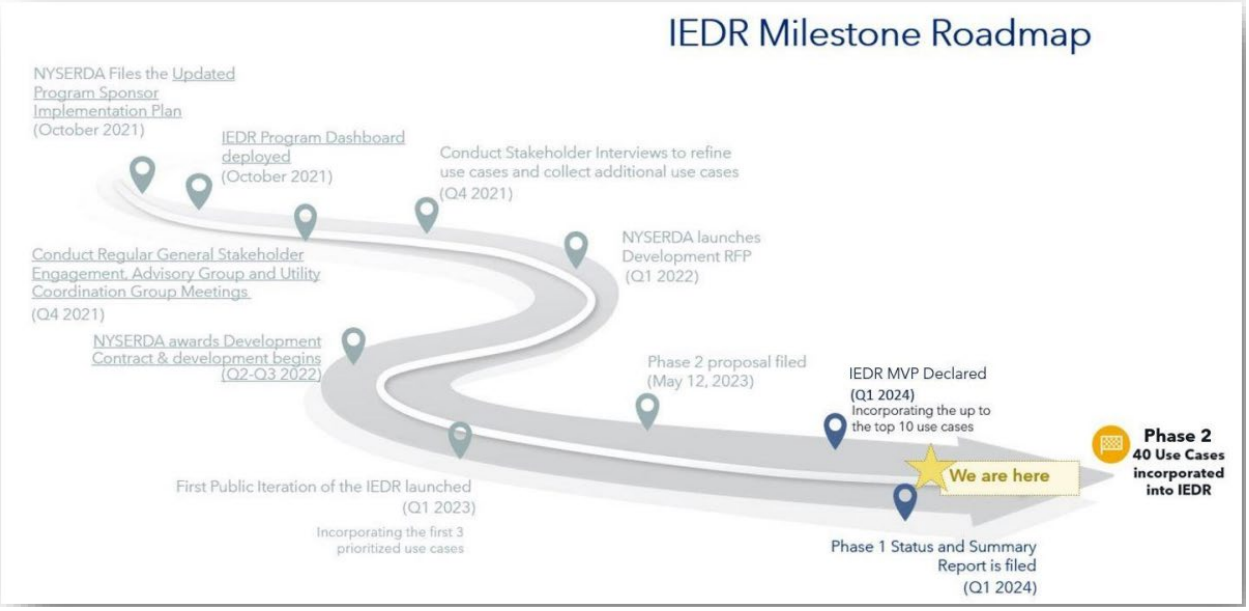
On March 28, 2024, the MVP of Phase 1 was launched, complimenting the previous development of the IPV in 2023. These milestones enabled the succession to Phase 2 in April 2024 and a plan to develop at least 40 use cases, with an emphasis on scalable operations and enhanced analytical insights, with the capability to extract comprehensive energy data from existing systems and transferring them to the IEDR platform.

O&R is engaged in IEDR development through coordination with its affiliate, CECONY. CECONY represents both companies on the Utility Coordination Group ("UCG") attending weekly meetings with stakeholders, including the JU IEDR Technical Working Group, to discuss IEDR status, data architecture, transfer processes, and key implementation issues. Close coordination between the two companies keeps them progressing together on key programs and initiatives, like aggregating and sharing data to the IEDR. In December 2024, O&R and CECONY together transmitted one year's worth of 2023 historical AMI interval data—totaling five terabytes—to the IEDR Development Team and provided updated hosting capacity maps with the latest published data. Other recent efforts have focused on use case development, Green Button Connect deployment, Alpha+ testing preparation, single sign-on ("SSO") configuration, and protecting data quality, customer privacy, and security. O&R, together with CECONY, also participated in deep-dive sessions with the IEDR Development Team to address Network Data and Hosting Capacity Map updates. Figure 36 shows the IEDR Milestone Roadmap through phase one of the program development and progression into Phase 2 use cases.[167]

---

[164] How to Request Annual, Aggregated Energy Consumption Data for your Building: https://www.oru.com/en/for-commercial-industrial/aggregated-building-energy-consumption-data.
[165] IEDR Order, pp 2-3.
[166] Case 20-M-0082, *Order Adopting a Data Access Framework and Establishing Further Process* (issued April 15, 2021) ("DAF Order").
[167] NYSERDA Integrated Energy Data Resource ("IEDR") Program Phase 1 Summary (Filed April 30, 2024).

Figure 36: IEDR Milestone Roadmap



O&R and the other JU members acknowledge the need for a comprehensive data dictionary which would clearly and fully define standards for the meaning, structure, and attributes of the data that they share with external recipients. The IEDR project maintains data exchange specifications for each data stream with a data dictionary defined in each. The Company supports this effort and will comply as the standards evolve.

Utility Energy Registry

The Utility Energy Registry ("UER") is a public online platform developed by the New York State Energy Research and Development Authority ("NYSERDA") to provide aggregated, community-level energy consumption data in a standardized format. It supports local governments, planners, and researchers by offering insights into electricity and natural gas usage across NYS, helping to inform clean energy planning and policy decisions while protecting customer privacy. In December 2024, the Commission issued an Order related to the transition of utility reported community-scale energy usage data to the IEDR. This Order directed the utilities to cease with UER reporting responsibilities once the IEDR can produce and publish aggregated community-scale energy use data.[168]

Privacy Standards and Protocols for Sharing Customer Data

Since 2020, the JU have continued to increase the data available to customers while sharing the Commission's interest in and long-standing policy of protecting the confidentiality of customer information and evaluating disclosure exceptions. The protection of customer information, including energy usage data and personally identifiable information ("PII"), continues to be part of the Company's responsibility and commitment to its customers.

The Company does not share customer-specific information without customer consent, except when required by Commission Order, such as in a CCA or as permitted by the Commission to carry out utility

[168] Cases 20-M-0082 and 17-M-0315, *Department of Public Service Staff Proposal on the Transition of Utility Reported Community-Scale Energy Usage Data* (Filed November 8, 2023).

programs. For all GBC and EDI transactions, the Company requires all third parties to complete the SA and execute the Data Security Agreement ("DSA"). The DSA is also used in conjunction with CCA requests.[169]

Data Privacy Standard for Aggregated Data

O&R has implemented processes aligned with statewide standards to ensure data security and privacy, including compliance with the Commission's 4/50[170] [171] privacy screen for aggregated datasets and adoption of updated standards for the UER.[172] In addition to supporting UER requirements, O&R has processed multiple requests for aggregated data tied to the assessment and development of CCA programs and continues to track and evaluate related use cases. Working in coordination with the JU, O&R developed and maintains robust processes to manage cybersecurity risks associated with third-party access to customer data, incorporating essential practices like multi-factor authentication and cyber insurance as foundational elements of its evolving cybersecurity program. O&R also facilitates building owners' access to whole-building data under established Terms and Conditions, detailed on the Company's website.

Data Security Agreement

The Company requires all parties that use Share My Data or EDI to execute a DSA and submit an SA. O&R worked with the JU to develop a DSA to be used by each of the JU with third parties that interact with the utility's computer systems to obtain customer data.[173] For example, the DSA must be executed by ESCOs, third parties that use Share My Data, and certain other DER providers. The DSA has been in place since January 2024 and is available on the NYSERDA E-Source website.

Future Implementation and Planning

Summary of Future Actions

- Continue to enhance data-sharing capabilities based on stakeholder feedback while complying with approved customer data protections and actively participating in data-related proceedings.
- Expand and enhance the initial IEDR implementation through development and implementation of Phase 2 use cases.
- Continue to develop capabilities aligned with the Hosting Capacity Roadmap and prioritize use cases based on stakeholder feedback.
- Engage stakeholders, in collaboration with the JU and the Information Sharing Working Group ("ISWG"), to continue expansion of the statewide data sharing best practices.

The Company will continue to enhance its data-sharing capabilities based on stakeholder feedback while complying with approved customer data protections and actively participating in data-related proceedings. Through engagement in various working groups like the Interconnection Policy Working

[169] O&R explains its customer privacy policy on its website at https://www.oru.com/en/privacy-statement.
[170] DSIP Proceeding, Whole Building Order. DPS Staff approved the Terms and Conditions on January 2, 2020.
[171] https://www.oru.com/en/for-commercial-industrial/aggregated-building-energy-consumption-data.
[172] Case 17-M-0315, *Order Adopting Utility Energy Registry Modifications* (issued August 12, 2021). Reaffirmed in Order Denying Rehearing (issued May 16, 2022).
[173] Case 18-M-0376, *Proceeding on Motion of the Commission Regarding Cyber Security Protocols and Protections in the Energy Market Place* ("Cybersecurity Proceeding"), Order Establishing Minimum Cybersecurity and Privacy Protections and Making Other Findings (issued October 17, 2019) ("Cybersecurity Order").

Group (“IPWG”) and Interconnection Technical Working Group (“ITWG”), the Company will focus on updates to online portals and refining and/or expanding system data use cases to better meet stakeholder needs. In addition to maintaining access to the system data information already being collected and shared, as identified above, the Company will continue to increase its collection of granular system data through SCADA as part of the Company’s grid modernization effort. This will be accomplished in part through the deployment of additional and improved substation-level metering data, commissioning of new automated distribution devices, and through the AMI system. Further details on the Company’s SCADA and grid modernization efforts can be found in the Grid Operations section of this DSIP.

As Phase 2 of the IEDR implementation continues, O&R will support the expansion of hosting capacity data applications, including customer-specific hosting capacity insights that enable users to assess available system capacity at individual premises by integrating substation, feeder, and service connection data. The program will also advance an enhanced DER interconnection portal with standardized HC data across utilities, offering more detailed interconnection queue information and application tools. In addition, hosting capacity will be leveraged for broader planning initiatives, such as the "Accelerated DER Siting" effort, using HC data alongside land use and load growth projections to strategically identify optimal areas for new DER investments.

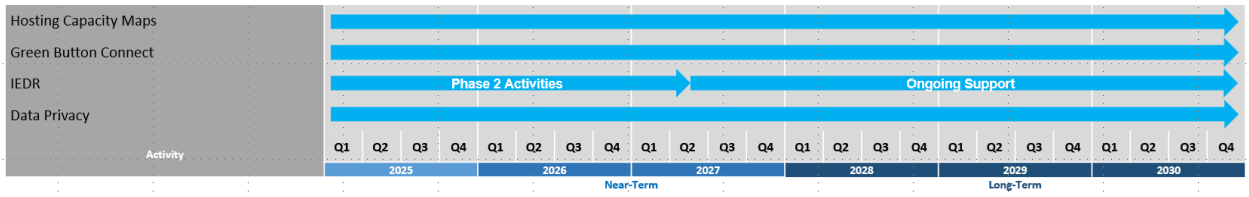
O&R will continue to engage in the various IEDR Working Groups (*e.g.*, ISWG, UCG, Customer Consent Working Group (“CCWG”)). As the centralized data resource, the IEDR will be the source of information to support many third-party actions to participate in the clean energy environment. More detailed information on the Company’s activities to support the IEDR is found in the Company’s response to Question 5 below.

O&R and the other JU members share the Commission’s interest and long-standing policy of protecting the confidentiality of customer information and evaluating disclosure exceptions as the Company continues to increase the available customer and system data. O&R continues to collaborate with the JU members and stakeholders to strike the right balance between advancing clean energy objectives and maintaining customer privacy and data security, using actual data user needs and requests to inform privacy standards. For example, the Pilot IEDR informed the balance between supporting an increased deployment of DERs and maintaining customer privacy.

Finally, the Company anticipates that the granular data that it gathers can be used by customers to evaluate offerings by third parties, such as an analysis of the cost savings or impact of EV ownership or the deployment of energy storage products. These offerings may reside on the Company’s marketplace, MY ORU Store, or other Company-administered platforms. The Company will continue to evaluate how it can make available customer data in a manner and method that will support customers’ evaluation and adoption of increased electrification technologies and other programs, including EE and DR. O&R will also continue to offer data necessary for energy benchmarking and advertise the new BEUP program to building and property managers in an effort to increase participation in the program.

Integrated Implementation Timeline

Figure 37: Five-Year Plan for Data Sharing



Risks and Mitigation

Table 20 below summarizes the risks that could affect the timely implementation of the future actions described above as well as the measures the Company has or will take to mitigate these risks.

Table 20: Data Sharing Risks and Mitigations

Risk	Mitigation
Utility Liability for Customer Information	O&R requires all parties utilizing or accessing utility systems to sign the DSA. The DSA's terms and conditions include an attestation that the third party has received the customer's consent to access the data, notice requirements to report a data security incident, and the SA, whereby third parties attest to meeting the data security procedures and requirements listed therein.
Data Consistency	O&R, along with the JU, worked extensively with the IEDR Development Team to modify and update existing data transfer specifications needed to align the transfers of utility-specific data across numerous system metrics so that these data streams could be appropriately ingested and reflected on the IEDR platform for future stakeholder use.
Data Security	The IEDR will not house highly confidential PII or Critical Energy Infrastructure Information ("CEII") that must remain protected within utility systems.

The Commission also directed utilities to submit tariff revisions that relieve them of liability for unauthorized data disclosures by the IEDR or its agents, and reaffirming that customers retain ownership of their data.

Stakeholder Interface

O&R, in coordination with the other JU members, actively engages stakeholders to promote consistent sharing and analysis of system data and participates in the cross-utility Information Sharing Working Group to address issues related to data collection, analysis, and release. In addition, O&R is deeply involved in the development and implementation of the IEDR, participating in the UCG alongside NYSERDA, contributing through its affiliate CECONY to the IEDR Advisory Committee, and engaging in stakeholder meetings, workshops, webinars, technical conferences, and JU working groups to advance IEDR progress and share best practices.

The Company, along with the other JU members, recognizes the critical need for clear guidance on the effective use of hosting capacity maps and are preparing targeted training sessions for fall 2025. To make the training relevant and impactful, they have distributed a survey to gather direct input from stakeholders.

The survey collects feedback on:

- Familiarity with hosting capacity concepts;
- Map navigation preferences;
- Desired technical depth, from introductory to advanced analysis; and
- Practical applications of the data in stakeholders' planning activities.

Stakeholders are also asked to:

- Identify knowledge gaps or operational challenges;
- Suggest priority topics (*e.g.*, interpreting constraint data, using map APIs); and
- Indicate preferred session formats, such as interactive demos, recorded webinars, or technical Q&A sessions.

By analyzing this feedback, the JU aim to design user-focused training that directly addresses real challenges, helping both new and experienced users better utilize the maps for interconnection and electrification projects.

As processes are developed to provide additional data, the Company updates its website accordingly.[174] The Company will continue to monitor ongoing customer data-related proceedings.

Additional Detail

This section contains responses to items specific to Data Sharing.

1. Provide a functional overview of the planned IEDR.

The IEDR is a statewide centralized platform that will allow access to useful energy data and information gathered from NYS's electric, gas, and steam utilities coupled with information and data collected from non-utility sources. The IEDR is intended to support new and innovative clean energy business models that deliver benefits to NYS energy customers. The IEDR will be developed in two phases. Phase One is comprised of the IPV, which went live on March 31, 2023 with three use cases, and the MVP which went live during Q1 2024 with an additional five use cases. Phase Two will enable approximately 40 additional use cases and is expected to be implemented fully by Q1 2027. The IEDR Order described a program schedule, governance structure, and reporting requirements. *See* NYSERDA's website[175] for more information on the IEDR.

2. Provide an overview of NYSERDA's IEDR implementation program, including information pertaining to stakeholder engagement.

Progress since the Company filed its 2023 DSIP has focused on expansion of data sharing in the IEDR platform including AMI historical data. AMI data was made available beginning in January 2024 and includes three years of customer billing data and two years of interval data as of the 2025 DSIP cycle. Eight Phase 1 IEDR use cases have been implemented. The JU met all data requirements for Phase 1 Use Case implementation by the IEDR Development Team and, on March 28, 2024, NYSERDA announced the completion of Phase 1 of the IEDR.

The IPV went live on March 31, 2023 with the following use cases:

- Installed DER;
- Planned DER Interconnection Queue; and

[174] For example, the Company updated its website to include the process for building owners to request aggregated whole building data*:*
https://www.oru.com/en/for-commercial-industrial/aggregated-building-energy-consumption-data.
[175] https://www.nyserda.ny.gov/All-Programs/Integrated-Energy-Data-Resource-Program.

- Consolidated Hosting Capacity Maps.

The MVP was launched in March 2024:

- DER Siting – Environmental, Community, Terrain, Land, and Property Assessment;
- Electronic Infrastructure Assessment Tool ("EIAT") Hosting Capacity and DER Map Enhancements;
- Efficient and Effective Access to Existing Customer Billing Data;
- Find and Filter Rate Options Across NYS Investor-Owned Utilities ("IOU"); and
- Access to Basic Rate Data and Tariff Book for Individual Rate.

The JU continues to work with the IEDR Development Team on the Phase 2 use cases as prioritized by NYSERDA in the Phase 2 Roadmap.

NYSERDA selected E Source Companies, LLC ("E Source") to lead the IEDR Development Team. Members of the Development Team include UtilityAPI, Flux Tailor, TRC Companies, and HumanLogic. Together, the team will be responsible for designing, building, and operating the IEDR platform to accomplish the policy goals and program outcomes as described in the Commission's IEDR Order in a cost efficient and expeditious manner. The Development Team will leverage E Source's OneInform and UtilityAPI's GBC offerings to enable the data access, governance, querying, analysis, and consent processes that will be required to deliver the full benefit of stakeholder submitted use cases.

3. Provide the web link to NYSERDA's IEDR home page along with a summary of the information provided therein.

The IEDR Program website can be accessed via the following link: https://www.nyserda.ny.gov/all-programs/integrated-energy-data-resource-program. The website is hosted by NYSERDA and serves as a comprehensive hub for information related to NYS's initiative to centralize energy data access. The site is designed for stakeholders including utilities, developers, policymakers, and the public, offering insights and tools to support clean energy innovation.

Key Aspects of the Website:

- Program Overview: The homepage provides a clear explanation of the IEDR Program's purpose—providing a secure, centralized data platform that integrates energy-related information from across NYS.
- About the IEDR: This section offers in-depth background on the program's goals, governance, and its role in supporting the CLCPA and clean energy transition.
- Resources Section: Visitors can access a growing library of documents including:
    - Quarterly Reports outlining progress and milestones;
    - Technical documentation;
    - Presentations and event materials; and
    - FAQs and stakeholder engagement summaries.
- Program Milestones: This timeline-based section details key phases and upcoming developments in the IEDR's rollout.
- Use Case Development: A page dedicated to describing how data use cases are identified, prioritized, and implemented to maximize the platform's impact.
- Stakeholder Engagement and Feedback: The site encourages participation through tools like the IEDR Ideas Portal, where users can submit suggestions or view community input.

- How to Get Involved: Offers guidance for stakeholders interested in contributing to or staying informed about the program, including links to public meetings and collaboration opportunities.

Overall, the website functions as both an educational and participatory platform, supporting transparency and collaboration regarding NYS's energy data modernization efforts.

4. Describe the utility's role in supporting IEDR design, implementation, and operation.

The Company participates in the UCG established by NYSERDA and DPS Staff to provide a venue for collaboration, coordination, and oversight of the utility activities related to the design and implementation of the IEDR and alignment with the schedules and activities of the DAF proceeding . NYSERDA has retained vendors collectively called the IEDR Program Team (Deloitte Consulting, Pecan Street) and the IEDR Development Team (E-source, Utility API, FluxTailor, TRC Companies, and HumanLogic) that participate in UCG meetings.

O&R is represented by the CECONY team at biweekly virtual UCG meetings. Recent priorities for these discussions have included:

- Overall progress on IEDR use-cases and platform;
- GBC Deployment Plan, including preparation for the Alpha+ testing stage and configuration of SSO;
- Continued development of the use-case and related support activities;
- Analysis of NYS utility processes related to the UER and hosting capacity maps;
- NYS utilities' involvement in Phase 2 use-case discovery process; and
- Ongoing discussion on data validation and quality controls.

In addition, the Companies and the IEDR Development Team met four times for deep-dive one-on-one session covering topics including:

- Energy Efficiency Benchmarking use-cases and CECONY's experience with load aggregation for NYC Local Law compliance (meeting with Esource on October 1);
- Customer Data (meeting with Esource on October 29);
- UER reporting (meeting with Esource on November 8); and
- GBC SSO testing (meeting with UtilityAPI on November 8).

5. Describe the utility's progress, plans, and investments for generating and delivering its system and customer data to the IEDR.

The Company, in collaboration with CECONY, established an internal IEDR Development Team to support the implementation of the IEDR. Consultants are engaged as needed to assist with the IT architecture.

The IEDR Development Team continues to improve customer access to information through the IEDR platform, ensuring data sharing specifications align with state-wide standards. They also focus on security, data quality, and automation to enhance data pipeline delivery.

The Company has implemented data quality controls for existing pipelines and completed a more reliable Customer Data pipeline using the Databricks platform. This platform, part of the Enterprise Data Analytics Platform, supports the IEDR's customer data pipelines. Using this pipeline, the Company delivered the required two-year historical customer data deposits, including billing data, and tested IEDR's GBC SSO functionality based on discussions and feedback from UtilityAPI.

The Company also coordinated with the JU to standardize and benchmark efforts as needed. In Q1 2025, the Company focused on implementing recommendations from Q4 2024 that evaluated internal data technologies and architecture. These efforts centralized the sourcing and delivery of IEDR datasets through the corporate Databricks platform, streamlined processes, and aligned the IEDR pipeline with the Company's data governance policies. This included adding automated data profiling functionality to proactively monitor data being sent.

6. Identify and characterize each type of data to be delivered to the IEDR.

The Company delivers system data (DER data) to the IEDR monthly, customer data daily, and AMI data continuously. There are differences in the type and granularity of the customer load and supply data the Company acquires based on customer type and metering configuration. In some cases – generally commercial & industrial ("C&I") customers – the Company will also acquire additional data, such as demand (kW) and reactive power (VAR) data, as required for billing under the applicable tariff.

The IPV use cases harnessed hosting capacity and planned and installed DER system data. Future use case iteration using system data delivered to the IEDR, which is also available on the Company's data sharing portal, could include:

- Planned resiliency and reliability projects;
- Reliability statistics;
- Hosting capacity;
- Beneficial locations;
- Load forecasts;
- Historical load data;
- NWA opportunities;
- Queued and installed DG; and
- SIR pre-application information.

Customer data may include customer specific data about a customer's consumption, premise, account details, utility bill, and program participation, such as budget billing.

7. Describe the resource(s) and method(s) used to deliver each type of data to the IEDR.

O&R works with the IEDR Development Team to refine data exchange specifications for each dataset and then coordinates with internal subject matter experts ("SME") to source and transform the data from internal systems. The Company also accounts for privacy and security concerns associated with sharing each data-element from specified datasets and the incremental risk incurred from integrating additional data into a common repository.

8. Describe how and when each type of data provided to the IEDR will begin, increase, and improve as IEDR implementation progresses.

IEDR implementation will be rolled out in two phases. Phase One included the IPV and the MVP. Phase Two will offer 40 additional use cases. Stakeholder use cases inform the IEDR through subsequent progression and refine the necessary data and system functionality required for statewide adoption. IPV focused on three use cases that appealed to key users of the IEDR, were critical for subsequent use cases. Most IPV use cases employed energy system data used by DER providers, DER developers, DER aggregators, and government agencies. The IPV was launched with three use cases on March 31, 2023.

MVP use cases employed more customer-centric data through early iteration of the IPV phase. They contained sufficient features and updates to maintain program momentum for comprehensive implementation. Successive completion of use cases further enhanced the development of IEDR functionality and data transferred across the platform. The MPV phase launched in Q1 2024.

9. Identify and characterize any existing and future utility efforts to share system and customer data with customers and third parties through means that are separate from the IEDR.

As set forth in the sections above, the Company offers the following mechanisms for data sharing:

- Green Button Download and GBC;
- HERs;
- WAMI;
- HBAs;
- My Account portal;
- HC Maps for solar, EVs, and storage;
- UER;
- With ESCOs via EDI and the Company's Retail Access Information System**;**
- Aggregated whole building data for building owners (includes new BEUP program discussed in the "Current Progress: Customer Data" section above;
- With CCA administrators; and
- As part of an NWA RFP**.**

In addition, the Company anticipates automating the upload of customer data to EPA Portfolio Manager to support energy benchmarking. Further, the Company expects to add functionality to its hosting capacity maps to support DER participation in the wholesale market.

The Company will continue to engage with third parties and other interested stakeholders to understand and address their data needs.

Hosting Capacity

Introduction/Context and Background

Orange and Rockland Utilities, Inc. ("O&R" or "the Company") hosting capacity maps are important tools for sharing system data with Distributed Energy Resource ("DER") developers who are investigating potential project locations.

Hosting capacity is defined as the amount of DER that can be accommodated without adversely impacting power quality or reliability under existing control configurations and without requiring infrastructure upgrades to the primary line voltage and/or secondary network system. Hosting capacity can vary across different circuits, as well as segments within a distribution circuit itself. Hosting capacity also changes as DERs are added to the system. Sharing information about the Company's hosting capacity enables DER development and supports New York State's ("NYS's") Climate Leadership and Community Protection Act ("CLCPA") goals. Importantly, O&R shares hosting capacity data to help developers identify areas of the electric delivery system where reliability or safety issues can be avoided, thereby optimizing interconnection costs.

Hosting capacity maps now include enhanced granularity, including nodal-level detail and visibility into individual constraint types.

O&R has coordinated with the Joint Utilities ("JU") to follow a multi-phase approach for developing hosting capacity analysis capabilities, which is paced with the evolution of hosting capacity tools, models, and processes. This approach is in line with the Commission requirements for calculating and displaying hosting capacity and has been described in prior Distributed System Implementation Plan ("DSIP") filings. O&R's hosting capacity maps are available through the Company's Hosting Capacity Portal ("Hosting Capacity Portal"), which is accessible through the O&R website.[176]

O&R's hosting capacity maps currently consist of four interactive map views designed to provide transparency into available capacity across different segments of the electric distribution system. These include:

- Non-network Hosting Capacity Visualization – Shows available capacity on three-phase overhead feeders and includes Locational System Relief Value ("LSRV") area overlays.
- Non-Wires Alternatives – Identifies circuits where DERs may defer or replace traditional infrastructure upgrades.
- Electrification Capacity – Displays seasonal load-serving capacity to support EV charging and building electrification, with Disadvantaged Communities ("DAC") overlays.
- Storage Hosting Capacity – Provides feeder-level charge and discharge capacity estimates for standalone energy storage siting.

Since the Company's most recent DSIP filing in 2023, O&R has implemented key elements of Stage 4 of the JU Hosting Capacity Roadmap, including the addition of color-coded zones, cost sharing 2.0 indicators, and expanded pop-up detail. Updates have also included enhanced sub-feeder granularity for storage and electrification maps and six-month refresh cycles for rapidly growing circuits (> 500kW). O&R continues to contribute to JU-coordinated efforts to standardize data delivery to the Integrated Energy Data Resource ("IEDR") and supports improved system data transparency for developers and policymakers. The

[176] https://www.oru.com/en/business-partners/hosting-capacity.

improved data granularity and improved visibility are foundational steps toward the broader capability to enabling increased grid flexibility.

Implementation Plan, Schedule, and Investments

Current Progress

Summary of Achievements

- Initiated Stage 4.1 hosting capacity map updates, including Color Coded Zones, Cost Sharing 2.0 indicators, and interactive pop-up features.
- Deployed second iteration of Storage Hosting Capacity Maps with added sub-feeder granularity, nodal constraint types, and recent DG additions.
- Released Electrification Hosting Capacity Maps showing load serving capacity under summer and winter peak conditions and overlaid Environmental Justice indicators.
- Added visual indicators to hosting capacity maps for upgrade projects planned two or more years in the future.
- Upgraded EPRI DRIVE tool from version 2.0 to 4.2.2 and adjusted internal workflows to support enhanced data compatibility and future automation.
- Maintained automated data delivery to the IEDR platform, including map overlays and associated metadata.
- Participated in JU Interconnection Technical Working Group ("ITWG") and Interconnection Policy Work Group ("IPWG") stakeholder meetings to incorporate developer feedback into Hosting Capacity Portal updates.

Utility Capabilities In-Focus:

Hosting & Registration – O&R's hosting capacity maps provide location-specific system data that supports DER interconnection planning and streamlines coordination with application screening processes. Maps are updated to reflect hosting capacity analysis and ensure developers have access to accurate information when evaluating project feasibility. They also support NYS data standardization efforts through the IEDR platform.

Market Participation – O&R's hosting capacity maps support market participation by giving developers and aggregators better visibility into where the grid can accommodate new DERs, thereby serving as a price signal.

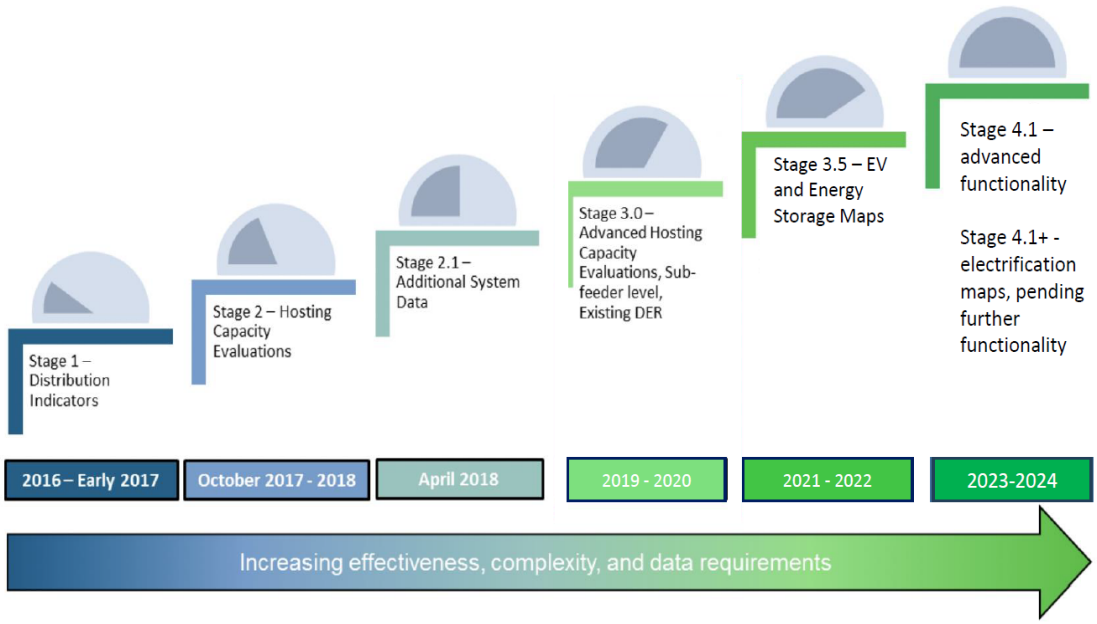
Providing an electric distribution system with the capacity to host large-scale DER integration is a key part of NYS's energy vision. O&R continues to advance this objective by improving system transparency and usability through its hosting capacity web application. This platform provides developers with a visual tool to assess grid constraints, identify favorable interconnection points, and make informed siting decisions. O&R continues to expand platform functionality to improve its value as a planning resource.

At the time of the Company's 2023 DSIP Update, O&R had completed Stage 3.5 of the JU Hosting Capacity Roadmap,[177] shown in Figure 38 below. Since then, the Company has made substantial progress toward achieving Stage 4.1. The Company has successfully completed several key elements of Stage 4.1, including implementation of Color-Coded Zones, Upgrade Requirements (via Cost Sharing 2.0 indicators and notes), and Interactive Features (*e.g.*, enhanced pop-ups and Cost Sharing 2.0 tools). Dynamic Data Layers have been developed, though toggling functionality is still under development, and Probabilistic Indicators

[177] https://jointutilitiesofny.org/utility-specific-pages/hosting-capacity.

remain a future enhancement. Overall, O&R has incorporated increased data granularity and interactivity, reflecting steady alignment with and progression toward JU Hosting Capacity Roadmap milestones.

Figure 38: JU Hosting Capacity Roadmap



The Company completed the most recent hosting capacity map refresh on March 31, 2025, with the next update currently scheduled for October 2025. The Company performs a full data refresh annually each October, and performs a mid-year update each April to any circuits that have experienced more than 500kW of growth. This approach results in the refresh of all circuits, including those outside of rapid-growth areas, at least once per year. These interim updates enhance visibility for developers evaluating locations in O&R's service territory. Additional map enhancements including expanded sub-feeder granularity, improved constraint categorization, and new data fields across are described in more detail in the sections below.

In parallel, O&R has converted to the updated version of the EPRI-developed DRIVE tool, transitioning from version 2.0 to version 4.2.2. This update involved modifications to data formatting and required updates to internal workflows to maintain integration with the DRIVE tool. The upgraded DRIVE tool and updated internal workflows supports improved data processing capabilities and prepares the Company for greater automation in hosting capacity calculations. The DRIVE tool continues to draw inputs from O&R's system planning model, which is itself undergoing a platform transition from Distributed Engineering Workstation ("DEW") to CYME. Together, these system and software upgrades will improve the efficiency, consistency, and precision of future hosting capacity analyses.

Non-Network Hosting Capacity Visualization

The Non-network Hosting Capacity Visualization, previously referred to as "PV Hosting Capacity Map," displays three-phase segments on O&R's overhead distribution system and provides developers with localized hosting capacity values in megawatts (MW).

Figure 39: Non-Network Hosting Capacity Map

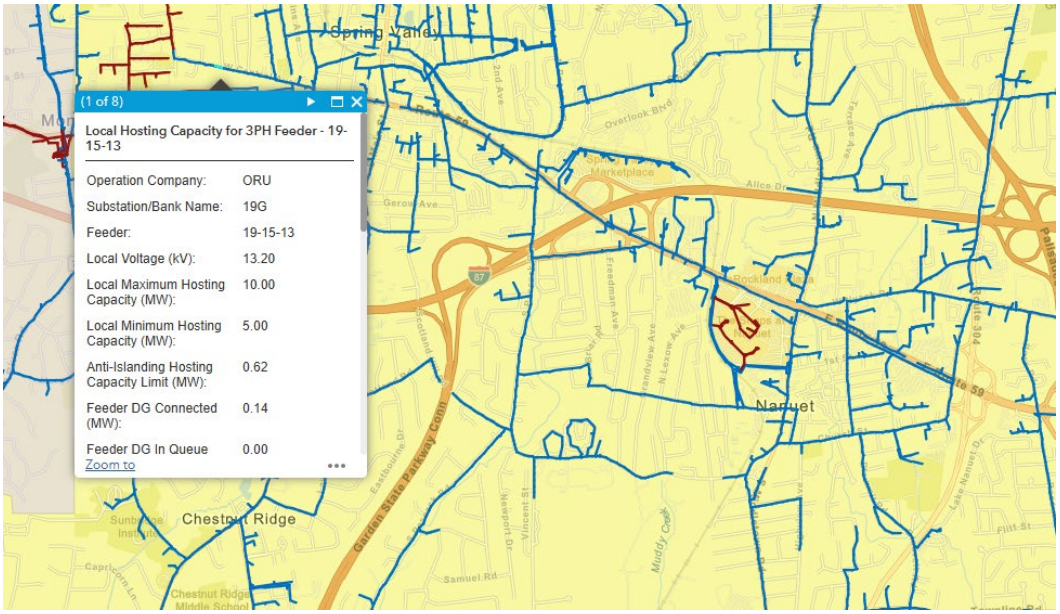


Figure 40: Non-Network Hosting Capacity Map Legend and Layers

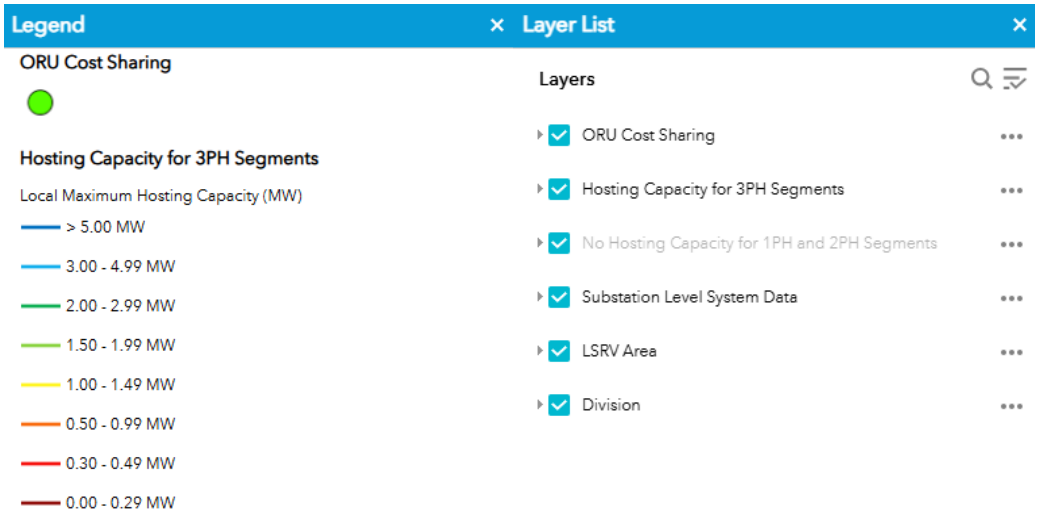


Figure 39 and Figure 40 provide an illustration of the Non-Network Hosting Capacity Maps.[178] When users click on an individual segment, a pop-up window displays detailed system-level attributes including the feeder name, substation, local voltage (kV), local maximum and minimum hosting capacity, anti-islanding threshold, and existing and queued DG. This information is presented at the feeder level and helps developers quickly assess siting feasibility based on system constraints.

Users can toggle several supporting layers within the map, including hosting capacity for 3PH Segments, O&R Cost Sharing indicators, Substation Level System Data, Locational System Relief Value ("LSRV") Areas, and Division boundaries. These layers provide additional context for evaluating interconnection cost implications and regional system characteristics.

[178] https://www.oru.com/en/business-partners/hosting-capacity.

Color-coding is used to visualize hosting capacity for three-phase segments. The map legend shows capacity bands ranging from "> 5.00 MW" (dark blue) to "0.00–0.29 MW" (dark red), giving developers a clear view of which segments are most constrained and which offer greater interconnection flexibility.

Non-Wires Alternatives ("NWA")

The NWA map displays circuits where O&R has identified opportunities to defer or avoid traditional infrastructure upgrades through targeted DER solutions. It provides stakeholders with spatial context on impacted areas and circuit names, supporting transparency around non-wires opportunities and helping align interconnection siting with system planning objectives.

Figure 41: Non-Wires Alternatives

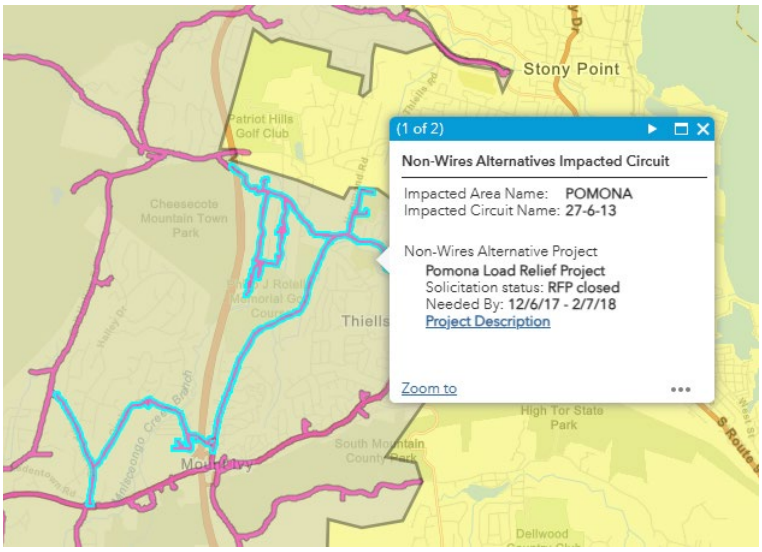


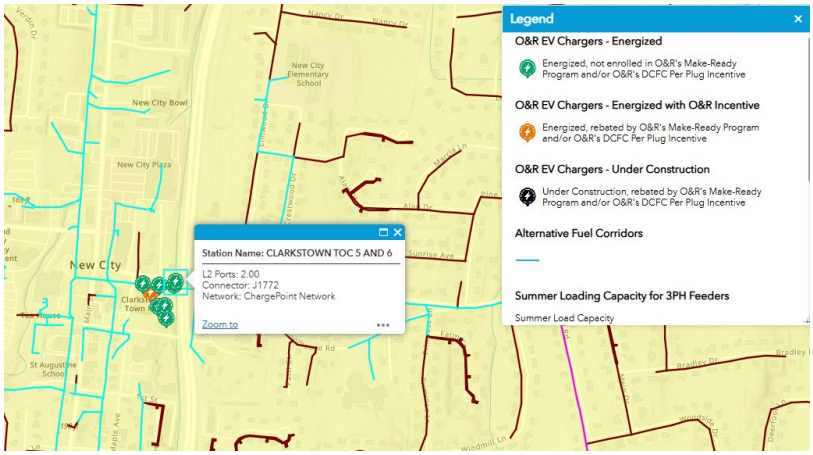
Figure 41 is an illustration of the Non-Wire Alternative Hosting Capacity map. When users select a circuit, a pop-up window displays project-specific details, such as the NWA project name, solicitation status (*e.g.*, open, closed), and project requirement dates.[179] Where applicable, links to project descriptions are included.

Electrification Capacity (formerly Electric Vehicle Charging)

O&R first introduced EV Charging Maps in November 2020 to support developers in identifying potential areas where lower-cost service upgrades for EV charger loads may exists. By highlighting where additional load could be accommodated on the O&R system, the map provided critical siting guidance for EV infrastructure. The map supports early-stage planning by offering circuit-level estimates of available load-serving capacity, helping developers avoid areas with known constraints and reducing the likelihood of triggering costly upgrades. In addition, the map displays the locations of existing chargers, enabling stakeholders to identify network gaps and strategically expand access to charging infrastructure. This level of visibility also supports co-location opportunities by helping developers identify where energy storage can be paired with EV charging infrastructure. In addition to capacity data, the map included the locations of already active chargers as well as a visualization of available hosting capacity for potential EV charging sites. Figure 42 shows the Electrification Capacity map view.[180]

[179] https://www.oru.com/en/business-partners/hosting-capacity.
[180] https://www.oru.com/en/business-partners/hosting-capacity.

Figure 42: Electrification Capacity



In January 2024, the Company converted the EV Capacity Maps into Electrification Maps to guide developers of both EV Charging and Heat Pump installations. The Commission directed the JU to provide both summer and winter peak capacity views, given the seasonal differences in electrification impacts. In response, the JU collaborated with DPS Staff and launched the new Electrification Map on January 16, 2024, which offers feeder-level load serving capacity headroom for both summer and winter peak conditions. These Maps retain the familiar color-coding from the EV Maps (e.g. using thresholds like >1.5 MW, 0.6–1.5 MW, <0.6 MW capacity remaining) for consistency. They also overlay Environmental Justice ("EJ") area indicators to help identify grid capacity in DACs where project incentives may be needed the most.

The expansion of the EV Capacity map to the Electrification Capacity map extending visibility into system constraints across multiple use cases—including space and water heating, commercial load conversions, and other forms of beneficial electrification—the Electrification Map help facilitate customer participation in clean energy programs and reduce barriers to adoption. The inclusion of seasonal capacity values also enables stakeholders to evaluate more accurately year-round feasibility for load growth at specific locations. These maps serve as a key planning resource for customers, developers, municipalities, and program implementers, offering an accessible tool to guide investments and streamline project siting. Additional details are discussed in the Clean Heat and Electric Vehicle Integration sections of this DSIP.

Storage Hosting Capacity

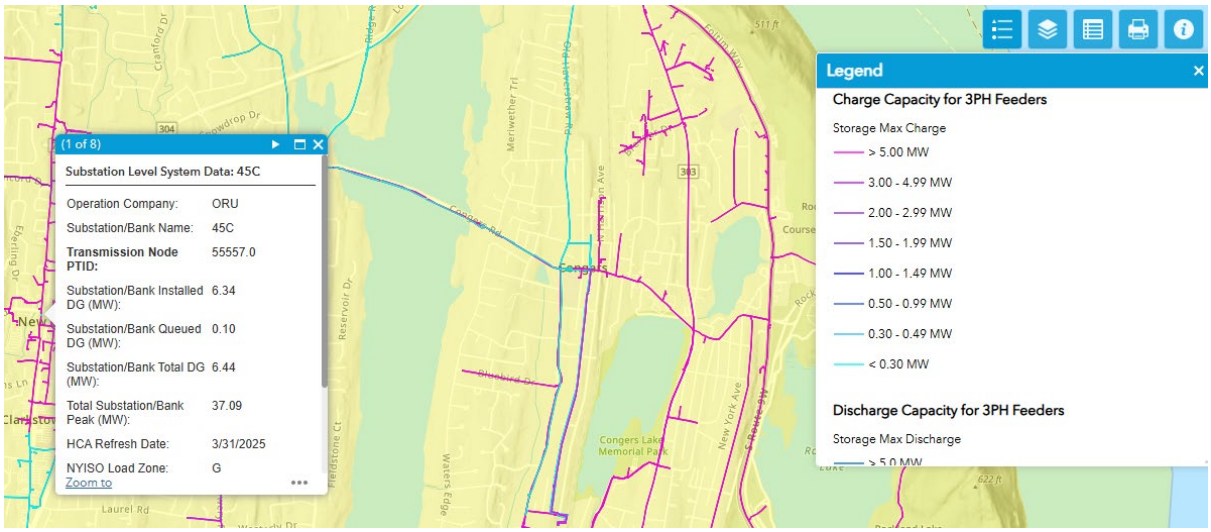
Beginning in 2021, the JU engaged stakeholders to better understand developer needs related to storage siting and hosting capacity visualization. Based on this feedback, the JU's Maps were designed to show sub-transmission-level capacity and Cost Sharing 2.0 indicators. The Company made incremental improvements in 2022 and 2023, including the release of Maps with separate displays for load and generation, color-coded by feeder-level capacity. In response to developer interest in more practical use-case alignment, the JU invited stakeholder input through the ITWG.

O&R released the second iteration of the Storage Hosting Capacity Maps in May 2023 and has progressively added the following improvements most recently through the March 2025 release:

- Added visual display of NYISO load zone sub-regions (all of O&R's territory is within Zone G);
- Enhanced granularity of hosting capacity values to display flicker, overvoltage, voltage deviation, thermal, and anti-islanding constraints separately;
- Included indicators for recent DG additions since the last refresh;

- Standardized feeder and substation names to improve readability for developers.

Figure 43: Storage Hosting Capacity



The Storage Hosting Capacity shown in Figure 43 above, shows displays the estimated available capacity for siting standalone energy storage systems across O&R's three-phase distribution feeders.[181] The map includes separate charge and discharge visualizations, enabling developers to assess hosting limitations for both import and export scenarios. Hosting capacity values are color-coded across feeder segments using defined thresholds ranging from "> 5.00 MW" to "< 0.30 MW."

Pop-ups provide substation-level system data, including installed and queued distributed generation ("DG"), total substation bank capacity, recent peak demand, NYISO load zone, and the most recent hosting capacity refresh date. These attributes help contextualize available headroom and system constraints that may affect storage interconnection costs or project sizing.

The Storage Hosting Capacity map supports early-stage project planning for developers pursuing opportunities under the New York State Energy Research and Development Authority's ("NYSERDA") programs, Non-Wires Alternatives, or future aggregated DER participation models.

[181] https://www.oru.com/en/business-partners/hosting-capacity.

Future Implementation and Planning

Summary of Future Actions

- Implement hosting capacity map upgrades as identified in Stage 4.1+ of the Roadmap.
- Transition Hosting Capacity analysis to CYME modeling platform.
- Continue refresh of Hosting Capacity maps, including six-month refresh cycles for circuits with >500 kW in DER growth to maintain data currency.
- Maintain recurring hosting capacity data delivery to the IEDR platform.
- Continue participation in ITWG and IPWG stakeholder engagement sessions to inform map enhancements.
- Incorporate feedback from stakeholder engagement meetings into decisions for further defining the details and assumptions used

As New York State continues progress toward CLCPA goals for clean energy and electrification, hosting capacity becomes more integral to distribution system planning and stakeholder decision-making. O&R is continuing to update its hosting capacity tools, models, and processes to support evolving regulatory, technical, and market needs. The Company will plan improvements which align with the JU Hosting Capacity Roadmap, enhance coordination with statewide planning efforts such as the Coordinated Grid Planning Process ("CGPP"), and expand support for future use cases identified in the Integrated Energy Data Resource initiative. These improvements are aimed at increasing the transparency, accuracy, and usefulness of Hosting Capacity data for a broad range of stakeholders.

Enhancements to Hosting Capacity Maps

Looking ahead, O&R anticipates that hosting capacity functionality will continue to evolve to meet the needs of stakeholders in 2030 and beyond. As new data sources and planning tools become available, hosting capacity information will be refined to support more sophisticated siting, forecasting, and interconnection use cases. The Company will continue to explore continued enhancements to Hosting Capacity maps through the IPWG and ITWG. Continued engagement through these JU stakeholder forums, coordination with CGPP efforts, and alignment with IEDR platform enhancements will continue to enable the Hosting Capacity Portal's role as a useful tool for DER developers, municipal planners, and other system users.

O&R continues to support the development and implementation of the IEDR platform. Hosting Capacity data is among the datasets included in IEDR, enabling stakeholders to view a continuous statewide map of Hosting Capacity information across the JU. O&R is continuing work on an automated process to automatically feed data for inclusion in the IEDR.

O&R is continuing to evaluate approaches for forecasting Hosting Capacity that reflect anticipated changes to the distribution system. These efforts aim to account for uncertainty in DER adoption patterns, customer load variation, and planned infrastructure upgrades. Future forecasts will draw on models of projected system configurations, gross load growth, and DER deployment to provide a more forward-looking view of hosting potential. These enhancements will also support full implementation of dynamic data layer functionality within the Hosting Capacity Portal, consistent with JU Roadmap Stage 4 Roadmap objectives.

The JU may also evaluate potential options for forecasting hosting capacity that consider the accuracy of such an analysis given the uncertainty in the location, timing, and configuration of DER adoption forecasts, projected changes to individual customer loads, and any upgrades or changes to the utility system. The roadmap for forecasting hosting capacity must incorporate models of future utility system configurations,

gross load forecasts, and DER forecasts. Each of these items has its own roadmap and consideration of scenario-based planning, probabilistic, and deterministic approaches. These concepts should be integrated in producing a forecast, with the appropriate level of granularity. Given uncertainty in various inputs, a higher level of granularity could produce significant uncertainty.

The anticipated enhancements to hosting capacity are expected to further streamline interconnection approval processes enabling the integration of greater flexible resource capacity into O&R's distribution grid. Green Button Connect, a platform that enables sharing of customer energy usage data, has facilitated sharing of more granular advanced metering infrastructure data. Providing developers with near real-time data facilitates more informed and effective project planning. Increased data transparency and access among key stakeholders will additionally foster improved program design, optimize resource utilization, and ultimately support a more flexible and reliable grid. CECONY remains committed to increasing the maturity of hosting capacity capabilities in the pursuit of a modernized Distributed System Platform that aligns with the PSC's vision for the Grid of the Future.

Distribution System Modeling Platform - CYME

O&R is in the process of transitioning its primary distribution system modeling platform from the DEW to CYME. CYME provides enhanced functionality to support hosting capacity analyses, DG screening, and distribution system planning activities.

CYME offers several benefits as compared to DEW, including support for automation through Python scripting, improved data integration from GIS, SCADA, and DER management systems, and a more intuitive user interface. These capabilities are expected to streamline hosting capacity analyses, improve update frequency, and enhance the quality of system models. The transition to CYME is consistent with statewide efforts to improve hosting capacity transparency and operational readiness for increased DER penetration.

O&R's current implementation timeline for CYME is as follows:

- Q1 2026: CYME system modeling available for planning studies and hosting capacity updates; and
- By end of 2027: Increased automation of DG screening and corresponding Hosting Capacity map updates completed.

During the transition period, the Company will continue to use DEW in parallel for DG screening and hosting capacity refreshes. Hosting capacity updates will initially be performed manually using CYME until the automation processes are fully operational. Manual quality assurance and exception handling will remain necessary for cases where automated processes are insufficient.

Integrated Implementation Timeline

The JU have developed a timeline that indicates their intentions for HC Maps through 2024 and beyond. This timeline is presented in Figure 34. O&R will continue to work with the JU to refine maps to align more closely with stakeholder needs.

Risks and Mitigation

Table 21 below summarizes the risks that could affect the timely implementation of the future actions described above as well as the measures the Company has or will take to mitigate these risks.

Table 21: Hosting Capacity Risks and Mitigations

Risk	Mitigation
Complexity in modeling evolving hosting capacity constraints across nodal levels and feeder segments	Continue investment in CYME platform and automation to improve modeling fidelity and refresh cycles
Limited ability of static hosting capacity Maps to reflect long-term changes in the system, load growth, and DER adoption	Coordinate hosting capacity improvements with CGPP planning cycles and evaluate forecasting capabilities to incorporate scenario-based methods
User confusion or limited usability of Hosting Capacity Portal without full context or data tools	Incorporate dynamic data layers, enhance map interactivity, and engage developers through ITWG sessions to align features with stakeholder needs

Stakeholder Interface

O&R recognizes stakeholder engagement as an important part of enhancing hosting capacity analysis and transparency. Stakeholders such as developers, municipalities, and policymakers have different informational needs, and stakeholder input has informed recent enhancements such as increased refresh frequency, expanded data fields, and availability through APIs. These groups are engaged through webinars, technical working groups, and direct outreach efforts to include stakeholder perspectives in planning and system data improvements.

Stakeholder feedback collected through stakeholder meetings, webinars, surveys, direct outreach, and support tickets has informed enhancements to data products and services. For example, stakeholder requests for faster map refreshes led the JU to implement interim six-month updates for circuits experiencing significant DER growth (>500 kW additions).

The inclusion of EJ or DAC overlays on these Maps is a powerful feature to promote equity in the energy transition. By overlaying EJ demographic data onto hosting capacity Maps, regulators and policymakers can instantly see whether high-need communities have the grid capacity to support electrification of heating, transit, and other technologies. This helps target investments and programs to where they are needed most.

O&R participates in JU stakeholder engagement processes, including two public sessions per year hosted through the IPWG, and coordinates its approach through the ITWG. These sessions serve as important mechanisms for aligning Hosting Capacity enhancements with evolving developer expectations, municipal priorities, and equitable access considerations—core themes identified through the GotF process. In March 2025, the JU conducted a stakeholder training needs survey to better understand how users engage with hosting capacity maps and the specific areas that might benefit from further outreach and education. Respondents included a cross-section of developers, regulators, advocacy groups, and consultants. Survey results highlighted a range of stakeholder priorities, including the need for greater clarity around data layers, PV and storage hosting capacity calculations, and alignment with interconnection processes. Users also expressed interest in advanced topics such as nighttime storage capacity, integration with external datasets, and dynamic hourly hosting capacity analysis. The feedback gathered through this survey will inform future training materials and platform enhancements and supports the ongoing development of tools that are accessible and actionable for a diverse set of users.

In addition to participation in statewide JU engagements, O&R maintains a dedicated email address (orhostingcapacitymap@oru.com), posted on the Company's hosting capacity portal, for stakeholders to submit questions and feedback specifically related to O&R's hosting capacity maps.

Additional Detail

This section contains responses to items specific to Hosting Capacity.

1. **Describe the utility's current efforts to plan, implement, and manage projects related to hosting capacity. Information provided should include:**

    a. **A detailed description of each project, existing and planned, with an explanation of how the project fits into the utility's long-range hosting capacity plans**

O&R is implementing several initiatives that support the long-term enhancement of hosting capacity analysis. The transition from the DEW platform to CYME is underway, with CYME expected to enable expanded analysis capabilities and greater automation of DG screening and hosting capacity calculations. O&R anticipates that the implementation of CYME will provide more opportunities to streamline modeling workflows, automate hosting capacity updates, and improve data integration across enterprise systems.

In parallel, O&R continues to refine its hosting capacity analysis and geospatial visualization capabilities. Efforts include ongoing model and data cleanup, hosting capacity calculation automation, and refinement of underlying system representations to improve accuracy. The Company collaborates with CECONY's visualization team to advance improvements to the hosting capacity mapping databases and portal production processes. These efforts are aligned with a broader long-term roadmap for GIS functionality enhancements, so that hosting capacity information remains current, accurate, and accessible as DER penetration increases.

    b. **The original project schedule**

The Hosting Capacity Roadmap has continued to evolve based upon stakeholder feedback and technology advancements, and the current Hosting Capacity Roadmap is shown above in Figure 38.

    c. **The current project status**

As described in the Current Progress section, O&R is progressing toward Stage 4.1 of the JU Hosting Capacity Roadmap. The Company has implemented several Stage 4.1 elements, including Color Coded Zones, Cost Sharing 2.0 upgrade indicators, and interactive features to improve stakeholder access to hosting capacity data. Dynamic data layers have been developed, and six-month refresh cycles are in place for circuits experiencing significant DG growth. Storage Hosting Capacity Maps and Electrification Maps have been deployed with sub-feeder granularity and EJ area overlays. In parallel, O&R is transitioning from DEW to CYME, with full hosting capacity automation targeted for completion by the end of 2027.

    d. **Lessons learned to-date**

Feedback from stakeholder engagement sessions, including those hosted through the IPWG and ITWG, has directly shaped the prioritization of Hosting Capacity enhancements. Requests for increased granularity, clear constraint categorization, and timelier updates have informed the Company's transition from Stage 3.5 to Stage 4 features.

The continued use of Esri's ArcGIS platform across the JU for Hosting Capacity visualizations has supported alignment in map design, functionality, and stakeholder experience. O&R collaborates with the other JU

members on maintaining a standardized color-coding scheme and interface logic, improving consistency across utilities and supporting developers in navigating system constraints across service areas.

The Company's expansion from EV-specific hosting capacity views to broader Electrification Maps was informed by lessons learned through stakeholder input and guidance from DPS Staff. Seasonal views and environmental justice overlays were introduced to reflect the distinct load profiles and policy priorities associated with widespread electrification.

e. Project adjustments and improvement opportunities identified to-date

O&R's Hosting Capacity work continues to evolve through iterative updates informed by both stakeholder engagement and operational experience. The Company has implemented key Stage 4.1 capabilities in alignment with the JU Roadmap, including more granularity, interactive data pop-ups, and the integration of additional system context into map layers. These enhancements build on earlier work to incorporate sub-feeder views, non-wires alternatives, and LSRV indicators, and reflect the increasing complexity and data needs associated with high-DER environments.

Recent collaborations with stakeholders have further shaped how Hosting Capacity data can be applied beyond traditional interconnection use cases. Stakeholders have pointed to the value of accessible, location-specific system data in advancing projects that meet not only economic thresholds, but also community-defined priorities related to energy equity and environmental justice. These insights continue to inform how O&R identifies opportunities for Hosting Capacity development that align with the goals of the CLCPA.

f. Next steps with clear timelines and deliverables

In accordance with the annual refresh cycle, O&R will refresh its hosting capacity maps in October 2025. O&R also plans to review additional use case scenarios through continued collaboration with stakeholders via the ITWG, working toward enhancements in dataset quality and improvements to the Storage Hosting Capacity Maps.

O&R expects to complete the transition to the CYME modeling platform in Q1 2026, which will enable hosting capacity calculations to be performed using the new CYME modeling environment. Full automation of DG screening and hosting capacity update processes is targeted for completion by the end of 2027. Until automation is implemented, the Company will continue to produce hosting capacity updates manually.

2. Describe where and how DER developers/operators and other third parties can currently access the utility's hosting capacity information.

The hosting capacity maps are posted, and data is accessible on the Company's website[182] and on the NYS IEDR IPV.[183]

3. Describe how and when the existing hosting capacity assessment information provided to DER developers/operators and other third parties will increase and improve as work progresses. This should include discussion of the transition of hosting capacity information access from the utility's current hosting capacity information portal to the statewide hosting capacity solution in development on the IEDR.

[182] https://www.oru.com/en/business-partners/hosting-capacity.
[183] The IEDR IPV is accessible at https://www.iedr.nyserda.ny.gov/map.

O&R continues to refine the accuracy and accessibility of its hosting capacity data and improve how this information is delivered to stakeholders. The Company publishes interactive hosting capacity maps for PV, storage, and electrification, with updates issued on a regular schedule and more frequent refreshes for circuits experiencing rapid DER growth. Data presented through O&R's Hosting Capacity Portal includes sub-feeder granularity, nodal constraint types, and planned upgrades. Hosting capacity improvements are informed by stakeholder inputs and ongoing statewide developments.

Hosting capacity datasets are shared with the IEDR platform to support a consistent statewide view. O&R provides updates to the IEDR using a standardized data pipeline. Over time, this information will be further integrated into additional use cases and interconnection tools to support developer decision-making and improve grid transparency. O&R will align with statewide IEDR platform developments.

4. Describe the means and methods used for determining the hosting capacity currently available at each location in the distribution system.

The Company uses the DRIVE tool to complete the hosting capacity analysis for all circuits.

O&R, along with the other JU members, employed a streamlined approach to hosting capacity calculations that focused on the siting of larger commercial PV installations. The Company decided to guide developers toward areas on the electric distribution system that would be more accommodating to commercial-scale projects. The values produced on a circuit-by-circuit basis also can be valuable to site smaller rooftop solar projects.

The JU validated and utilized the DRIVE tool to facilitate the calculation of the overhead and radial portions of their service territories. O&R developed and refined minimum load flow cases based on historically observed values at the area substations and distribution transformers, where applicable. The minimum daytime load is used to simulate a low-load condition when PV generation is producing at a significant portion of its nameplate capacity in order to determine the hosting capacity limit during "worst case" conditions. These minimum load cases were coincident with peak PV output times between 8:00 a.m. and 4:00 p.m. O&R exported the resulting datasets from these load flow simulations to the DRIVE tool, where centralized DER was applied until the circuits reached excursion thresholds for voltage, loading, and protection concerns. To support consistency in approach, the JU adopted a common set of specifications to inform the analysis.

For the Storage Hosting Capacity Map, each circuit's hosting capacity is determined by evaluating the potential power system criteria violations as a result of charging and discharging systems. The analyses represent the overall feeder level hosting capacity only, and do not account for all factors that could impact interconnection costs. To calculate the hosting capacity, the output change for voltage deviation was input as 200 percent and therefore assumes the ESS will operate at a full power flow charge (i.e., full charge to full discharge). The analyses also assume energy storage operation between 10:00 a.m. and 8:00 p.m. only.

O&R recently completed an upgrade of the DRIVE tool from version 2.0 to version 4.2.2. The transition to version 4.2.2 primarily involved accommodating changes to the input and output data formats. O&R has adjusted its workflows accordingly to enhance compatibility. The DRIVE tool continues to rely on inputs from the Company's system planning model, which is in the process of transitioning from DEW to CYME. This software upgrade will enhance analytical capabilities and streamline the interface with DRIVE, enabling a more automated and efficient hosting capacity analysis process.

Figure 44 below illustrates the current Hosting Capacity analysis workflow, detailing each step through the process. This reflects alignment with the JU methodology.

Figure 44: Hosting Capacity Analysis Workflow

5. Describe the means and methods used for forecasting the future hosting capacity available at each location in the distribution system.

The JU will continue to evaluate options for forecasting hosting capacity that take into account the accuracy of such an analysis given the uncertainty in the location, timing, and configuration of DER adoption forecasts; projected changes to individual customer loads; and any upgrades or changes to the individual utility electric distribution system. When forecasting hosting capacity, the addition of generation at various points on a feeder can significantly impact the circuit-level hosting capacity. In addition, it is more complex to forecast hosting capacity down to the individual property level, as hosting capacity analysis can be sensitive to changes in a single customer's load. Given the variability of future load growth, the uncertainty of DER adoption patterns, and the complexity of planned system upgrades, forecasting hosting capacity presents significant challenges.

6. Describe how and when the future hosting capacity forecast information provided to DER developers/operators and other third parties will begin, increase, and improve as work progresses.

O&R is currently evaluating options to develop and display hosting capacity forecasts. O&R includes some of this forward-looking information in pop-ups on its hosting capacity maps, identifying where long-lead upgrades are expected to increase available capacity. Future improvements to forecast information will be coordinated with the transition to the CYME modeling platform and alignment with JU-wide forecasting approaches.

The JU continue to hold stakeholder engagement sessions to solicit input from developers on additional enhancements to the Hosting Capacity Portal, including increasing the frequency of updates to the analysis and providing additional information such as forecasted Hosting Capacity evaluations. These enhancements are being considered for inclusion in future hosting capacity map releases. Over time, Hosting Capacity forecasts may be integrated into IEDR use cases and developer-facing interconnection tools to provide more forward-looking insights and improve project planning.

7. Summarize the utility's specific objectives and methods for:

a. Identifying and characterizing the locations in the utility's service area where limited hosting capacity is a barrier to productive DER development, directing users to the CGPP filing for further information; and

Hosting capacity focuses on the amount of DER accommodation that will not adversely impact PQ or reliability and will not require infrastructure upgrades. Where limited hosting capacity exists in the Company's service territory, the CGPP will help address electric grid expansions that will enable the unlocking of renewable generation capacity. The CGPP will also provide headroom analyses available on the existing local transmission and distribution ("LT&D") systems and additional capacity and energy

headroom that would be produced by implementing solutions to local system constraints. The current CGPP Proposal[184] and associated cycle implementation, provides a detailed approach to NYS's electric grid using a 20-year planning horizon.

b. Timely increasing hosting capacity to enable productive DER development at those locations, directing users to the IEDR platform when applicable for more information.

Hosting capacity maps may show where payment for limited upgrades is required, but there may be other cases where extensive upgrades would be necessary. O&R records projects that cannot progress because of lack of hosting capacity and can run a report to list these projects. When the Company receives recurring applications for the same area, that information is provided to the Company's Integrated Planning department for consideration in its planning processes. In the future, O&R could potentially contact developers and identify areas for potential cost sharing based on this information.

The Company is actively engaged in projects that will result in the allowance of increased hosting capacity. Examples include circuit-level phase balancing for 3-phase inverters, upgrades of low-voltage distribution to 13.2 kV, and reconductoring of circuit mainlines.

The Company is transmitting and sharing all of its hosting capacity data with the IEDR. Currently, O&R's customers continue to use the Company's Hosting Capacity Portal to view hosting capacity information.

Please see the Integrated Planning section of this DSIP for more information about increasing hosting capacity to enable DER development.

[184] AREGCBA Proceeding, Coordinated Grid Planning Process Proposal (Filed December 27, 2022).

Billing and Compensation

Introduction/Context and Background

Customer billing serves as the primary channel for Orange and Rockland Utilities, Inc. ("O&R" or "the Company") to engage directly with customers and create a positive impact—translating complex energy transactions, compensation mechanisms, and regulatory mandates into actionable and understandable information. As the volume and diversity of Distributed Energy Resources ("DER") continue to grow, billing and compensation systems must evolve to accommodate increasingly dynamic customer participation and emerging program structures. Billing and compensation are one of the utility capabilities that support New York State's ("NYS") clean energy goals and the implementation of the Climate Leadership and Community Protection Act ("CLCPA"). O&R maintains the systems and processes needed to enable DER participation, provide transparency, and support affordability objectives. While O&R is not a party to contracts between customers and DER providers, it is involved in accurate billing, timely application and regulatory compliance of DER compensation.

Since its 2023 DSIP filing, O&R has focused on stabilizing its Oracle Customer Care & Billing ("CC&B") platform to support accurate, timely, and transparent DER compensation. This work has included the automation of crediting workflows for programs such as Community Distributed Generation ("CDG"),[185] Remote Crediting, and Value Stack compensation. Stabilization efforts have also improved internal processing efficiency, reduced exception handling, and enhanced the customer experience through clearer bill presentation and more reliable credit application. These upgrades provide a strong foundation for managing increased billing complexity as DER participation expands.

Looking ahead, O&R is building new billing system capabilities to support implementation of emerging clean energy programs—including Statewide Solar for All ("S-SFA"), Renewable Energy Access and Community Help ("REACH"), and DER Aggregator participation in New York Independent System Operator ("NYISO") wholesale markets under Federal Energy Regulatory Commission's ("FERC") Order 2222[186]. Planned enhancements include additional CC&B configuration, new rate code logic, and the development of data exchange workflows with third-party providers. These initiatives will prepare the Company to administer new crediting structures, prevent duplicative compensation, and meet evolving regulatory and customer expectations.

As the billing landscape becomes more complex, the Company continues to collaborate with DPS Staff, the New York State Energy Research and Development Authority ("NYSERDA"), the Joint Utilities ("JU"), and DER providers to align technical capabilities with policy goals. Through engagement in billing and crediting working groups, tariff development efforts, and technical implementation planning, O&R remains focused on delivering a reliable, transparent, and equitable customer billing experience that supports the evolving distributed energy marketplace.

[185] O&R's Community Distributed Generation website: https://www.oru.com/en/save-money/using-private-generation-energy-sources/solar-energy/community-distributed-generation.

[186] FERC, Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators (RM18-9-000; Order No. 2222) (Issued September 17, 2020).

Implementation Plan, Schedule, and Investments

Current Progress

Summary of Achievements

- Stabilized the CC&B system following migration, resolving defects and supporting customers with faster enrollment and onboarding, greater ease of configuration, and more timely receipt of bills.
- Deployed the DG Customer Billing Portal for CDG onboarding, credit allocation, and sponsor reporting.
- Implemented administrative fee mechanisms to fund DER billing enhancements, including support for the S-SFA program.
- Developed and implemented full automation of Value Stack component billing, with flexibility for evolving policy and rate design updates for DERs.
- Aligned billing processes with NYISO wholesale market participation requirements under FERC Order 2222, including updates to tariff structures and customer eligibility tracking.

Utility Capabilities In-Focus

Customer Programs – O&R's billing system enhancements have improved transparency and reliability for customers by automating crediting processes and enabling enhanced customer-facing tools like the DG Billing Portal and supporting program provision and design and program enrollment.

Market Participation – O&R is advancing system upgrades and rate structures to enable aggregator participation and align compensation with wholesale market requirements under FERC Order 2222.

Since 2023, O&R has focused on stabilizing its billing systems following the successful migration to the CC&B platform. CC&B has provided the Company with a foundational platform that will enable more flexibility in accommodating future DER programs and the integration of flexible loads in support of NYS's CLCPA goals.

Following the migration from legacy billing systems, O&R spent 2023 and 2024 working through system bugs, defect fixes, configuration refinements, and business requirement adjustments to deliver consistent billing accuracy, and streamline internal workflows across DER programs. The platform now supports DER compensation and dynamic rate programs. DER owners are experiencing:

- Greater ease of program set up and configuration;
- Improved traceability of bill calculations;
- Faster enrollment and onboarding; and
- More timely issuance of bills.

The stabilization process also strengthened the Company's capacity to satisfy regulatory performance standards tied to billing timeliness, accuracy, and transparency. O&R's billing operations are now better equipped to accommodate future dynamic rates, volumetric net crediting enhancements, and DER billing complexity resulting from programs such as FERC Order 2222 aggregator settlement and new CDG models.

Remote Crediting functionality is now fully automated, which enables monthly credit allocation and subscriber management without the need for manual uploads or spreadsheet tracking, significantly accelerating the payment cycle for project sponsors and ensuring faster realization of Value Stack credits.

Program Structures and Compensation Methodologies

O&R continues to maintain and enhance a comprehensive suite of DER compensation mechanisms that support the expansion of clean energy resources across the O&R service territory. The Company's current billing framework addresses a variety of project types and customer classes as follows:

- **Net Energy Metering ("NEM"):** O&R continues to serve legacy projects interconnected under the NEM construct. These projects receive bill credits at the full retail rate for energy exported to the grid, netted against their consumption. Although NEM eligibility closed to new projects as the market evolved toward Value Stack compensation, O&R maintains robust systems to bill existing NEM customers accurately, including stabilizing transition processes where applicable.
- **Net Energy Metering Successor Program ("NEMS"):** Projects eligible under NEMS follow modified compensation structures compared to traditional NEM. NEMS retains many customer-facing billing benefits while introducing new mechanisms for grid cost recovery and alignment with Value Stack principles. The Company's billing platform upgrades have enabled accurate handling of both NEM and NEMS customers, ensuring consistent tracking of crediting, carryover balances, and program eligibility milestones.
- **Value of Distributed Energy Resources ("VDER"):** VDER compensation under the Value Stack is now the predominant model for DER projects in the O&R service territory. O&R has fully automated the billing of Value Stack attributes, including Locational System Relief Value ("LSRV"), Demand Reduction Value ("DRV"), Capacity, and Environmental Values. The Company is prepared to accommodate the evolution of the Value Stack as policies are updated through ongoing Commission proceedings, and billing system flexibility has been built into recent CC&B stabilization efforts. This allows O&R to adapt quickly to changes in rate design, locational incentives, and wholesale value calculations, supporting continued DER penetration across its network.
- **Remote Net Metering ("RNM")/Remote Crediting ("RC"):** RC has been fully automated for eligible customers, enabling credits generated at off-site renewable generation facilities to be applied seamlessly to participant electric bills. This automation streamlines the process for hosts and customers alike, improving transparency and reducing administrative burdens. In parallel, O&R is in compliance with reporting requirements under the NY Standardized Interconnection Requirements ("SIR")[187] and has built internal flexibility to adjust RC workflows to support broader customer classes, including emerging paired EV charging and solar projects.
- **Community Distributed Generation ("CDG"):** Under the net crediting model, CDG Sponsors or developers of eligible generation projects, such as solar PV, are paid a monthly subscription fee by members sharing a particular CDG project, which could consist of fixed or variable rates. O&R has continued to refine its support for CDG projects by consolidating crediting and payment into a single utility bill. Customers no longer make payments directly to the CDG Sponsor; instead, O&R applies the Sponsor-designated credit to each participant's bill and remits the corresponding subscription fee to the Sponsor. This enhancement simplifies the customer experience and automates accounts payable for CDG hosts, reducing administrative burden and improving

[187] NYS Standardized Interconnection Requirements ("SIR") website: https://dps.ny.gov/distributed-generation-information.

payment timeliness. In addition, the net crediting automation has been updated to allow for up to three different CDG Savings Rates, with the flexibility to update said rates 30 days prior to the CDG Host account's billing date. Along with these enhancements, CDG Hosts may choose to designate multiple CDG subscribers to be Anchor Subscribers limited to an aggregate total of 40 percent of the total CDG Project's monthly allocation.

Customer Billing Portal

To support the growth of DER projects and meet customer expectations of accurate and timely VDER compensation, O&R is deploying a Salesforce-based DG Customer Billing Portal. This portal will:

- Allow self-service onboarding of new DER projects, streamlining interconnection to billing transitions;
- Automate monthly subscriber management, credit allocations, and host company reporting requirements;
- Provide CDG project sponsors with real-time insight into subscriber performance and billing status; and
- Reduce exception management time and improve compliance with regulatory billing timelines.

The portal is modeled closely after CECONY's Value Stack Customer Portal, with adjustments to fit O&R's service territory-specific needs. Internal beta testing and user acceptance has been completed, and the portal is now available to customers. The portal will provide a single point of interaction for DER billing matters, enhancing transparency and responsiveness for third-party developers while reducing administrative burden for O&R staff. This digital interface will become a key customer experience pillar supporting New York's distributed energy marketplace.

Digital Experience Enhancements

As part of broader customer experience and digital modernization initiatives, O&R has introduced multiple enhancements that improve billing system accessibility and payment flexibility:

- Expansion of kiosk payment networks and walk-in payment centers to serve customers who prefer cash or in-person payments; and
- Pilot rollouts of personalized digital bill summaries and alerts, designed to improve customer understanding of billing line-items, including DER-related credits and savings.

These upgrades are part of a strategic effort to enhance the customer experience for all account holders —particularly for those participating in DER programs—providing clear, timely, and accessible information about how credits and charges flow through their bills.

Affordability and Cost Management

O&R continues to embed affordability principles throughout its DER billing modernization efforts. Rather than seeking new funding through traditional rate cases, the Company now leverages a DER administrative fee mechanism, allowing billing system upgrades to be funded directly through program participant contributions.

The administrative fee is capped at 1 percent of program revenue streams, such as Value Stack credits for participating CDG projects under programs like net crediting and the new S-SFA and REACH initiative. This mechanism allows O&R to enhance billing systems, staffing, and reporting capabilities while shielding the broader customer base from DER-related administrative costs.

This approach directly aligns with the CLCPA's priorities by not burdening low-income customers disproportionately while enabling DER adoption to scale equitably across all income segments. It also reinforces O&R's long-term focus on affordable clean energy transition initiatives.

Transparency and Data Sharing Initiatives

Recognizing the increasing complexity of the DER landscape, O&R has prioritized transparency and third-party data access improvements:

- The Company is on track for full Green Button Connect certification across billing and energy usage data channels, allowing secure, standardized sharing of customer-authorized data with third parties;
- DER interconnection and operational data feeds have been enhanced to align with NYS's Integrated Energy Data Resource ("IEDR") statewide platform, providing developers with consistent and reliable grid planning information; and
- Internal billing and metering systems are being updated to accommodate seamless settlement reporting for DER aggregators participating in NYISO's wholesale markets under FERC Order 2222 timelines.

These data transparency efforts are critical to a healthy, efficient, and competitive distributed energy market ecosystem — where developers, customers, and system operators alike can make better-informed decisions based on accessible, real-time information.

Future Implementation and Planning

Summary of Future Actions

- Implement automated billing and credit pooling for S-SFA participants.
- Develop and implement compensation logic for future REACH program participation.
- Finalize and deploy billing enhancements to support DER Aggregator participation in NYISO markets under FERC Orders 2222 and 841188.
- Expand billing system capabilities to accommodate emerging programs and tariffs that can be paired with resources such as managed EV charging and flexible hybrid solar-plus-storage systems.
- Coordinate with the JU and DPS Staff to align CDG crediting rules and automation workflows with finalized statewide standards.

Looking forward, O&R is focused on further enhancing its billing and compensation platforms to support the next generation of distributed energy programs, while ensuring that affordability, transparency, and customer experience remain at the center of the Company's strategy.

Statewide Solar for All ("S-SFA")

S-SFA was approved by the Public Service Commission ("PSC" or "the Commission") in 2024[189], is designed to provide low-income and Disadvantaged Community ("DAC") customers with direct bill credits from participating solar and storage projects through an opt-out, utility-administered structure. Under S-SFA,

[188] FERC, Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators (RM16-23-000; AD16-20-000; Order No. 841) (issued February 15, 2018).
[189] Case 21-E-0629, Order Approving Statewide Solar for All Program, (issued May 16, 2024).

O&R will aggregate bill credits generated by CDG projects and automatically distribute those credits among eligible customers enrolled in the Energy Affordability Program ("EAP"). Unlike traditional opt-in CDG models that rely on costly customer acquisition, S-SFA streamlines participation and provides broader access to clean energy benefits by removing barriers for customers and developers alike.

O&R started with S-SFA project enrollment in late 2024 and will begin customer credit distribution starting December 1, 2025. The enrollment deadline for existing projects was March 31, 2025, with ongoing participation opportunities thereafter. The Company's updated billing systems, including the DG Customer Billing Portal and enhanced CC&B modules, were structured to automate fully the pooling, allocation, and distribution of credits under S-SFA. As mentioned, the program's administrative fee structure—capped at 1 percent of project Value Stack revenues—allows for cost recovery without placing additional burdens on ratepayers. This initiative represents a fundamental shift in how clean energy access will be delivered to low-income customers across NYS and positions O&R at the forefront of implementing large-scale, affordable clean energy programs.

REACH

The REACH program, established by the Commission in October 2024,[190] is designed to deliver bill credits to low-income electric customers in DACs using revenues from New York Power Authority ("NYPA")-developed renewable energy projects. Enrollment is automatic for customers participating in the EAP who reside in DACs, and bill credits will begin in 2027, derived from both small (≤5 MW) and large (>5 MW) projects. The program is structured to align with the S-SFA initiative, with credits from both programs displayed under a single "S-SFA/REACH" line item on the utility bill.

O&R is preparing billing system enhancements to support REACH credit pooling, enrollment tracking, and credit application. The Company plans to leverage its existing CC&B system and Salesforce-based DG Customer Billing Portal, building on prior CDG and S-SFA functionality. Planned updates include configuration of rate codes, pooling logic for NYPA revenue-based credits, and integration of administrative tracking and reporting features. REACH billing implementation will proceed in coordination with S-SFA to provide an efficient and consistent customer experience. Cost recovery will be supported through a one percent administrative fee on applicable project revenues, with any eligible pre-crediting billing costs tracked and recovered. O&R remains actively engaged in statewide working groups to enhance system readiness and support program delivery beginning in 2027.

DG Customer Billing Portal Expansion

Following the successful deployment of the DG Customer Billing Portal, O&R is pursuing additional enhancements to further support CDG operations and improve the overall billing experience for customers. The Company has initiated the process with its vendor to design and implement enhancements. Specific features and implementation timelines are currently under evaluation as part of the platform optimization strategy. Planned enhancements include:

- Allocation and billing automation through a direct interface between the portal and CC&B to reduce manual intervention.
- Team activity and workload oversight tools to support operational visibility and task management.
- A performance analytics dashboard to monitor progress toward performance goals.

[190] Order Implementing Renewable Energy Access and Community Help Program, Case 24-E09984 (issued October 16, 2024).

- Expanded application and resource libraries to reflect newer programs such as S-SFA and REACH.

Billing System Flexibility for New Resources

In preparation for future market changes, O&R is also coordinating closely with its Rate Engineering, Interconnection, and DER Program Management teams to develop dynamic billing frameworks that will support new resources, including:

- Smart EV chargers with managed charging capabilities;
- Hybrid solar-plus-storage systems with flexible export schedules; and
- Flexible load management resources that can bid into distribution or wholesale markets. These efforts will allow O&R's billing systems to remain adaptive and future-proof in an evolving energy landscape, positioning the Company to handle a wider variety of DER business models and customer offerings.

Wholesale Market Developments

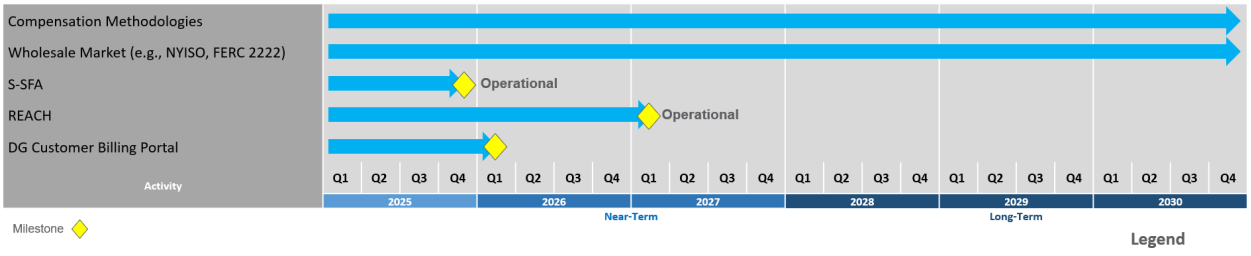
To support compliance with FERC Order 2222, NYISO launched its initial DER Aggregation Market in April 2024. The program allows aggregations of smaller DERs—such as rooftop solar, energy storage, and electric vehicle charging infrastructure—to participate in wholesale energy, capacity, and ancillary services markets.

O&R has introduced modifications to CC&B in preparation for DER aggregation. These system upgrades support proper enrollment, rate code application, and bill presentation for customers participating in wholesale aggregations. Changes to CC&B are designed to accommodate various DER configurations, enable exclusion of wholesale energy and capacity components from Value Stack compensation, so that crediting and charging align with approved tariff structures.

O&R will continue working with the NYISO, DPS Staff, and the JU to finalize the remaining billing and settlement processes required to support full dual participation. Additional system updates are planned as NYISO expands eligibility and functionality to achieve full FERC Order 2222 compliance. The Company remains focused on billing transparency, regulatory compliance, and a positive customer experience as DER aggregation participation grows.

Integrated Implementation Timeline

Figure 45: Five-Year Plan for Billing and Compensation



Risks and Mitigation

Table 22 below summarizes the risks that could affect the timely implementation of the future actions described above as well as the measures the Company has or will take to mitigate these risks.

Table 22: Billing and Compensation Risks and Mitigations

Risk	Mitigation
High volume and pace of billing system changes may introduce errors or delays in DER crediting and customer invoicing	Maintain rigorous cross-functional business requirements development process; apply structured regression testing to validate billing accuracy and safeguard customer experience
DER-related billing changes may inadvertently disrupt other programs (*e.g.*, budget billing, Retail Choice, low-income discounts)	Conduct pre-implementation impact assessments across all billing programs; incorporate Customer Operations and Rate Engineering review into governance checkpoints
Limited visibility by external stakeholders into system constraints may lead to infeasible or conflicting policy proposals	Proactively engage in JU billing working groups and DER policy forums; provide technical feedback and recommend alternatives where system limitations exist
Integration of complex programs (*e.g.*, S-SFA, REACH, Value Stack, TOU rates, wholesale aggregation) can challenge platform flexibility and IT resource allocation	Prioritize system modularity and flexibility in platform design; stagger implementation timelines; coordinate cross-program delivery through IT portfolio governance
Timing of program details may impact configuration or testing readiness	Seek early clarification through DPS Staff/NYSERDA engagement; document technical assumptions; incorporate adjustable parameters into billing logic where feasible

Stakeholder Engagement

The Company, along with the other JU members, participate in numerous working groups, stakeholder webinars, and technical conferences. The CDG Billing and Crediting working group, sponsored by NYSERDA and DPS Staff, provides an opportunity for the JU to meet with invited solar developers and administrators to discuss stakeholder-recommended changes to the compensation programs. The working group affords all parties the opportunity to understand the developers' intended outcomes and to collaborate on the manner of achieving those goals. The Company also participates in forums available to a wider audience such as DPS Staff-led technical conferences, meetings, and webinars that are open to any interested stakeholder. The Company has presented at a number of those events.

The Company also engages with DER providers on an individual basis, responding to inquiries and collaborating to provide requested information in a format mutually acceptable to both parties. O&R hosts an annual DER Interconnection Workshop, see the DER Interconnection section of this DSIP, with DER providers to discuss interconnection and as part of that meeting, the Company presents information on compensation methodologies. The Company has updated its website to provide a variety of

information to DER providers and customers.[191] For example, information on Value Stack (VS) can be found on the Private Generation Tariffs page.[192] In addition, the Company has developed manuals and related forms detailing DER provider requirements for projects receiving compensation through utility electric bills and explaining how that compensation will impact subscriber electric bills.

The Company's website also offers information to customers on CDG, explaining how it works, the parties to the transaction, and a sample electric utility bill with explanations of the various CDG-related components

Additional Detail

1. **Describe the various DER-related billing and compensation programs (including demand response) implemented or revised by the utility since the last update. For this first inclusion in the DSIP, describe developments that have occurred since the beginning of NEM, RNM, CDG, and VDER.**

See the discussion above under the Current Progress section which details the DER-related billing and compensation programs implemented and revised by the Company.

2. **Describe the customer billing/compensation functions and data generally needed to expand deployment and use of DERs in the utility's service area. Include descriptions of the existing and planned components (processes, resources, and data exchanges) that will support those needs. For planned components, provide the sequence and timing of key investments and activities required for component implementation.**

The Company has automated the billing and crediting of DERs receiving compensation under NEM, NEM Successor, VDER including Phase One NEM and VS, RNM/RC, CDG, and net crediting for VS CDG, along with numerous changes to the requirements for those programs. The Company relies on meter data, information provided by the customer and/or project host (*e.g.,* Subscriber Allocation Forms, Net Crediting Savings Rate), and its billing system to produce customer bills. O&R's Interconnection Online Application Portal ("IOAP"), PowerClerk®, is used to transfer information between the customer and the Company.

Additional DERs that receive compensation under existing methodologies would be billed using the automated functionality implemented by the Company. To the extent new compensation methodologies are developed or changes to existing methodologies are required for specific types of DERs, the Company would need to evaluate the data needed, assess the billing and IT impacts, update all of the impacted Company systems, and develop processes and procedures to implement these methodologies including for information exchanges between the customer and the Company.

3. **Describe the customer billing/compensation functions and data needed to enable DER participation in the NYISO's wholesale markets for energy, capacity, and ancillary services. This should include information regarding the utility's implementation of its Wholesale Distribution Service (WDS), Wholesale Value Stack (WVS), and related non-wholesale value stack (VDER without wholesale energy and capacity components). Also include descriptions of the existing and planned components (processes, resources, and data exchanges) that will support those needs. For planned**

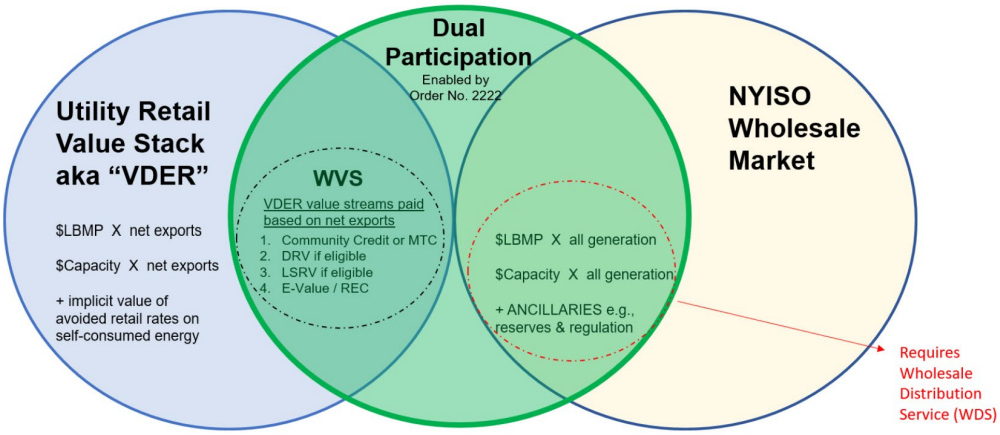
[191] O&R's Private Generation Energy Resources website:
https://www.oru.com/en/save-money/using-private-generation-energy-sources.
[192] O&R Private Generation Tariffs website:
https://www.oru.com/en/save-money/using-private-generation-energy-sources/private-generation-tariffs.

components, provide the sequence and timing of key investments and activities required for component implementation.

FERC Order 2222 provides for participation by DER in wholesale electric markets including the energy, capacity, and ancillary services markets operated by the NYISO. New York Utilities have implemented tariffs that permit dual participation in both the utility retail Value Stack tariffs and in the NYSIO markets. This participation is facilitated through the Wholesale Value Stack ("WVS") tariff as shown in the diagram below. This participation is facilitated through the WVS tariff as shown in below.

Wholesale market participants will receive energy payments and capacity payments, as applicable, from the NYISO, coordination, verification, and settlement functions with the NYISO will be required for customers participating in both the NYISO wholesale electric markets and the utility retail value stack tariffs.

Figure 46: Compensation for DERs Participating in NYSIO Markets



The new Wholesale Value Stack (WVS) retail tariff provides a path for Dual Participation

4. **Describe the utility's plans to implement or modify DER-related billing and compensation capabilities, including automation, to address the Community Distributed Generation (CDG) billing and crediting problems that were the focus of the Commission's September 15, 2022, Order in Cases 19-M-0463, et. Al.**

O&R has automated the billing of CDG projects as noted in the Commission's September 15, 2022**,** Order cited in this Question 4. The Company provides detailed implementation and modification plans in case 19-M-0463, *In the Matter of Consolidated Billing for Distributed Energy Resources.*[193]

5. **For each type of DER billing and compensation, including for CDG and wholesale market participation, describe the current information system constraints preventing full automation of DER billing and compensation.**

O&R has automated the billing of CDG projects receiving compensation under the VS methodology, including net crediting for these projects, and under Phase One NEM.

[193] Case 19-M-0463, *In the Matter of Consolidated Billing for Distributed Energy Resources*, Order Establishing Process regarding Community Distributed Generation Billing (p. 5) ("Consolidated Billing Order").

Full automation of the RC program materialized when the Company migrated to the CC&B system in October 2023. Net crediting for RC currently is not available, but is being discussed with the Commission and external stakeholders for future development.

The Company is currently evaluating the billing processes and functionality needed to bill wholesale market participants. As such, current information system constraints, if any, are unknown at this time.

The Company has developed the business requirements needed for billing automation and processes, procedures, and related agreement to support implementation and execution net crediting of CDG projects receiving compensation under the Phase One NEM Volumetric methodology. Billing enhancements are scheduled to be released to Production before the end of 2025.

6. Describe how DER billing and compensation affects other programs such as budget billing, time of use rates, and consolidated billing for Energy Service Companies (ESCOs).

When implementing DER billing and compensation methodologies and changes thereto, the Company evaluates their impact on other programs. For example, CDG credits that can be applied to a subscriber's bill may be limited to a subscriber's monthly budget bill amount if that amount is less than actual electric charges for the bill period. In addition, Phase One NEM volumetric compensation is similar to NEM in that a customer's usage is reduced by the generation either produced onsite or allocated to the customer. This reduction is reflected in the amount the customer is billed for supply, whether as a full service customer or a retail access customer.

7. Describe the utility's means and methods – existing and planned – for monitoring and testing new or modified customer billing and compensation functions.

The Company will configure new rates in a non-production environment and perform rate validation before the rates are migrated to production. If a new rate or customer compensation methodology cannot be implemented using current functionality, system enhancements will be needed to support the new initiative. Once the Company has identified a system enhancement , the Company will follow a process of requirements gathering, solution design and development, validation of the solution in a non-production environment, and finally promotion of the solution to the production system. The Company will work with its CC&B support vendors and internal business and system SMEs to implement the enhancement or functionality. The enhancement process for CC&B will be similar to the enhancement process employed today for the Company's legacy systems.

8. Describe the utility's means and methods – existing and planned – for supporting customer outreach and education, including where and how customers, DER developers/operators and other third parties can readily access information on the utility's billing and compensation procedures.

The Company's website provides a variety of information for customers, DER developers and other third parties on billing and compensation associated with DERs. A more in-depth discussion, as well as links to O&R's website, can be found under the Stakeholder Engagement section above. In addition, the Company hosts an annual DER Interconnection Workshop during which information on compensation methodologies is presented and offers an opportunity for developers to ask questions. Additional information on the Workshop is detailed under Stakeholder Engagement section above.

The Company attends a variety of outreach events, such as community events, during which Company representatives provide information and answer customer questions on DER compensation. O&R's call center representatives are trained to answer questions on DER compensation in general and on a participating customer's bill related questions.

9. Describe the utility's means and methods – existing and planned – for receiving, investigating, and monitoring customer complaints and/or inquiries regarding billing and compensation issues related to DERs.

The Company's call center representatives are trained to respond to inquiries from customers participating in DER programs. In addition, dedicated resources (i.e., billing specialists) support DER billing inquiries. Customers who complain and/or inquire about a project issue, such as their allocation percentage, are directed to speak with the project sponsor. Inquiries from a developer or subscriber organization about a specific customer are answered by the dedicated billing specialists. Commission complaints about DER compensation-related issues would follow the same process that the Company follows for all Commission complaints. Inquiries from customers about their bills are handled by the Company's call center representatives, with support from the billing specialists, if needed. Inquiries from customers about changes to their bill, such as for the Customer Benefits Charge ("CBC"), are handled by the billing specialists. As an added communication channel, CDG Hosts can also open an "general inquiry case" through the Salesforce-based DG Customer Billing Portal. The billing specialist referenced above will then conduct the necessary research required to close out the case.

DER Interconnection

Introduction/Context and Background

As the volume and variety of DERs continue to grow, the interconnection process plays a critical role in advancing New York's clean energy transition. The Climate Leadership and Community Protection Act ("CLCPA") establishes a statewide mandate to decarbonize the electric system, and the ability to connect DERs efficiently and at scale is essential to meeting that objective. While Hosting Capacity maps help identify feasible project locations, it is the transparency, consistency, and timeliness of the interconnection process that will the facilitate the rapid advance of viable projects from application to operation. From initial screening through detailed design and construction, Orange & Rockland Utilities, Inc. ("O&R" or "the Company") is focused on making the process more responsive and user-friendly, while maintaining high standards for system reliability. As of June 2025, the Company has interconnected 245 MW at 13,702 PV installations and 47.96 MW at 912 battery energy storage systems ("BESS") installations in the O&R service territory.

O&R has implemented several processes and system enhancements to make the Distributed Energy Resource ("DER") interconnection experience more efficient, integrated, and user-friendly. As part of this effort, the Company has moved from a semi-automated workflow to a streamlined application process that supports better coordination across internal utility systems. Key upgrades include implementation of a new software modeling platform and the implementation of the Customer Care and Billing ("CC&B") system in 2024. These improvements serve to emphasize system interoperability, automation, and operational readiness.

O&R has introduced updates to PowerClerk to provide stakeholders enhanced functionality and improved visibility to streamline the interconnection process.

The Company has introduced enhanced automation, tracking tools, and smart inverter integration to its Interconnection Online Application Portal ("IOAP") tool, PowerClerk®. PowerClerk® is a critical component of the Company's interconnection process and is essential to delivering a positive customer experience. O&R continues to improve the customer/developer experience by incorporating the State's Standardized Interconnection Requirements ("SIR")[194] updates into PowerClerk® and including an enhanced scheduler tool that enables all stakeholders to better forecast DER interconnections. PowerClerk® functionality was expanded in Q2 2025 to support the participation of aggregated DERs in NYISO wholesale markets.

O&R continues to modernize its interconnection practices to support a streamlined and transparent customer experience and broader enablement of DERs and market participation. The Company's work under New York State Energy Research and Development Authority's ("NYSERDA") Program Opportunity Notice ("PON") 3770 advanced its smart inverter integration approach and shaped statewide implementation through the Joint Utility ("JU") Smart Inverter Working Group ("SIWG"). In parallel, O&R has played a role in shaping evolving national standards, including leadership in the Institute of Electrical

[194] NYS Standardized Interconnection Requirements ("SIR") website: https://dps.ny.gov/distributed-generation-information

and Electronics Engineers ("IEEE") 1547 Standard[195] revision process, helping these new rules reflect practical distribution system considerations.

Through the Interconnection Policy Working Group ("IPWG"), O&R partnered with other JU members and stakeholders to develop Cost Sharing 2.0—a major improvement in how DER upgrade costs are allocated.[196] The resulting Commission-approved framework enhances fairness and predictability for developers, while also giving O&R an early signal when DER growth triggers the need for grid upgrades. This allows the Company to coordinate infrastructure plans with the developer community earlier in the process, improving both cost efficiency and siting transparency.

Looking ahead, O&R is adapting PowerClerk® to support NYISO's DER Aggregation Market and Federal Energy Regulatory Commission's ("FERC") Order 2222 compliance by enabling aggregator registration and enrollment workflows. This tool, co-developed with Clean Power Research, illustrates how the Company is proactively building the capabilities required to support third-party DER participation in wholesale markets while maintaining local system reliability and planning rigor.

Implementation Plan, Schedule, and Investments

Current Progress

Summary of Achievements

- Implemented developer feedback survey in PowerClerk to capture input on cost transparency, scheduling, and communication.
- Enhanced PowerClerk scheduling and milestone tracking to support improved transparency and queue management.
- Enabled SIR Report reconciliation improvements to align internal tracking with actual project status.
- Piloted Loadshed Restore Abort Flag on DER-connected reclosers to improve operational awareness following trip events.
- Completed PowerClerk web adapter integration with CORE to streamline developer and customer data sharing.
- Participated in Interconnection Technical Working Group ("ITWG"), IPWG, and SIWG stakeholder meetings to inform ongoing interconnection process enhancements.

Utility Capabilities In-Focus

Hosting & Registration – O&R has enhanced its PowerClerk® platform to support streamlined DER *interconnection* application processing, institute a developer survey, and track project milestones through built-in system tools.

Market Participation – O&R is developing and implementing enhancements to PowerClerk® functionality that will enable aggregator enrollment for future DER participation in NYISO markets under FERC Order 2222, while supporting participation incentives through an efficient and scalable enrollment process.

[195] IEEE, *Application Guide for IEEE Std 1547 ™- 2018*, IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power System Interfaces, (Published, May 2024) https://ieeexplore.ieee.org/document/10534228.

[196] Cases 20-E-0543 and 19-E-0566, Order Approving Compliance Filings with Clarifications (issued April 14, 2022).

O&R has focused on implementing foundational capabilities that enable the integration and participation of DERs across the O&R service territory. These include modernizing interconnection platforms, improving hosting capacity visibility, and investing in advanced tools to monitor, forecast, and manage DER performance to continue delivering an enhanced customer experience.

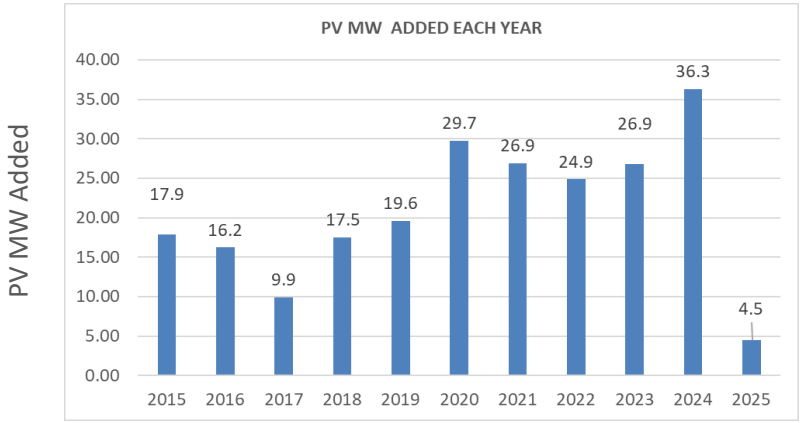
The Company has approved 13,702 PV installations, interconnecting a total of 245 MW.

As of June 2025, the Company has approved a total of 13,702 PV installations in the O&R's New York service territory, interconnecting a total of 245 MW, including hybrid solar-plus-battery interconnections. In addition, there are 975 projects currently being proposed, totaling an additional 169 MW of capacity, 149.6 MW of which are CDG projects. The Company has also approved a total of 912 BESS installations in the O&R service territory, interconnecting a total of 47.96 MW to date. Completed and proposed installations of PV and energy storage systems ("ESS") are summarized in Table 23. Figure 47 illustrates the photovoltaic ("PV") additions each year from 2015 to 2025 (to date).

Table 23: PV and ESS Installations in NY

	MW	Number of Installations
Photovoltaic		
Completed Installations	245	13,702
Proposed Installations	169	975
Total Active Projects	414	14,677
Energy Storage Systems		
Completed Installations	47.96	912
Proposed Installations	117.97	131
Total Active Projects	165.93	1043

Figure 47: Capacity (MW) of Distributed PV Added Each Year



Since 2020, O&R has worked diligently to incorporate SIR updates into PowerClerk® in a timely manner. One example of these updates is a material modification process that allows DER developers to submit a change at any stage of a project. In addition to updates to PowerClerk®, each SIR update requires business process updates, and documentation of those business process updates.

Interconnection Process

New York's SIR was most recently updated in February 2024 and establishes the shared process utilities follow for reviewing and approving DER interconnection applications. These guidelines are continuously refined with input from DG developers and stakeholders, DPS Staff, NYSERDA, and JU-led working groups. O&R contributes to this collaborative process and incorporates SIR updates into its own interconnection practices. The Company is an active participant in the evolution of the SIR. The Company is currently reviewing the updated DOE DER Interconnection Roadmap to proactively assess potential interconnection process improvements.[197]

The DER energization process consists of the following five steps that outline the key tasks and internal responsibilities from application to energization as shown below in Figure 48 below.

Figure 48: Interconnection Process

O&R updated its Preliminary Screening Process to include circuit verification, Hosting Capacity checks, and form logic within PowerClerk® to advise developers early in the process that their project may require substation upgrades where the Electric Power System ("EPS") lacks available capacity.

To improve response times, the Company standardized replies to inquiries submitted through the Distributed Generation ("DG") inbox and automated internal reporting functions to support application processing and project oversight. O&R also implemented SIR Report reconciliation improvements so that reported project milestones and statuses reflect actual progress.

To strengthen milestone tracking, O&R enhanced the Engineering Study Status form within PowerClerk® to record submission dates for both consultant-led and Effective Grounding & Protection Coordination ("EGPC") studies. The Company also updated its minimum load methodology for interconnection studies, eliminating assumptions and providing developers with more accurate feeder capacity information. To mitigate risks associated with design non-compliance and field delays, O&R established a DER Design Working Group ("DWG") Review Process for non-utility construction projects, ensuring that project designs conform to the technical and procedural requirements of the NYS SIR.

To further reinforce accountability and support continuous improvement, O&R instituted a quarterly internal audit process to evaluate adherence to interconnection timelines and assess trends across project stages.

O&R implemented a journey mapping process to better understand and address developer experiences throughout the interconnection process. Resulting process revisions included: assignment of dedicated Company personnel to assist applicants; use of standardized developer meetings to clarify next steps; and

[197] U.S. Department of Energy. *DOE Distributed Energy Resource Interconnection Roadmap;* https://www.energy.gov/eere/i2x/doe-distributed-energy-resource-interconnection-roadmap.

deployment of a DER scheduling tool to track construction progress across both utility and developer workstreams. The tool was designed to coordinate parallel construction schedules and support visibility into energization and PTO readiness. These enhancements have improved scheduling transparency and enabled more accurate forecasting.

Before even applying for interconnection, developers have access to O&R's hosting capacity maps. These maps provide circuit-specific visibility into available headroom for solar, storage, and electrification loads, to help developers identify viable interconnection points and avoid capacity-constrained areas that would trigger costly system reinforcements. By reducing uncertainty and highlighting "grid-friendly" locations, hosting capacity maps improve project feasibility, support more predictable cost estimates, and accelerate interconnection timelines. To further enhance transparency, O&R's maps incorporate 8,760 hourly feeder load profiles, nodal-level constraints, and Cost Share 2.0 indicators, offering developers detailed insight into temporal and spatial system capabilities. More detail on these capabilities is provided in the Hosting Capacity section of this DSIP.

O&R has implemented the Cost Sharing 2.0 framework approved by the Commission in 2021. Under this approach, distribution system upgrade costs—particularly for substations—are allocated on a pro rata basis among all eligible projects in the interconnection queue, based on their assigned Hosting Capacity.[198] This replaces the former first-mover requirement, where the initial triggering project bore the full cost of an upgrade. Cost Sharing 2.0 also enables the Company to proactively identify and signal locations where it may install additional Hosting Capacity beyond minimum design needs, expanding opportunities for developers to interconnect in areas that were previously constrained. These cost-sharing provisions are now integrated into O&R's hosting capacity maps and PowerClerk® scheduler, enabling developers to assess upgrade potential, understand their cost allocation, and track project milestones with greater clarity.

O&R maintains a page on its website with helpful information on applying for private generation interconnection.[199]

DER Interconnection Handbook

In 2022, the Company released the first iteration of its DER Interconnection Handbook ("DERIH")[200], which specifies technical requirements for DER grid interconnection and parallel operation up to 5,000 Kilowatts AC with the O&R's electric distribution system. O&R modeled the DERIH after the Electric Power Research Institute ("EPRI") Technical Interconnection and Interoperability Requirements in order to incorporate best practices. The DERIH is a tool that assists contractors and developers by laying out the interconnection procedures from initial application to the receipt of permission to operate ("PTO"). It explains the general design and operating requirements of DERs in detail, including subjects such as grounding, hybrid DER metering, and commissioning. Internal Company stakeholders also benefit from the DERIH, as it includes documented technical requirements, policies, and procedures.

This handbook helps O&R continue to deliver enhanced customer experience and enable DERs and associated market services by providing consistency for developers interconnecting onto the O&R electric

---

[198] Cases 20-E-0543 and 19-E-0566, Order Approving Compliance Filings with Clarifications (issued April 14, 2022).
[199] O&R: Applying for Private Generation Interconnection:
https://www.oru.com/en/save-money/using-private-generation-energy-sources/applying-for-interconnection.
[200] O&R DER Interconnection Handbook:
https://cdne-dcxprod-sitecore.azureedge.net/-/media/files/coned/documents/save-energy-money/using-private-generation/applying-for-interconnection/interconnection-handbook.pdf (Effective November 2022).

distribution system. The DERIH is available on the O&R website as part of an ITWG initiative for developers to access in accordance with ITWG requirements. O&R is currently reviewing the DERIH and expecting to finalize an update in 2025. The original version was based on EPRI's Technical Interconnection and Interoperability Requirements, and the current review process is assessing alignment with the latest revision to support continued consistency with best practices and evolving standards.

FERC 2222

In April 2024, NYISO opened registration for DER aggregators under its DER Participation Model. This model allows heterogeneous aggregations of DERs connected to the same transmission node to participate in the wholesale energy, capacity, and ancillary services markets, and is a foundational step toward full compliance with FERC Order 2222 by 2026. FERC Order 2222 requires regional grid operators, such as NYISO, to allow the participation of aggregated DERs in wholesale markets. As the distribution utility, O&R plays an important role in coordinating with the aggregator and the NYISO to maintain the safety and reliability of the grid. The Company is establishing internal processes and tools to support market enrollment, operational coordination, and compensation mechanisms.

Each individual DER within an aggregator must have an individual interconnection agreement, as described throughout this section, before an aggregator may apply for market enrollment. O&R's Technology Engineering group initiated a research and development project to adapt PowerClerk® for processing wholesale market applications. The platform is currently undergoing final validation, and table-top exercises are scheduled to train relevant personnel on its functionality. The system is expected to be fully operational by Q3 2025. In parallel, O&R secured R&D funding to collaborate with Clean Power Research in expanding PowerClerk®'s capabilities to support aggregator enrollment workflows and DER registration for market participation.

As of June 2025, a limited number of aggregators have expressed preliminary interest in developing portfolios within O&R's service territory, but no formal interconnection or enrollment applications have been submitted to date. O&R and the NYISO have publicly available resources for interested developers to learn more information. Developers can access telemetry guidance and transmission node information on O&R's website[201] and transmission nodes are accessible on the Company's HC Maps. The NYISO published an Aggregation Manual[202] with application eligibility and performance requirements. See the Grid Operations section for further details on O&R's efforts to support operational coordination for aggregators and the Billing and Compensation Section for billing settlement coordination.

O&R continues to monitor aggregator engagement and maintains coordination with NYISO and the JU to support the operational, telemetry, and settlement processes required for market participation. These activities help to provide both the platform and the market for increased third-party participation. The Company will evaluate potential DER aggregation impacts on local distribution system operations as market activity evolves.

PowerClerk®

[201] O&R Compete in the Wholesale Market With Private Generation website: https://www.oru.com/en/save-money/using-private-generation-energy-sources/compete-in-the-wholesale-market-with-private-generation.

[202] NYISO Manuals, Technical Bulletins, and Guides website: https://www.nyiso.com/manuals-tech-bulletins-user-guides.

To define the improvements necessary to streamline the interconnection process and implement queue reform, the Commission and NYSERDA are guided by the New York Interconnection Online Application Portal Functional Requirements ("IOAP Report")[2] which were developed with EPRI in 2016. The IOAP Report included a three-phase roadmap for achieving increased automation:[3]

- Phase 1: Automate application management - *completed*
- Phase 2: Automate standardized interconnection requirements ("SIR") technical screening - *completed*
- Phase 3: Full automation of all processes

Since 2023, O&R has continued to incorporate updates into its IOAP tool-PowerClerk®. The Cost Sharing 2.0 Scheduler tool within PowerClerk® has been significantly enhanced over the past two years and is now fully implemented. The new scheduler tracks key milestones across both utility and developer workstreams with programmed task durations, allowing both developers and utility staff to more accurately forecast PTO dates. Previously, project tracking lacked transparency and flexibility; the updated tool enables dynamic rescheduling when individual task timelines shift, improving project visibility and coordination across stakeholders. O&R also implemented integrated survey questions within the PowerClerk® interface to capture real-time developer feedback on interconnection experiences; further discussion of this initiative is provided in the *Stakeholder Interface* section. These changes are designed to deliver an enhanced customer experience through streamlined processes that emphasize stakeholder needs and drive greater customer participation. In addition, to support data coordination and reduce administrative burden, the Company also implemented the PowerClerk® web adapter for CORE, which will allow customer account information to flow between platforms more efficiently.

Smart Inverters

As DERs and renewable generation connect to the electric grid at increasing rates, utility control systems face growing complexity. Advancements in inverter technology have enabled the development of smart inverters, which support two-way communication between DERs and utility control centers and allow for remote monitoring. These devices enable key utility capabilities to increase DER enablement and improve grid stability through autonomous functions such as voltage regulation, reactive power control ("volt-VAR"), and ride-through capabilities, enhancing DER Hosting Capacity and overall system resilience. In 2019, O&R launched the NYSERDA PON 3770 project, Smart Inverter Settings Guidance for High Performing Smart Grid Applications. The project is now complete and informed both O&R's approach to inverter behavior and the JU SIWG. O&R is now participating in a follow-on NYSERDA effort under PON 4128, which is creating testing environments to validate smart inverter functionality. Additional details on this collaboration are provided in the Grid Operations section.

O&R also worked with the EPRI and industry peers to assess the technical value of advanced inverter functions. This collaboration deepened industry knowledge of how DERs can mitigate grid impacts under high-penetration conditions and supported trusted settings for inverter operation. O&R received EPRI's Power Delivery and Utilization Award for this work and presented two case studies at the 2024 EPRI Smart Inverter Workshop. To improve modeling of these functions, O&R updated its Distributed Engineering Workstation ("DEW") software to include volt-VAR curve simulation and a dedicated interface for BESS.

As mentioned, O&R has actively participated in the SIWG, which developed the Smart Inverter Roadmap to guide the staged implementation of inverter functionality across utility service territories. In Phase 1, the roadmap established autonomous settings for bulk power system support, including standardized

ride-through parameters, and laid the groundwork for coordinated implementation. An important milestone in this phase was the enablement of volt-VAR functionality across O&R's territory in 2023, allowing inverters to autonomously manage reactive power based on agreed voltage setpoints.

In Phases 1 and 2, smart inverters operate independently, without real-time utility dispatch. Looking ahead, Phase 3 of the roadmap will enable DERs to respond to utility control signals via integration with O&R's Distributed Energy Resource Management System ("DERMS"). This level of interoperability introduces the potential to curtail DER output under rare, worst-case conditions as part of Flexible Interconnection Capacity Solutions ("FICS"). By dynamically managing DER injections in response to system constraints, FICS may increase Hosting Capacity by reducing the need to reserve bandwidth for infrequent contingencies.

As of 2025, O&R is in the process of completing Stage 3 of the roadmap, which involves developing recommended interactive settings for future DERMS-integrated inverters. These recommendations will inform the specifications for Phase 3 control functions and help ensure safe and reliable remote operation once DERMS becomes operational. DERMS implementation is discussed further in the *Grid Operations* section of this DSIP.

To ensure consistent performance and safe operation of inverter-based DERs, O&R requires that all new inverters be certified to UL 1741 SB—a testing standard that verifies compliance with the functional requirements of IEEE 1547-2018. This certification confirms that inverters are capable of providing grid services safely and reliably. Since January 2023, all newly installed inverters have been required to meet this certification. Adopting these standards improves the interoperability of DERs across utility platforms and enhances the efficiency of the interconnection process.

In addition, the JU are developing Monitoring and Control ("M&C") requirements for inverter-based resources. This initiative aims to provide developers with clear technical expectations and ensure statewide consistency, while aligning with the evolving Smart Inverter Roadmap.

Industry Participation and Working Groups

O&R continues to advance its interconnection processes through direct participation in international standards development, engagement in stakeholder forums, and collaboration with the JU on statewide interconnection initiatives. O&R collaborates with the JU through the IPWG and the ITWG, which serve as forums for ongoing coordination among utilities, DPS Staff, and industry stakeholders. These working groups have played a key role in advancing interconnection transparency, technical standards, and regulatory reforms across New York State.

In 2024, O&R held its annual DER Interconnection Workshop. The Company instituted these workshops in response to EPRI identifying that providing publicly available training on the interconnection process is a best practice to improve the DER interconnection experience. Representatives from across O&R's departments presented on key technical, procedural, and policy topics relevant to the DER community. The agenda included detailed presentations on PowerClerk® functionality, technical interconnection requirements, construction coordination, and power quality ("PQ") standards. In addition, the Company provided updates on wholesale market participation under FERC 2222, energy storage planning and procurement, and customer programs for electric vehicle ("EV") integration. The session closed with a Q&A segment to address developer questions and collect feedback. This workshop continues to serve as an important venue for stakeholder engagement and transparency.

O&R has contributed to JU-led efforts to implement Cost Sharing 2.0, develop and maintain the DERIH, and refine the Smart Inverter Roadmap. In collaboration with industry, O&R supported the revision of

Preliminary and Supplemental Screening tests in the SIR, including updates to Screens E and G to reflect reverse power flow conditions and improve upgrade determinations. O&R also contributed to the ITWG initiative to incorporate a Summary of Costs into the SIR reconciliation process, which improves transparency and accountability for interconnection-related upgrades.

To further support developer planning and cost predictability, O&R maintains an updated technical cost matrix that provides indicative estimates for common system upgrade scopes. O&R has also participated in JU discussions with DPS and developers regarding policies to allow third-party construction of interconnection equipment at the POI, contingent on contractor pre-approval and defined Company oversight.

In response to increased developer interest in BESS, O&R supported JU efforts to publish preferred charge and discharge schedules, aligning BESS operations with grid needs and economic incentives. In addition, proposed amendments to Appendix K of the SIR would improve the clarity and completeness of BESS application data, enabling more efficient Coordinated Electric System Interconnection Review ("CESIR") processing and system planning.

O&R has also contributed to the development of international technical standards. A member of the Company's Technology Engineering group serves as a sub-group lead on the revision of IEEE Standard 1547-2018 and development of the 1547.2 Guide, in order that evolving DER interconnection standards are grounded in operational experience. O&R's participation in EPRI includes ongoing involvement in the Communications Harmonization Project, which supports IEEE 1547-2018 implementation and DER integration strategies. Technical Engineering staff presented two case studies at the 2024 EPRI Smart Inverter Workshop.

The JU are preparing to adopt the UL 1741 Certification Requirements Decision ("CRD") for Multimode ("MM") systems, with a compliance deadline of June 30, 2025. The testing procedures within the UL 1741 CRD for MM verify that a combined inverter and MID assembly will not allow a DER to backfeed into a downed electric power system ("EPS"). However, the inverter and MID will continue to power the local premise. This standard addresses safety risks associated with backfeed and supports the reliable integration of increasingly common inverter-MID configurations in solar PV, storage, and electric vehicle applications.

O&R's Tech Engineering team is actively participating in multiple research initiatives to improve interconnection processes and technical readiness for evolving DER technologies. These efforts reflect a proactive approach to incorporating advanced modeling tools, field testing protocols, and forecasting methodologies into utility operations. The Company is coordinating with the JU through the ITWG to develop a structured decision tree that classifies EV charging configurations and their associated interconnection standards. This tool will help organize applicable technical requirements for a variety of use cases and will improve consistency in application review. O&R is participating in NYSERDA's PON 5848, a funding opportunity focused on applying generative artificial intelligence to improve interconnection processes.

DER Commissioning Toolkit ("DERCoT")

DERCoT is an EPRI-led project that aims to standardize and automate commissioning test procedures for DERs in compliance with IEEE 1547-2018 and utility-specific interconnection requirements. This effort supports the development of ruggedized field kits and a companion software platform to guide step-by-step test execution, automate data collection and reporting, and improve safety and verification processes at the point of common coupling. The toolkit is expected to enhance field engineer productivity and reduce variability in commissioning practices across DER project types.

Electromagnetic Transient ("EMT") Screening, Model Conversion Tools, and Tutorial for DER Integration

This project is designed to support the development of automated tools and standardized criteria for screening DER projects that may require EMT-level analysis. It also includes development of a model conversion utility to translate phasor-domain feeder models into EMT-domain equivalents, enabling more accurate assessment of DER behavior under fast transients. This tool can be used to enhance interconnection study capabilities and address modeling gaps for inverter-based resources with non-linear controls and protection systems.

A Modular Multi-Application Multi-Resolution Sensor Fusion Optimization Architecture for Transmission System Operation ("MARS")

O&R is engaged in the MARS project, which is a United States Department of Energy ("DOE")-funded research collaboration with the National Renewable Energy Laboratory ("NREL"). The MARS project seeks to support transmission and distribution system operators by developing a modular, scalable architecture for planning sensor and communication infrastructure. The architecture includes multiple layers—application, visibility, optimization, cost-benefit analysis, and testing—and enables users to customize sensor planning to meet specific visibility and performance requirements.

Future Implementation and Planning

Summary of Future Actions

- Continue to enhance PowerClerk automation in support of IOAP Phase 3; implement updates as SIR changes are finalized.
- Work with vendors to enable smart inverter settings compliance verification; reduce manual review time.
- Refine cost allocation procedures and communication practices under Cost Sharing 2.0.
- Complete transition to CYME modeling platform; begin applying IEEE 1547-2018 settings and enhanced feeder data in CESIR studies (by 2026).
- Develop Company-wide PQ program, led by a designated SME, integrating modern PQ analysis tools and cross-department coordination.
- Launch pilot use cases for FICS using DERMS curtailment logic (2026–2029).

Looking ahead, O&R's interconnection strategy is informed by the evolving needs of developers, customers, and system operators as DER volumes increase through 2030 and beyond. The Company recognizes that future stakeholder priorities will increasingly center on enhanced transparency, operational coordination, and integration with statewide platforms and market mechanisms. As part of its long-term planning, O&R is focused on implementing capabilities that anticipate these needs to support a more dynamic and equitable interconnection environment. The following initiatives reflect O&R's efforts to proactively align with emerging stakeholder expectations while maintaining reliability and responsiveness across its service territory. Looking forward, effective queue management will play a role in freeing up Hosting Capacity on constrained circuits and enable more viable DER projects to move forward.

PowerClerk®

O&R plans to continue refining its PowerClerk® platform to make the interconnection process more efficient and accessible for developers. In collaboration with DPS Staff and ITWG, the Company is actively working to address the technical and process-related challenges that stand in the way of automating the screening functions required for IOAP Phase 3. As revisions to the SIR are finalized—and as supplemental screens are clarified—O&R will pursue further automation where it aligns with regulatory updates and internal readiness.

Some improvements are already in place. For example, recent changes to the SIR reporting process have strengthened the accuracy of milestone tracking and helped ensure that internal records reflect actual project progress. These types of targeted enhancements are expected to make PowerClerk® more transparent for applicants, less burdensome for Company staff, and better equipped to support a growing pipeline of DER projects.

O&R's Technology Engineering group also intends to initiate a project to expand PowerClerk® functionality to support upload and automated validation of Common File Format ("CFF") smart inverter settings files. This would enable engineers to use PowerClerk® to automatically compare submitted files against required inverter settings and flag discrepancies, improving review consistency and compliance.

Smart Inverters

Now that statewide standards requiring smart inverters are in effect, O&R's future efforts will focus on enabling automated validation of inverter settings. The Company will work with vendors to support the adoption of CFF and plans to use PowerClerk® as a tool to streamline the verification process. These improvements build on the smart inverter implementation efforts described in the Smart Inverters section and are expected to reduce utility review times and improve consistency.

Cost Sharing 2.0

With the implementation of Cost Sharing 2.0, O&R will continue to monitor regulatory guidance and work with developers to identify areas for improvement. The Company will use stakeholder feedback and DPS Staff input to guide refinements in cost allocation, communication, and process transparency. Additional context is provided in the Industry Participation and Stakeholder Engagement section.

CYME / System Modeling

A highly capable and integrated system modeling tool is foundational to O&R's interconnection study process. The Company is in the process of transitioning from DEW to a next-generation platform, CYME. The new platform will improve system visibility, integrate more granular system data, and support load flow analysis consistent with interconnection requirements. These upgrades are expected to improve CESIR consistency, better reflect actual system conditions, and enhance dynamic hosting capacity modeling. Earlier modeling practices are discussed in the Current Progress section.

DERMS and Flexible Interconnections

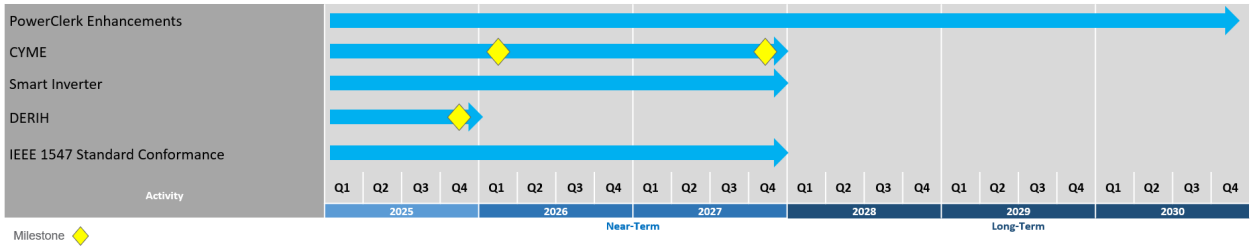
As O&R continues DERMS implementation, the Company will pilot FICS that enable the curtailment of DERs to avoid infrastructure upgrades. Lessons learned from these pilots will help inform curtailment rules and eventual business-as-usual practices. DERMS integration is also expected to support more advanced hosting capacity analytics, coordination with smart inverters, and real-time DER visibility. These topics are discussed in greater detail in the Smart Inverters and Industry Participation sections.

Coordinated Grid Planning Process ("CGPP")

O&R is currently completing Stage 3 of the CGPP, which focuses on identifying distribution system constraints based on DER buildout scenarios and developing potential solutions. As the CGPP advances, O&R will integrate its outputs into interconnection planning, including queue management, cost sharing opportunities, and targeted grid investments. This coordination is expected to improve siting transparency and reduce uncertainty for developers while aligning interconnection activity with long-term system needs.

Integrated Implementation Timeline

Figure 49: Five-Year Plan for DER Interconnection



Risks and Mitigation

Table 24 below summarizes the risks that could affect the timely implementation of the future actions described above as well as the measures the Company has or will take to mitigate these risks.

Table 24: DER Interconnection Risks and Mitigations

Risk	Mitigation
Delays in IOAP Phase 3 automation and PowerClerk® feature deployment	Continued collaboration with DPS and ITWG; phase in automation features as SIR revisions are finalized
Limited ability to verify smart inverter settings under new statewide requirements	Developed PowerClerk® enhancements for CFF upload and validation; engage vendors to ensure compatibility
Transition to CYME may introduce system integration challenges or disrupt interconnection study workflows	Implemented structured transition plan including staff training, data migration validation, and staged tool deployment
Emerging PQ issues due to increased DER penetration	Developed Company-wide PQ program with SME oversight and new analysis tools to support planning and operations
Operational and stakeholder uncertainty around curtailment in FICS pilots	Conducted controlled DERMS/FICS pilots; incorporate lessons learned into curtailment rules and business-as-usual framework
Insufficient coordination between CGPP outputs and interconnection queue management	Integrated CGPP constraints and buildout projections into cost sharing, screening criteria, and capital planning
Saturation of local grid capacity	Improve communication of emerging system constraints by updating hosting capacity maps which helps to reduce non-viable applications

Stakeholder Interface

O&R engages regularly with developers, trade groups, technical experts, and regulatory staff so that its interconnection processes remain accessible, transparent, and aligned with stakeholder needs. This engagement occurs through a combination of direct outreach, utility-led process improvements, and coordinated efforts with the JU via the IPWG, ITWG, and SIWG. O&R relies on stakeholder input to inform planning assumptions, improve process design, and validate implementation approaches across the DER interconnection lifecycle. Specifically, timely and accurate information from developers—such as expected project timelines, technology configurations, and siting constraints—helps the Company sequence upgrades efficiently and align staffing and capital resources with forecasted needs. Likewise, as DER market participation expands under FERC Order 2222 and NYISO rules, O&R depends on aggregators and third-party providers to clarify their telemetry, dispatchability, and operational requirements, which in turn supports utility readiness and system reliability. The stakeholder engagement forums are designed not only to disseminate technical and process information, but also to adjust Company practices iteratively based on stakeholder experience and evolving market conditions. This engagement model supports two-way coordination so that implementation outputs reflect both regulatory requirements and practical developer needs.

Ongoing stakeholder engagement has informed several key outcomes, including:

- The development and Commission adoption of Cost Sharing 2.0, which originated through the IPWG;
- The publication of an updated DERIH, aligned with ITWG expectations and reflecting stakeholder input gathered through technical discussions and working group coordination;
- Phased implementation of the Smart Inverter Roadmap,
- A journey mapping exercise with developers that led to internal changes improving application transparency and process predictability;
- Continued participation in national initiatives through the EPRI, which informs O&R's technical strategy and process design.

The Company informs and engages stakeholders through several mechanisms, including:

- Regular participation in the monthly ITWG public meetings, where technical issues and utility updates are discussed in a collaborative format;
- Collaboration with DPS Staff and industry liaisons to identify priorities and agenda topics for working group meetings;
- Updates to published resources, including DERIH documentation, cost matrices, and hosting capacity tools;
- Meetings with developers to address project-specific challenges and gather feedback on broader process improvements.

To better understand the developer experience and identify opportunities for process improvement, O&R implemented a feedback survey directly within the PowerClerk® platform. The survey is presented to applicants at key milestones in the interconnection process and is designed to capture input on a range of topics, including communication, cost transparency, and scheduling. Responses are reviewed by internal Company teams and inform both procedural updates and future stakeholder engagement strategies. The following questions are currently included in the survey:

1. Is the Customer Requested PTO Date accurate?
2. Is the O&R Scheduled PTO Date accurate?
3. Is your project experiencing supply chain issues/delays that may affect the requested PTO date?
4. Is your project experiencing Solar / Battery project cost issues that may affect the requested PTO date?
    a. Raw materials issue (*e.g.*, Lithium Bi Carbonate)
    b. Increase in MV and HV equipment and switchgear cost
    c. Any policy related issues (federal or NYS)
5. Other, please explain - Engineering, Procurement and Construction Feedback:
    a. Is your project experiencing Shipping issues that may affect the requested PTO date;
    b. Logistics of shipping internationally across the water;
    c. Cost of shipping; and
    d. Getting shipment released from Port.
6. Is your project experiencing Engineering, Procurement and Construction ("EPC") issues that may affect the requested PTO date?
    a. Issues with workforce hiring; and
    b. Procuring materials needed for construction (*e.g.*, steel).
7. Any issues with O&R. Ease of Application process?
    a. Regular status check and communications with O&R;
    b. Providing transparency in the interconnection and commissioning process; and
    c. Satisfying O&R's requirements for interconnection.
8. Is your project experiencing issues with local Authorities Having Jurisdiction ("AHJs") that may affect the requested PTO date -AHJ Feedback.
9. Any other issues – Feedback.

O&R takes a deliberate, feedback-informed approach so that its interconnection tools, resources, and engagement efforts provide meaningful support to stakeholders. Inputs gathered through working groups, developer meetings, and PowerClerk® surveys directly inform updates to the DERIH, scheduling workflows, and project tracking tools. To avoid unintended impacts, changes are tested internally before release, and cross-functional teams review developer feedback to identify and address issues early. By aligning stakeholder input with both the design and rollout of improvements, O&R's resources are clear, effective, and responsive to developer needs.

Additional Detail

This section contains responses to the items specific to DER Interconnection.

1. Describe in detail (including the web URL) the web portal that provides efficient and timely support for DER developers' interconnection applications.

O&R's interconnection information, beneficial to developers in preparation for submitting an application, is available at https://www.oru.com/en/save-money/using-private-generation-energy- sources/applying-for-interconnection.

Developers have access to the:

- DERIH;
- NY SIR, outlining the interconnection requirements in NYS;

- Hosting capacity map, providing system data and indicating areas where interconnection is less costly;
- SIR Inventory;
- CESIR Results Report; and
- Current Company tariffs, providing insights into the governing compensation structure.

In response to developer feedback, the Company highlights the required documents and fees for interconnection on the website. Customers can also request a Pre-Application report, providing them additional data as outlined in the SIR. Customers can register their EV in addition to selecting interconnection applications for less than 50kW, greater than 50kW, and Community Solar projects in the O&R service territory.

O&R uses PowerClerk® to accept and process its interconnection applications. The online application portal allows customers to log in, enter application information, attach supporting documents, and electronically submit their applications.

2. Describe where, how, and when the utility will implement and maintain a resource where DER developers and other stakeholders with appropriate access controls can readily access, navigate, view, sort, filter, and download up-to-date information about all DER interconnections in the utility's system. The resource should provide the following information for each DER interconnection:

- DER type, size, and location;
- DER developer;
- DER owner;
- DER operator;
- The connected substation, circuit, phase, and tap;
- The DER's remote monitoring, measurement, and control capabilities;
- The DER's primary and secondary (where applicable) purpose(s); and,
- The DER's current interconnection status (operational, construction in-progress, construction scheduled, or interconnection requested) and its actual/planned in-service date.

In accordance with the NY SIR, O&R submits monthly SIR reports (Matter 13-00205) that include project-level details for all active DER interconnection applications. These reports include key information such as DER type, size, status, and associated feeder or substation. They are publicly available through the Commission's Document and Matter Management ("DMM") system and provide a foundational dataset for external stakeholders tracking DER interconnection activity across NYS.

O&R uses PowerClerk® to manage all DER interconnection applications and customer interactions. Developers and other authorized users can log in to the PowerClerk® platform to view, sort, and download data related to their projects. For each interconnection application, the system includes:

- DER type, size, and location (a);
- Project developer, owner, and operator information where available (b–d);
- Substation, circuit, phase, and tap (e); and
- DER status: operational, under construction, scheduled, or requested, including actual/planned in-service date (h).

3. **Describe the utility's means and methods for tracking and managing its DER interconnection application process and explain how those means and methods ensure achievement of the performance timelines established in New York State's Standardized Interconnection Requirements.**

PowerClerk® continues to be O&R's primary means of managing DER interconnection applications and tracking compliance with the performance timelines established in the SIR. The system includes structured workflows that reflect much of the defined SIR process steps and automatically generates milestone due dates. Projects are routed appropriately depending on size and technology and include required reviews and notifications. Each individual task in the process is tracked and overdue actions are identified. O&R's Technology Engineering team oversees interconnection tracking and conducts internal reviews of project status and milestone adherence. In addition, the Company has implemented quarterly internal audits of interconnection process performance.

4. **Describe where, how, and when the utility will provide a resource to applicants and other appropriate stakeholders for accessing up-to-date information concerning application status and process workflows.**

The Company has dedicated resources within its Technology Engineering department to assist customers with the interconnection process. The Technology Engineering department is available to provide support to developers throughout the interconnection application process. For projects greater than 50kW, in addition to Technical Engineering support, O&R assigns a New Business project manager to a project once a developer submits an application and the required payment as outlined in the SIR. Stakeholders can also view up-to-date information regarding the status of their project in PowerClerk®. Status updates are in PowerClerk® IAW SIR

5. **Describe the utility's processes, resources, and standards for constructing approved DER interconnections.**

The process from application to energization includes five key steps as shown in Figure 50 below:

Figure 50: DER Interconnection Five-Step Process

Steps A through D of the DER Interconnection process remain consistent with the established framework that the Company has established and followed and is described in detail in the DERIH.

Steps A through D remain unchanged since 2018. With the Company's approval, the developer may request an opportunity to generate momentarily in order to test their equipment prior to the formal verification tests. This initial testing allows the developer to build a higher degree of confidence prior to making the PTO request and helps avoid delays due to multiple formal tests. After the developer has performed their equipment test, the developer schedules the formal verification tests. Once a successful verification test is complete, the Company grants the project PTO and allows the project to generate pursuant to the SIR.

As part of Step C, "Plan and Initiate Service," once a developer decides to move forward with a large project (i.e., greater than 50kW), makes an initial payment for interconnection, and submits an application for service, the project is assigned a direct contact project manager from O&R's New Business department,

as well as a secondary project manager from the Technology Engineering department to assist during field construction and to answer SIR-related questions. With this project pair, direct contact is established to guide the customer through project requirements and milestones included in the subsequent "Construct" and "Energize" steps.

O&R typically requests an on-site meeting with the developer when their final site plans are submitted prior to initiating the Company design components of the project. This has proven beneficial due to the number of changes that occur at each site from the CESIR review to construction due to permitting and other issues that are typically discovered late in the design or early in the construction process.

Once the developer's final design is complete, the Company completes the Company design components of the interconnection. The Company design is shared with the Operations team for scheduling with the Construction team for interconnection based upon available resources.

Once construction is complete and the respective protection devices are installed with visibility to the Company's DCC (where applicable), PowerClerk® is updated to show "Utility Construction Complete." The Company then waits for the developer to upload their final documents and as-builts and submit their final required documentation in order to schedule a verification/witness test of the facility.

When the developer completes their obligations and uploads the final documents via PowerClerk® as part of the "Energize" step, the interconnection engineer schedules a series of verification tests with the developer. Once a successful verification test is complete, the project is granted PTO and allowed to generate pursuant to the SIR.

6. Describe the utility's means and methods for tracking and managing construction of approved DER interconnections to ensure achievement of required performance levels.

A project schedule tool has been developed in PowerClerk® to track O&R and developer tasks. O&R has regularly scheduled meetings internally and with developers where timelines are updated as required. O&R has workflows set up in PowerClerk® that align with the SIR timelines in addition to the new scheduler tool. For the construction stage of the project, the Company uses the Project Scheduler and establishes bi-weekly meetings with developers that require system upgrades.

7. Describe how and when the utility will deliver and maintain its DER interconnection information to the IEDR.

O&R will deliver DER interconnection information to the IEDR platform in accordance with statewide requirements and implementation schedules. DER interconnection data has been identified as a Phase 2 use case for the IEDR, and O&R's data delivery timeline is therefore dependent on the IEDR being ready to receive this information. The Company will align its data formatting, delivery protocols, and maintenance processes with NYSERDA's published roadmap and the JU's coordination efforts to promote consistency across the JU. As the IEDR develops additional use cases and technical capabilities, O&R will continue to contribute to implementation planning and provide updates accordingly.

Advanced Metering Infrastructure

Introduction/Context and Background

Orange & Rockland Utilities, Inc.'s ("O&R" or "the Company") Advanced Metering infrastructure ("AMI") program has been fully deployed across the O&R service area since November 2020. AMI technology provides benefits by providing information directly to customers to support their usage management and by enabling operational enhancements that also serve customers. In addition, the Company uses this data internally to support advanced functionality and a modernized grid.

AMI provides a range of benefits to both customers and utility operations. For customers, AMI empowers them to make more informed energy decisions by providing greater visibility into their usage patterns. This transparency supports the enhancement of Energy Efficiency ("EE") and Dynamic Load Management ("DLM") programs, enabling customers to participate more effectively. Additionally, AMI facilitates the development of rate structures that encourage efficient energy usage and help manage peak loads, ultimately benefiting the electric grid.

From an operational standpoint, AMI data enhances the Company's ability to detect and restore outages more quickly and communicate more effectively with customers during such events. It also improves planning for system upgrades and helps identify optimal locations for deploying DERs. Furthermore, AMI supports the monitoring and control of smart inverters associated with DERs, which is increasingly important as DER penetration grows and grid operations become more complex.

Though the Company has completed the major deployment activities, ongoing development of AMI capabilities will significantly enhance the benefits of this system for both the Company and its customers. Further integration of AMI data will provide the Company with more holistic customer information and enable the development of more tailored programs and offerings based on customer demographics and use patterns. Ongoing improvements to the AMI network will bring greater transparency in customer energy usage and result in more efficient interactions with the Company.

Implementation Plan, Schedule, and Investments

Current Progress

Summary of Achievements

- Continued to capitalize on integration of AMI data with the Company's outage management system ("OMS") and billing systems enables remote meter verification, outage detection, and service management, reducing truck rolls, improving response times, and enhancing customer communication.
- Continued to leverage the completed AMI deployment and access to granular data to tailor and enhance EE and DLM program offerings for targeted customer benefit.
- Received Commission approval to begin the AMI Business Analytics project, which will design and deploy a suite of data analytics use cases that leverage O&R AMI data, along with other internal and external sources to gain predictive insights into customer load patterns, weather-adjusted system peaks, and the adoption of load-modifying technologies.
- Deployed the AMI STORM Tool which verifies full, partial, or no power conditions during a storm event, reduces unnecessary crew dispatches, and improves efficiency through automated customer notifications.

Utility Capabilities In-Focus:

Monitoring & Visibility – O&R is leveraging AMI data to enhance system awareness, track load profiles, and support analytics-driven planning and forecasting. The AMI Business Analytics project will uncover additional use cases such as EV charging load profiles and impacts of building electrification and battery storage, enabling more effective device control and configuration.

Customer Programs – AMI empowers customers to make more informed decisions with better visibility into their usage patterns. AMI informs customer reports like Weekly Advanced Metering Infrastructure (WAMI) reports, High Bill Alerts (HBAs) and near *real-time* usage feedback.

The Company has deployed more than 120,000 electric AMI meters and 94,500 gas AMI modules across Rockland County, and more than 118,000 electric AMI meters and 47,000 gas AMI modules across Orange and Sullivan Counties. In addition, O&R has strategically deployed more than 175 extended battery devices installed across Rockland, Orange, and Sullivan Counties, which support the operation of the more than 590 pole-mounted AMI communication devices and provide the ability to operate for up to six days during a power outage.

The day-to-day health and well-being of the Company's AMI system is monitored by the AMI Operations Control Center which supports both O&R and CECONY. Less than 3,500 legacy-metered premises remain. These are AMI opt-out customers along with "hard to reach" premises where the customers need appointments to arrange for the AMI meter installation.

Customer Benefits

AMI gives customers access to detailed, near real-time energy usage data in 15-minute intervals, helping them manage consumption, lower bills, and reduce peak demand. Tools like the Weekly Advanced Metering Infrastructure ("WAMI") reports and My ORU Store connect customers with personalized energy efficiency ("EE") products and services, while High Bill Alert ("HBA") emails offer additional insights. WAMI reports are emails to customers that provide a weekly overview of their energy use and compare it to their energy use during the previous week. This data empowers informed decisions, such as shifting EV charging to off-peak hours or upgrading inefficient appliances, supporting both cost savings and New York State's ("NYS") clean energy goals.

Granular AMI data also enables utilities to design more effective rates that encourage efficient energy use and grid-friendly behavior. When paired with technologies like EVs, batteries, or solar, these rate designs promote system efficiency and emissions reductions. By sharing this data through platforms like Green Button Connect ("GBC"), the Company supports third-party innovation and the development of tailored products and services, helping animate the energy market and achieve NYS's ambitious climate targets.

Similarly, the Company can use this granular data to develop rates that are beneficial to the electric grid through peak load management and thereby benefit all customers. Developers look to this granular data to develop products and services tailored to their customers' needs. By sharing AMI data with authorized third parties through channels such as GBC, the Company is helping to animate the market and support the informed development of products.

With the completion of the AMI rollout, the Company uses granular data to enhance its EE and DLM programs. AMI provides customers with access to near real-time energy information, including how and when they use electricity and gas. To help customers receive the maximum AMI benefit, the Company leverages granular AMI data and capabilities to design and recommend specific EE and DLM program offerings to certain customers. These programs are discussed in the Energy Efficiency Integration and Innovation section of this Distributed System Implementation Plan ("DSIP"), and information on data usage, privacy and security is available in the Data Sharing section.

Operational Benefits

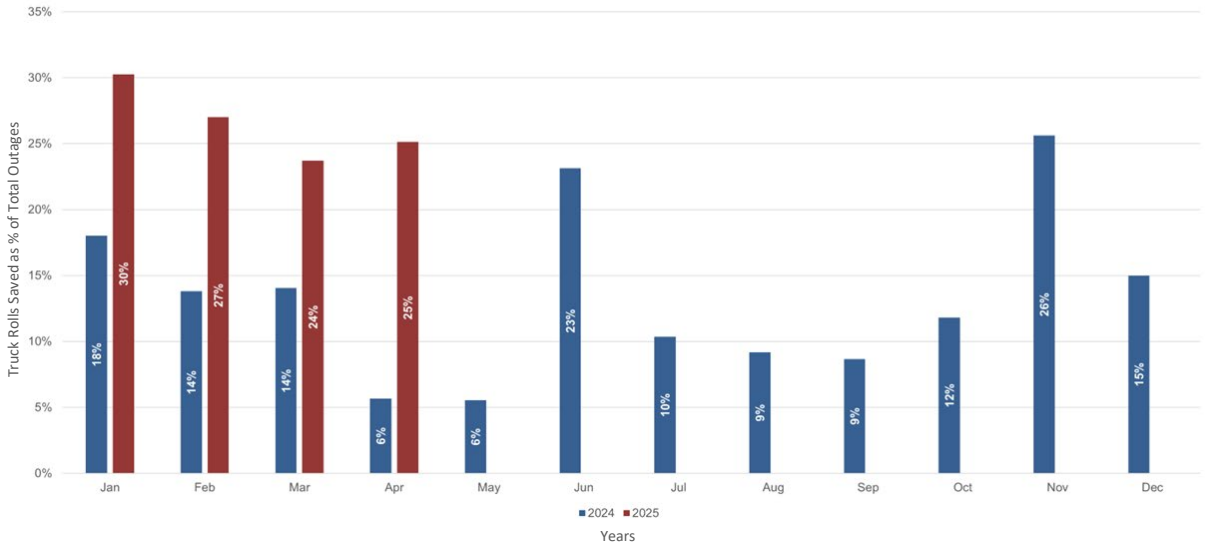
The AMI system allows the Company to detect and respond to outages more quickly and accurately. AMI meters can sense the loss of line-side voltage and automatically report power loss and restoration, reducing reliance on customer outage reports. This not only speeds up outage response but also improves the customer experience—particularly when customers have relocated during extended outages and need timely updates on service restoration.

By integrating AMI data with the Company's OMS and billing systems, the Company can verify power status by remotely "pinging" meters, minimizing unnecessary truck rolls and accelerating restoration efforts. The system also enhances outage detection and restoration alerts, facilitating accurate and timely communication with customers. Additionally, AMI enables remote connect and disconnect capabilities, allowing the Company to manage service without sending a crew—saving time, reducing costs, and supporting rapid response in both routine and emergency situations.

To enhance these systems, O&R improved the functionality of the AMI STORM Tool in 2024 to enable verification of full, partial, or no power at a premise using AMI meter data. This allows the Company to mark events as AMI-verified when full power is confirmed, triggering automated customer notifications via the Message Broadcasting system to avoid unnecessary truck rolls. The improvement was first implemented in June 2024 as a trial program, then completed with the Restoration Analysis Team in

November 2024. Figure 51 below shows the increase in percentage of truck rolls saved during both the trial period and following the rollout of the improved capability. This advancement significantly improves operational efficiency during storm events and high activity periods by addressing a previous AMI limitation that prevented detection of both service legs.

Figure 51: Truck Rolls Saved (as % of total outages)



O&R also uses AMI data in the system planning process. The availability of this data improves O&R's ability to perform its DSP responsibilities and safely and reliably integrate more and larger-scale DERs onto its distribution system. The data also enhances system planning by providing more accurate data and enabling validation of assumptions—such as load curves for large-scale solar—and supporting improved forecasting through expanded meter data analysis. This is discussed in the Integrated Planning and Advanced Forecasting sections of this DSIP.

Use of AMI data to support the ADMS and the DERMS, which are fundamental components to enabling the DSP platform, are discussed in the Grid Operations section of this DSIP. AMI data can also improve the Company's ability to identify beneficial locations for distributed resources.

AMI Business Analytics

The AMI Business Analytics program[203] is focused on designing and deploying a suite of data analytics use cases that leverage O&R AMI data, along with other internal and external sources. The goal is to gain predictive insights into customer load patterns, weather-adjusted system peaks, and the adoption of load-modifying technologies. These insights will enhance system planning.

Built on the Company's Enterprise Data Analytics Platform ("EDAP"), the program supports integration of emerging customer technologies—such as EVs, heat pumps, solar, and battery storage—while aligning with NYS's climate policies, including the CLCPA. Initial use cases, as outlined below, focus on technology adoption and system growth, with future development expanding into energy forecasting and policy-

[203] Case 24-E-0060, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Orange and Rockland Utilities, Inc. for Electric Service*. Electric Forecasting Panel Testimony and Exh. EFP-1 to EFP-2, pp 47-53, O&R AMI Business Analytics (Filed in 2024 O&R Base Rate Case).

driven innovation. The program will establish a framework for identifying, evaluating, and refining analytics to maximize value and adaptability over time.

Use Case 1: Electric Vehicle and Charger Load Profiles

AMI data is used to analyze how EV charging affects load curves at the circuit and bank level. By identifying patterns in charging behavior across vehicle types and charger levels (Level 1, Level 2, Direct Current Fast Chargers), O&R can forecast EV-driven demand growth and plan infrastructure upgrades accordingly. Additional details are available in the EV Integration section.

Use Case 2: Building Electrification

AMI data helps evaluate how electric heat pumps—used for space and water heating—impact peak demand and system load profiles, especially in colder climates. By comparing electric usage of buildings with heat pumps to those using traditional gas equipment, O&R improves forecasting accuracy for both electric and gas. Additional details are available in the EE Integration and Innovation section.

Use Case 3: Battery Storage

AMI data enables O&R to monitor and analyze how battery storage systems behave under different operational strategies. This insight supports understanding of their impact on the grid and informs planning for future storage integration. Additional details are available in the Energy Storage section.

Use Case 4: New Business Ramp-Up

Hourly AMI data is used to track how electric demand grows over time in new construction projects. By mapping usage trends to construction types and timelines, O&R can better forecast when buildings will reach full load, aiding in peak demand planning and load relief efforts. Additional details are available in the Grid Operations section.

Use Case 5: Total Gas and Electric Usage by Service Class on Peak Day

AMI data allows O&R to analyze customer demand by service class during peak electric and gas days. This supports validation of forecast models, helps quantify peak contributions by customer type, and enhances planning for firm gas and electric system needs. Additional details on demand response programs are available in the Grid Operations section.

Future Implementation and Planning

Summary of Future Actions

- Continue the AMI Business Analytics project to improve forecasting, system planning, and identification of emerging operational risks through predictive insights.
- Develop Service Request Automation to convert meter data events into automated Field Work Orders, enhancing reliability and reducing manual intervention through integrated system workflows.
- Continue broadening secure access to AMI data for customers and third parties to support informed decision-making and promote energy market innovation.

As O&R advances its DSP, the Company will increasingly leverage AMI data to support forward-looking initiatives that enhance system planning, operations, and customer engagement. A central focus of these efforts is the continued development and expansion of the AMI Business Analytics project. This capability will enable more accurate assessments of customer load patterns, improved forecasting of weather-

adjusted electric and gas peaks, and better understanding of the adoption of load-modifying technologies. The predictive analytics will directly inform system investment decisions and support the identification of emerging operational risks and solutions, thereby contributing to a safer, more reliable, and more resilient energy system. Additional details on these capabilities can be found in the Advanced Forecasting section of this DSIP.

Service Request Automation is a future-facing initiative currently under development to streamline the transition of data from Device Events to Field Work Orders, aiming to enhance AMI infrastructure reliability, resilience, and customer satisfaction. The project involves building an automated framework that responds to meter data events by initiating necessary workflows, thereby reducing the need for manual intervention. This framework leverages the Enterprise Data Analytics Platform ("EDAP") module within the Meter Data Management System ("MDMS") and is designed for seamless integration with external systems such as Customer Care & Billing ("CC&B"), Workforce Management System ("WMS"), and Ford. While automation is currently active for Hot Socket Alarms and Natural Gas Detector Alarms, future phases will expand its capabilities to include a broader range of alarms and event types.

As part of its broader data strategy, O&R will continue to expand access to AMI data for customers and third parties, guided by strong privacy and security protocols. These efforts will empower users to make informed energy and business decisions. The Company's approach to sharing data through the Integrated Energy Data Resource ("IEDR") is discussed further in the Data Sharing section of this DSIP.

In parallel, AMI data will continue to play a critical role in enabling and supporting future digital platforms designed to improve customer experience and operational efficiency.

Integrated Implementation Timeline

The Company's AMI system is fully deployed. AMI Business Analytics and other programs will be continually improved as other uses for the data are identified and implemented.

Risks and Mitigation

Table 25 below summarizes the risks that could affect the timely implementation of the future actions described above as well as the measures the Company has or will take to mitigate these risks.

Table 25: Advanced Metering Infrastructure Risks and Mitigations

Risk	Mitigation
Data source integration challenges related to the Business Analytics project (data quality issues, lack of documentation)	Detailed discovery sessions at the project's initiation will uncover specific risks and allow for building a roadmap that begins the integration of more challenging data sources before they are needed for specific use cases.
Data Security	The Company follows rigorous data privacy and security policies and practices. Additional information on is provided in the Data Sharing section of this DSIP.
Employment of digital, network-connected devices requires a reliable communication network	O&R continues to upgrade and build redundancy into its communication systems to harden the system and increase resilience and reliability. More information is available in the Grid Operations section of this DSIP.

Stakeholder Interface

O&R continues to leverage its website,[204] social media platforms, and mobile app to enhance and streamline customer interactions. Through the digital customer experience journey, the Company provides customers with 24/7 access to essential information, programs, and tools.[205]

O&R also engages in numerous stakeholder outreach efforts as the Company continually strives to make every customer experience a positive one. Customer contact occurs in the normal course of business, including through the call center, community and regional affairs liaisons, and the O&R website. The Company shares AMI data with customers through WAMI reports, HERs, and the My Account portal. The data provides customers with visibility into their usage and information to allow them to make informed decisions about their usage. See the Energy Efficiency section for more information about the ways O&R engages customers with AMI data.

Additional Detail

This section contains responses to items specific to AMI.

1. **Provide a summary of the most up-to-date AMI implementation plans, including where AMI has been deployed to date.**

The AMI meter deployment effort is complete across the entire O&R service territory. O&R has deployed more than 120,000 electric AMI meters and more than 94,500 gas AMI modules across Rockland County and more than 118,000 electric AMI meters and more than 47,000 gas AMI modules across Orange and Sullivan counties. See the Current Progress section for more information.

2. **Provide a summary of all new capabilities that AMI has enabled to date, and how these capabilities benefit customers, including, as applicable, customer engagement, energy efficiency, and innovative rates.**

The AMI Business Analytics project is developing opportunities to unlock new capabilities using AMI data. Details can be found in the Current Progress section.

3. **Describe the AMI-acquired data and information that is planned to be available through the IEDR.**

The Company will provide AMI data to the IEDR, such as 15-minute customer energy consumption, daily consumption, and 12-month historical consumption, pending the Commission's response to the JU petition on data sharing[206] and subject to the Company's protocols related to data sharing.

4. **Describe where and how DER developers, customers, and other stakeholders can access up-to-date information about the locations and capabilities of existing and planned smart meters.**

O&R has fully deployed AMI with the exception of 4,024 meters that were in "hard to reach" locations or associated with customers who opted-out of AMI installations. As discussed in the Current Progress section above, the Company is actively reaching out to customers without AMI meters so the legacy

[204] O&R Smart Meter Information Website: https://www.oru.com/en/our-energy-future/our-energy-projects/smart-meters.
[205] O&R 2025 Outreach and Education Plan (Filed April 1, 2025).
[206] IEDR Proceeding, Joint Utilities Petition for Clarification Seeking Commission Direction Regarding the Direct Sharing of Protected Customer Data with the Integrated Energy Data Resource Platform Administrator (Filed December 1, 2022).

meters can be replaced with AMI meters. Information about the capabilities of AMI meters is available at the Company's website and via the customer call center.

5. Provide a summary of plans and timelines for future expansion and/or enhancement of AMI functions.

See the Company's response to Question 2 above and additional details on AMI Business Analytics in the Current Progress section.

6. Describe where and how each type of AMI-acquired data is stored, managed, and shared with, and used by other utility information systems such as those used for billing/compensation, customer service, work management, asset management, grid planning, and grid operations.

O&R's integrated system of AMI meters, communications networks, Head End System, Meter Asset Management System and the Meter Data Management System establishes the Company's foundation for two-way communications between the utility and the customer. Data received in this process flow is data usage (*e.g.,* energy/demand intervals, time of the usage, and voltage) and message data (*e.g.,* alerts/alarms such as power on, power off, tamper, hot socket, and gas methane sensors). Data in these two categories is shared among the Company's billing system, OMS, and work management system. Regardless of the data element, the Company treats each element with the utmost level of protection across all of these systems. Each system utilizes safety protocols regarding access control, encryption, and data transfer.

Beneficial Locations for DERs and NWAs

Introduction/Context and Background

O&R proactively identifies locations where DERs and/or NWAs can provide the greatest benefit to the electric distribution system and its customers.

The accelerated deployment of DERs and NWAs remains one of Orange & Rockland, Inc.'s ("O&R" or "the Company") foundational strategies in meeting the Climate Leadership and Community Protection Act's ("CLCPA") targets. O&R's planning philosophy reflects the evolving priorities articulated through New York State's ("NYS") Grid of the Future ("GOTF") proceeding—where distribution planning must consider flexibility, visibility, and location-specific value collectively to support a more dynamic and decarbonized grid. Beneficial locations are not simply defined by infrastructure constraints; they emerge through layered analysis of system performance, economic signals, public policy objectives, and community needs. O&R seeks to unlock locational value where it delivers the greatest system and customer benefit. Through this approach, every solution—regardless of ownership model, structure, or technology type—is grounded in a comprehensive understanding of distribution system needs and contributes to the long-term transformation toward a resilient, equitable, and emissions-reducing electric grid.

Beneficial locations have potential for localized Distributed Energy Resource ("DER") deployment to address projected system needs, specifically for load relief, and the deferral or avoidance of traditional utility infrastructure investments. Non-Wires Alternatives ("NWA") have become a core business function within the capital planning process and remain an essential mechanism for bringing DERs onto the system. NWAs offer opportunities for developers to propose innovative solutions to meet a clearly defined system need while delivering customer and environmental benefits. These solutions also provide an avenue for O&R to develop the flexibility of grid services. NWA projects can interconnect flexible storage resources that can be used to manage load through demand response ("DR") strategies thereby contributing to the overall reliability and resiliency of grid operations. O&R continues to learn from its experiences and the collective experience of the Joint Utilities ("JU") and is pursuing innovative options to expand opportunities for NWAs.

Where system conditions indicate the need for additional capacity or relief, O&R seeks to unlock locational value by applying its NWA Suitability Criteria to determine whether DERs or other non-traditional solutions may sufficiently address the identified need in a cost-efficient manner. If a degree of viability is identified, these opportunities are advanced to the solicitation stage and communicated transparently to the market through channels such as the Company's NWA webpage and hosting capacity maps. Since filing its last Distributed System Implementation Plan ("DSIP"), O&R has strengthened its NWA planning and execution practices by incorporating lessons learned from both successful and withdrawn projects. The Company has energized two NWA deployments—Pomona and West Warwick—and gained insights from the evaluation and procurement of additional projects. The Innovative Storage Business Model ("ISBM") demonstration, launched in Warwick and later expanded across the service territory due to Total Addressable Market ("TAM") constraints, exemplifies a scalable Virtual Power Plant ("VPP") model where aggregated residential storage delivers load relief, resiliency, and operational flexibility.

In cases where a full NWA does not meet planning or economic thresholds, the Company may pursue hybrid alternatives that integrate DERs with conventional upgrades. O&R also continues to leverage its customer programs and tariffs to support DER development in beneficial locations. This includes targeted DR initiatives, application of the Value of DER ("VDER") framework, and exploration of DER aggregation models that enable broader customer participation in grid services. To enhance transparency and data

availability, O&R provides public access to circuit-level load and hosting capacity data, and actively contributes to statewide coordination through the JU DER Sourcing / NWA Suitability Criteria Working Group. The Company also collaborates with NYSERDA and DPS Staff so that the identification of beneficial locations for DER aligns with broader planning efforts, including the development of the Integrated Energy Data Resource ("IEDR"), which will serve as a statewide platform for sharing location-specific distribution system data.

Implementation Plan, Schedule, and Investments

Current Progress

Summary of Achievements

- Continued to evaluate opportunities for NWAs as part of the planning process.
- Commissioned the West Warwick NWA and began operational dispatch.
- Launched planning for hybrid solutions combining DERs and traditional upgrades to support flexible, cost-effective grid investments.
- Synthesized lessons learned from Sparkill and Monsey to improve processes and inform future strategies.
- Shared beneficial location information through multiple channels, including the Company's website and hosting capacity maps, and coordination with the IEDR initiative to expand statewide access to DER siting data.

Utility Capabilities In-Focus:
Planning & Forecasting – O&R has continued to analyze beneficial locations for DER and NWAs through layered analysis of system performance, economic signals, public policy objectives, and community needs—supported by flexible capacity forecasting and continued integration into planning to unlock locational value where it delivers the greatest system and customer benefit.

O&R's current approach to identifying and enabling beneficial locations for DERs and NWAs is grounded in a holistic, data-informed planning process that integrates distribution system needs with evolving market signals, customer programs, and policy objectives. Once a need is identified and confirmed through the Company's planning cycle, O&R evaluates a full spectrum of potential solutions—including traditional infrastructure, NWAs, other DERs, and hybrid configurations that combine centralized upgrades with targeted DER deployment. This evaluation is informed by an array of inputs including but not limited to: hosting capacity, interconnection feasibility, Value Stack compensation, available DR resources, and market insights. These inputs are not assessed in isolation; rather, they feed into an integrated framework designed to identify the most impactful and cost-effective locations for DER investment. The Company seeks to unlock locational value where it can provide the greatest benefit.

This holistic planning lens allows for the consideration of DERs not only for deferral value, but also for broader contributions to system flexibility, reliability, and cost control. DER opportunities may originate from multiple sources: a feeder with constrained hosting capacity, a substation nearing thermal limits, or a region identified for strategic support through bulk system planning. In each case, O&R applies consistent criteria to determine whether DERs—either individually or as part of a portfolio—can feasibly and reliably address the identified need. DR programs, such as the Distribution Load Relief Program ("DLRP"), are evaluated for short-duration or seasonal support, while the Value Stack framework is applied where location-based compensation can attract developer interest.

Where DER-based solutions may be viable, the Company formally applies its NWA Suitability Criteria to assess technical feasibility, deferral timing, and portfolio potential. These criteria serve as a structured

filter to identify the subset of projects where an NWA may represent a cost-effective alternative to a traditional upgrade. For projects that pass this screen, O&R proceeds with further feasibility analysis, benefit-cost testing, and—if justified—market solicitations to source DERs or aggregated solutions. This structured, repeatable approach has enabled O&R to embed DER evaluation directly into its long-term planning processes and to make the most of evolving technologies and market capabilities in support of NYS policy goals.

NWA Identification and Sourcing Process

O&R's distribution planning process begins with a comprehensive evaluation of potential solutions, including the identification and sourcing of NWAs as illustrated in Figure 52 below. At key decision points, planners apply the NWA Suitability Criteria (see Table 26 below) to assess whether DERs or other innovative approaches could feasibly address system needs. Each potential solution is then studied in detail to evaluate its relative value to the grid, customers, and alignment with NYS's clean energy objectives. By integrating the NWA Suitability Criteria into standard planning practices, the Company has expanded its consideration of emerging technologies and non-traditional strategies that help advance the CLCPA's decarbonization goals.

Figure 52: NWA Identification and Sourcing Process

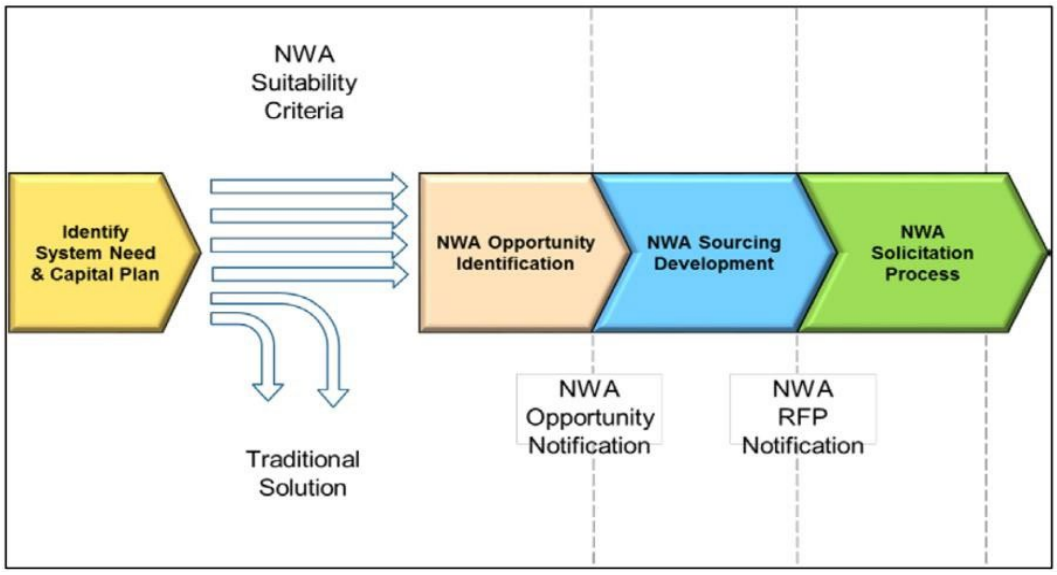


Table 26: NWA Suitability Criteria

Criteria	Potential Elements Addressed	
Project Type Suitability	• Project types include Load Relief or Load Relief in combination with Reliability. Other categories have minimal suitability and will be periodically reviewed for potential modifications due to State policy or technological changes.	
Timeline Suitability	**Large Project** (Projects that are on a major circuit or substation and above)	• 36 to 60 months
	Small Project (Projects that are feeder level and below)	• 18 to 24 months
Cost Suitability	**Large Project** (Projects that are on a major circuit or substation and above)	• No cost floor
	Small Project (Projects that are feeder level and below)	• Greater than or equal to $450k

Developing and managing NWA solicitations has provided O&R with critical insights that continue to inform internal planning practices, stakeholder engagement, and process refinement. While many elements of NWA identification and procurement can be standardized, O&R has found that each opportunity presents unique variables—including geography, technology mix, and community considerations—that require tailored analysis. To improve efficiency and responsiveness, the Company has enhanced its internal procedures for project screening, feasibility assessment, and Benefit-Cost Analysis ("BCA"), enabling faster evaluation of candidate portfolios.

NWA Projects

West Warwick

The West Warwick NWA is a 12 MW / 60 MWh third-party-owned storage system connected to circuits fed by the Wisner substation. In addition, Energy Efficiency ("EE") measures, coordinated through the Company's Business Direct Install ("BDI") program, contribute 400 kW of customer-side load reduction. While the project experienced a fire in 2023, O&R worked closely with the developer and local emergency services to implement updated safety protocols and retraining. The project is now fully operational and delivering both system benefits and market value. Under the terms of the agreement, O&R has shared dispatch rights and shares in the wholesale revenue generated by the project. Revenue received by O&R benefits customers by offsetting the costs of this project.

Pomona

The Pomona Battery is a 3 MW / 12 MWh utility-integrated storage ("UIS") system located on Company-owned property in the Village of Pomona. Energized in 2021, it has been a key contributor to system reliability and load relief. In 2023, Pomona began active participation in the New York Independent Service Provider ("NYISO") wholesale market, becoming the first utility-integrated NWA battery to be dual-

purposed for distribution and wholesale services in NYS. Participation in the wholesale market directly benefits customers, as earned revenues are returned to customers. The system entered the energy market in summer 2023, followed by participation in ancillary services in winter 2024 and the capacity market in spring 2025. This milestone demonstrates the viability of using storage to meet both grid and market needs and has informed O&R's ongoing work to refine dispatch strategies and monetization frameworks.

NWAs Identified but not Pursued

O&R's planning process is intentionally structured to allow for the thorough evaluation of all potential NWA solutions before committing to implementation. Each candidate project is assessed using the NWA Suitability Criteria and subjected to a BCA to determine cost-effectiveness. The feasibility of the project is then assessed through the vendor selection process. In some cases, project-specific barriers—such as permitting delays, zoning challenges, or site constraints—may prevent an NWA from moving forward, even after vendor selection. In other cases, project economics may shift due to updated forecasts or project costs. When this occurs, O&R may shift to a hybrid or traditional solution. Regardless of outcome, the Company applies lessons learned to future solicitations, outreach efforts, and internal review processes to strengthen the effectiveness of its NWA framework and DER planning approach.

Sparkill

The Sparkill NWA had been extensively developed as a 2 MW / 12 MWh battery storage project. Over the course of three RFPs, O&R explored multiple vendor proposals and refined the project scope to address siting, permitting, and interconnection challenges. The project did not ultimately meet the conditions necessary to proceed. The process offered valuable insights into siting considerations, permitting coordination, and market engagement, which continue to inform the Company's approach to future NWA planning and solicitations.

Monsey

The Monsey NWA was proposed as a battery storage solution to provide load relief at the Monsey substation, initially scoped to include two 5 MW batteries. Following a competitive solicitation process, the Company selected a vendor and planning board approval was obtained in early 2023. Despite early progress, the project ultimately faced local zoning challenges and community opposition that significantly delayed the permitting timeline. Given the uncertainty concerning site approvals and the need to meet critical system timelines, O&R reevaluated the project and determined that a traditional infrastructure solution—including the construction of two new circuits and upgrades to the Monsey substation—would provide greater reliability and certainty. While the Monsey NWA did not proceed to implementation, it offered key lessons related to hybrid planning models, community engagement, and the importance of aligning system needs with permitting feasibility. These insights continue to inform O&R's approach to DER deployment and beneficial location targeting.

Forrest Avenue/Hillburn/West Nyack

The Company evaluated the Forrest Avenue, Hillburn, and West Nyack projects as potential NWA or storage opportunities through O&R's planning process but ultimately did not proceed. While each project was reviewed for technical and economic viability, they were not advanced to implementation. The analysis and early development efforts contributed valuable insights that continue to inform future project screening, siting strategy, and planning practices.

Hybrid and Alternative Solutions

In some scenarios, O&R has determined that a traditional infrastructure upgrade or a hybrid approach—combining conventional and distributed resources—can more effectively address localized system needs while supporting reliability, enhancing system resiliency, and managing long-term cost impacts. Hybrid solutions provide a pragmatic pathway in cases where standalone NWAs do not fully meet technical or economic thresholds but where DER integration can still deliver measurable system and customer benefits. These approaches allow O&R to leverage the strengths of both traditional infrastructure and targeted DERs—such as storage, EE, or DR—to defer portions of capital investment, reduce peak demand, and increase operational flexibility. By diversifying resource types, hybrid strategies also help mitigate planning uncertainty and preserve optionality.

Lessons Learned for Evaluation of NWA Deferral Value and BCA

The process by which the Company reviews a project for its deferral value and evaluates its merits with respect to the BCA is consistently reviewed to confirm that all of the cost and benefit inputs are accounted for correctly. As the Company has gained experience with various NWA solutions, it has adapted its processes to incorporate lessons learned and improve the analysis for future proposals, as discussed below.

Some of the lessons learned are set forth below.

1. Engage Early and Proactively with Municipalities and Authorities Having Jurisdiction ("AHJ")

The Company continues to prioritize early coordination with municipal officials and AHJs as a core component of NWA planning—particularly for projects involving BESS. This engagement begins prior to issuing RFPs to address proactively local permitting frameworks, community concerns, and emergency preparedness. Many local governments do not yet have defined processes for permitting energy storage systems, and early outreach helps reduce uncertainty and support timely approvals. O&R is strengthening its role as a technical resource to municipalities by providing educational materials, referencing New York State Energy Research and Development Authority's ("NYSERDA") guidance, and participating in regional planning and zoning meetings. These efforts help build local familiarity with DER technologies and support AHJs' preparation for evaluating developer proposals. The Company is also deepening collaboration with local fire departments to review emergency response procedures and conduct battery safety training sessions.

2. Align Site Selection with Feasibility

Project siting has a significant influence on development timelines, permitting outcomes, and public acceptance. Through experience, O&R has found that Company-owned property—where available and appropriately located—can offer strategic advantages due to established site control and proximity to target circuits. For example, as a UIS, Pomona was sited on Company-owned land, enabling faster execution and streamlined permitting. More broadly, site selection must consider multiple dimensions, including distance from high-traffic or residential areas, compatibility with surrounding zoning, first responder access, and land availability. In some cases, evaluating a set of smaller distributed sites may offer more flexibility than a single centralized location. O&R continues to support DER adoption by making utility-owned land available for consideration where feasible.

3. Require Site Control to Support Implementation

A key refinement in O&R's procurement process has been the formal requirement for bidders to demonstrate site control at the time of response to a NWA Request for Proposal ("RFP"). Early

procurements had allowed vendors to participate without secured sites, leading to delays when projects had to be re-sited due to failed lease agreements or permitting issues. Requiring established site control up front supports viable proposals and accelerates downstream development. The Company also allocates sufficient lead time in the planning process to allow developers to secure sites in alignment with RFP milestones.

Providing developers and stakeholders with accurate, location-specific data is foundational to facilitating DER deployment at beneficial locations. O&R continues to maintain and enhance publicly available tools—including its hosting capacity maps, NWA webpage, and contributions to the JU website—to support timely access to information about high-value locations. These resources are regularly updated and designed to help market participants efficiently assess interconnection potential, forecast load relief value, and respond to solicitations with greater precision. This commitment to transparency supports the CLCPA's broader goals by directing third-party investment toward the most impactful opportunities across the Company's distribution system.

Energy Efficiency ("EE") and Demand Response ("DR")

O&R continues to align its customer-facing EE and DR programs with its NWA portfolio. To inform these efforts, the Company performs an EE adoption analysis to identify customers and measures that yield the greatest load reduction at the lowest cost. Incentives are then targeted to those customers to achieve maximum system benefit. The Company also evaluates the use of DR programs, particularly the DLRP, to mitigate peak demand in priority areas. While EE and DR initiatives are deployed system-wide, enhanced incentives may be offered in high-value locations where targeted load reduction can defer capital investments and alleviate distribution constraints. Additional information is provided in the Grid Operations section of this DSIP.

MCOS, BCA, and VDER

As part of its commitment to advancing cost-effective DER deployment, O&R applies a structured BCA to evaluate whether proposed NWA solutions offer societal value compared to traditional infrastructure investments. O&R established this BCA framework in response to the Commission's 2016 Order and has since been adapted with Company-specific inputs into O&R's BCA Handbook. The Handbook is fully integrated into the planning process and informs the evaluation of all NWA opportunities. A core input to the BCA is the Marginal Cost of Service ("MCOS"), which quantifies avoided system costs and enables consistent valuation of DERs. O&R is preparing an updated MCOS study in accordance with the Commission's August 2024 Order,[207] which will be filed on June 30, 2025. For further information regarding the BCA Handbook please refer to Appendix E to this DSIP.

Since the Commission's initial VDER Order in 2017,[208] O&R has continued to apply the approved methodologies for identifying Locational System Relief Value ("LSRV") areas and calculating Demand Reduction Values ("DRVs"). These compensation components are derived from the MCOS study, which provides the system-wide avoided cost inputs necessary for valuing DER contributions to the grid. LSRV areas are designated where DER injections can provide locational benefits, and these zones are determined using criteria described in the Additional Detail section of this DSIP.

---

[207] Case 19-E-0283, *Proceeding on Motion of the Commission to Examine Utilities' Marginal Cost of Service Studies*, Order Addressing Marginal Cost of Service Studies (issued August 19, 2024).

[208] VDER Proceeding, Order on Net Energy Metering Transition, Phase One of Value of Distributed Energy Resources, and Related Matters (issued March 9, 2017) ("VDER Transition Order").

O&R is coordinating with the JU to enhance consistency in methodological approach where appropriate and anticipates that the updated study will inform future revisions to the DRV and LSRV structures. The Company remains prepared to implement Commission-directed changes that support more accurate, location-specific DER valuation and increased participation in high-value areas.

Future Implementation and Planning

Summary of Future Actions

- Continue exploring new project opportunities for projected system needs of load relief through NWAs.
- Develop and execute the Pomona Expansion project.
- Release new or updated RFPs for projects identified as viable NWAs.
- Expand use of hybrid planning approaches combining traditional infrastructure with DER-based solutions where full NWAs are not feasible.
- Continue coordination with AHJs and first responders by updating technical briefings, Emergency Response Plans ("ERP") templates, and siting guidance.
- Enhance the visibility and usability of beneficial location data through hosting capacity map updates and ongoing IEDR collaboration.
- Maintain regular developer and vendor engagement through pre- and post-RFP briefings to align procurement structure with market capabilities.

O&R continues to evaluate potential NWA opportunities as part of its forward-looking system planning process. As system needs evolve, the Company assesses whether emerging load relief requirements, reliability constraints, or hosting capacity limitations could be addressed through DER-based solutions—including the potential for beneficial co-locations of non-traditional solutions where such integration provides system and customer value. This includes consideration of where DERs would deliver the most value based on locational system needs, market participation potential, and distribution-level constraints. The Company will continue to identify beneficial locations through the capital planning process and direct developers to these areas through RFPs and its hosting capacity maps. Price signals—through mechanisms like VDER compensation, capacity market revenues, and customer adoption trends—are increasingly central in determining where DERs are likely to be deployed and where NWAs may be feasible. O&R also views DR as a key element of future NWA portfolios, particularly in areas where short-duration or seasonal flexibility can mitigate peak demand. The continued advancement of NWA solutions will be essential to maintaining system reliability and operational flexibility, particularly as grid needs become more dynamic. The Company is committed to further refining its solicitation process through continued stakeholder engagement, participation in JU forums, and incorporation of lessons learned from past and future NWA cycles.

As part of this effort, O&R applies a proactive planning lens that incorporates affordability and equity considerations. The Company seeks to identify and advance project opportunities that deliver cost-effective outcomes for all customers and to distribute DER investments strategically across its service territory. This approach supports geographic diversity, system resilience, and NYS's broader just transition objectives.

Pomona Expansion

O&R is planning to expand the Pomona BESS, which as mentioned above, has provided critical peak shaving capability, supported local reliability, and deferred the need for construction of a new substation. It has also begun participating in the NYISO day-ahead and hour-ahead wholesale markets, demonstrating the dual value of storage across distribution and bulk system applications. When the original system was

constructed, additional space was reserved within the site footprint to accommodate future augmentation. O&R plans to pursue expansion of the system to a total energy duration of 18 MWh. Advances in battery technology since the system's original deployment have made it feasible to increase storage duration using more compact equipment, without requiring additional land. The expanded system will enable longer-duration dispatch during peak periods and extended participation in wholesale energy markets, further maximizing operational and economic value. The Pomona BESS expansion aligns with the Company's broader UIS strategy and will provide a replicable model for future substation-adjacent deployments that support grid reliability, flexibility, and cost-effective infrastructure deferral.

Hybrid and Alternative Solutions

O&R will continue to identify new NWA opportunities for future planning horizons and increase consideration of hybrid solutions to advance DER integration. The Company is committed to delivering mutual benefits to both customers and the electric system by intentionally evaluating project use cases that may involve innovative technologies or combinations of DERs, such as storage, EE, and DR. Hybrid solutions offer the potential to address localized needs where standalone NWAs may not be viable, while still supporting system flexibility and deferral of traditional infrastructure. The Company will continue to direct developers to beneficial locations through RFPs and the Company's hosting capacity maps. In the future, O&R envisions the siting of beneficial locations for DERs as a use case for the IEDR, helping to enhance transparency and enable third parties to identify opportunities that deliver customer and grid value.

To support these efforts, O&R is continuously refining its ability to identify where DERs can be most effective by improving its temporal and locational understanding of load modifiers and circuit-level trends. O&R is now incorporating AMI data into its forecasting tools to provide greater granularity and more accurate identification of beneficial locations. For additional detail on these topics, please refer to the Integrated Planning, Advanced Forecasting, and AMI sections of this DSIP.

Disadvantaged Communities

When identifying beneficial locations for DERs and NWAs, O&R continually seeks to promote equitable outcomes across its service territory by aligning with the Climate Action Council's ("CAC") Climate Scoping Plan and prioritizing the reduction of GHG emissions and co-pollutants in DACs without imposing disproportionate burdens. To support the CLCPA's goal of directing at least 35 percent of clean energy benefits to DACs, the Company is developing planning frameworks and tools that integrate equity considerations across business processes. As a member of the Environmental Justice Working Group ("EJWG"), O&R collaborates with statewide stakeholders and the CJWG to embed DAC criteria into utility planning and operations.

CGPP

The identification of beneficial locations for DERs and the development of NWAs are increasingly informed by insights emerging from the CGPP. As part of the JU's participation in CGPP, O&R is incorporating local transmission and distribution system constraints, modeled nodal hosting capacity, and scenario-based generation forecasts into its internal planning processes. These data-driven outputs enable the Company to target more precisely high-value locations where DERs and storage can provide system relief, defer infrastructure upgrades, and support CLCPA-aligned generation buildout.

Integrated Implementation Timeline

See Energy Storage Integration section of this DSIP for NWA project timelines.

Risks and Mitigation

Table 27 below summarizes the risks that could affect the timely implementation of the future actions described above as well as the measures the Company has or will take to mitigate these risks.

Table 27: Beneficial Locations for DERs and NWAs

Risk	Mitigation
Evolving DER valuation due to changes in VDER, BCA, or MCOS frameworks may impact financial viability of NWAs	Participate in JU forums, DPS working groups, and stakeholder processes to monitor regulatory changes and adjust project screening and evaluation methodologies accordingly
Forecasting uncertainty may result in timing mismatches or inaccurate sizing of NWAs	Apply scenario-based forecasting; incorporate AMI and GIS-informed load data; reassess needs regularly to align projects with updated system conditions
Changes to BCA requirements	Evaluate how changes to the BCA may impact portfolio makeup and work with the JU to share best practices on NWA procurement and implementation processes
Local permitting barriers and community opposition may delay or prevent DER siting, particularly for BESS	Engage AHJs early in project development; conduct safety briefings and ERP reviews with local responders; maintain transparent communication with community stakeholders
Thermal runaway and fire safety risks associated with lithium-ion battery systems	Collaborate with fire departments to support emergency response training; require ERPs, safety systems, and HVAC; Follow Inter-Agency Fire Safety Working Group recommendations for storage systems

Stakeholder Interface

O&R's planning, procurement, and stakeholder engagement processes are designed so that the information, tools, and forums provided to external parties are useful, accessible, and do not produce confusion or unintended barriers. The Company collaborates closely with a broad range of stakeholders—including the JU, municipal officials, AHJs, vendors, and planning agencies—to refine its approach to identifying, soliciting, and deploying DERs and NWAs in beneficial locations. This coordination supports more effective siting, permitting, and safety outcomes, while promoting transparency and inclusive participation.

A core component of this approach is early and sustained engagement with local planning boards and AHJs, particularly for BESS projects. O&R routinely convenes municipal planners and first responders during siting and design to align on permitting requirements and safety protocols. The Company also conducts fire safety briefings and joint ERP development sessions to promote awareness and build trust with emergency personnel. These interactions reduce the risk of project delays and support local officials' ability to evaluate DER proposals with confidence.

To facilitate an RFP and procurement process that is clear and responsive to market conditions, O&R maintains an open feedback loop with DER developers and third-party vendors. This includes pre-bid technical conferences, post-project interviews with unsuccessful bidders, and targeted discussions on emerging technologies. Feedback from these sessions is used to clarify technical requirements, streamline

contract terms, and inform future solicitation design—ensuring alignment between project expectations and vendor capabilities.

The Company also works to improve the transparency and usability of its data tools. O&R's NWA website provides project-level information, schedule updates, and access to key planning resources. Enhancements to hosting capacity maps—including API functionality, map overlays, and access to load profile data—allow developers to more effectively identify interconnection opportunities and screen sites for NWA viability. These updates are informed by stakeholder input and reviewed internally to confirm clarity, data accuracy, and usefulness.

O&R remains an active participant in statewide coordination efforts through the JU DER Sourcing/NWA Suitability Criteria Working Group, a forum for sharing best practices and addressing shared challenges in DER integration. The Company also coordinates with the IEDR initiative to help standardize data accessibility across utility service territories, so that location-specific grid information is available through a centralized platform. In parallel, O&R continues to engage in regulatory and policy proceedings—such as the MCOS working group—supporting technical conferences and contributing to stakeholder dialogues that shape DER valuation and procurement frameworks.

Additional Detail

This section contains responses to items specific to Beneficial Locations for DERs and NWAs.

1. **Describe where and how developers and other stakeholders can access resources for:**

    a. **accessing up-to-date information about beneficial locations for DERs and/or energy efficiency measures; and**

The Company currently provides multiple resources to developers and other stakeholders including:

- Hosting Capacity and System Data portal– provides up-to-date information about beneficial locations for DERs, including potential LSRV and NWA locations;[209]
- Company website– provides information on the Company's NWA opportunities.[210]

    b. **efficiently sorting and filtering locations by the type(s) of capability needed, the timing and amount of each needed capability, the type(s) and value of desired benefit, the serving substation, the circuit, and the geographic area.**

The Company's hosting capacity maps allow users to sort and filter locations by type, timing, desired benefit and other factors. Users are presented with information on each NWA and/or LSRV area they select. In addition, the Company's website contains current NWA opportunities.

2. **Describe the means and methods for identifying and evaluating locations in the distribution system where:**

[209] O&R Hosting Capacity and System Data website: https://www.oru.com/en/business-partners/hosting-capacity.
[210] O&R Non-Wires Alternatives website:
https://www.oru.com/en/business-partners/business-opportunities/non-wires-alternatives or the JU Non-Wires Alternatives Opportunities website:
https://jointutilitiesofny.org/utility-specific-pages/nwa-opportunities/ for areas outside of O&R's service territory

a. an NWA comprising one or more DERs and/or energy efficiency measures could timely reduce, delay, or eliminate the need for upgrading distribution infrastructure and/or materially benefit distribution system reliability, efficiency, and/or operations; and/or

O&R's planning process remains crucial to identifying beneficial locations for DERs and evaluating opportunities for NWAs. As outlined in the Integrated Planning section of this DSIP, the Company assesses forecasted load growth across the O&R service territory to determine whether the existing distribution system can continue to provide safe and reliable service. When a need for additional capacity is identified, O&R applies its NWA Suitability Criteria to evaluate whether the need could be met, in whole or in part, through cost-effective deployment of DERs rather than traditional infrastructure. Projects that meet the criteria are advanced for further analysis and may be selected for NWA procurement. These candidate locations are communicated to developers and stakeholders using the Company's established channels, including data portals and targeted outreach described in the Company's response to Question 1a.

Load reductions resulting from successful NWA deployments are tracked and incorporated into future forecasts and system planning. For example, the Company included the forecasted peak impact of the West Warwick BESS as an NWA modifier during its planning process.

b. one or more DERs and/or energy efficiency measures including increased value-based customer incentives could reduce, delay, or eliminate the need for upgrading bulk electric system resources and/or materially benefit bulk electric system reliability, efficiency, and/or operations.

To date no projects have been solely tied to bulk system needs and met the NWA suitability criteria, O&R continues to evaluate such opportunities through the CGPP and its integrated planning framework, including consideration of where DERs and value-based customer incentives may contribute to bulk system relief or reliability improvements."

3. Describe how the NWA procurement process works within utility time constraints while enabling DER developers to properly prepare and propose NWA solutions which can be implemented in time to serve the system need. Details should include:

a. how utility and DER developer time and expense are minimized for each procurement transaction;

O&R encourages transparency throughout the Company's NWA process in order to make it as efficient as possible for all parties. In addition to the resources mentioned above in the Company's response to Question 1, the Company incorporates developer and third-party stakeholder feedback into the procurement process. Additional efforts to streamline the procurement process are noted below.

NWA Portal[211] – Accessible through the Company's website, the portal provides developers a view into the status of current and future NWAs and their prospective RFP release dates. The Company updates this portal to provide additional information on the current procurements, such as pre- bid webinar slides and responses to vendor questions for NWA RFPs.

RFP processes – The Company regularly updates the RFP process to make the process more developer-friendly. For example, the Company added functionality to send an email blast to inform vendors of any newly released RFP.

[211] https://www.oru.com/en/business-partners/business-opportunities/non-wires-alternatives.

Evaluation Criteria for SMEs – The Company continues to review methodologies that will enhance its understanding of the technology, cost, feasibility and timeliness aspects of NWAs being proposed. The Company requires bidders to provide proof of site control and a proposed site layout for the projects based on local AHJ rules. This accelerates the evaluation process by providing additional information and reducing siting uncertainties.

b. how standardized contracts and procurement methods are used across the utilities.

Best practices in both contracting and procurement are shared among the JU to support the development of a more consistent and efficient approach. O&R is also a frequent participant in industry conferences, often hosted by Electric Utility Consultants Incorporated or the Electric Power Research Institute, to learn how other utilities are approaching this issue.

4. Describe where and how DER developers and other stakeholders can access up-to-date information about current NWA project opportunities.

Current NWA project opportunities are publicized to promote broad awareness and advanced notice of upcoming market opportunities. NWA solicitations are available at the following online resources:

- O&R website;
- O&R hosting capacity map;
- JU central data portal;
- On the Commission's website under the generic REV proceeding (Case No. 14-M-0101) and,
- O&R's rate case proceedings (Cases 24-E-0060, 24-G-0061).

5. Describe how the utility considers all aspects of operational criteria and public policy goals when deciding what to procure as part of a NWA solution.

One of the key priorities in assembling an NWA portfolio is maintaining system reliability. All NWA portfolios are expected to meet the system need; those that do are then evaluated using the BCA Handbook. The technology solutions considered are informed by market responses to solicitations (*e.g.*, RFI, RFPs). However, the Company has encouraged innovative solutions in recent solicitations and optimizes its portfolio based on a set of criteria as listed below to provide a diverse, reliable, and cost-effective portfolio to balance delivery risk and optimize offerings for customers.

The Company explores innovative solutions that may, (1) use technologies or a combination of technologies that are currently not part of O&R's existing programs, (2) target generally underserved customer segments (*e.g.*, DACs), and/or (3) are based on the use of advanced and innovative technology that help foster new DER markets and provides potential future lessons learned. In practice, the Company is receiving proposals and building balanced portfolios that incorporate EE, energy storage systems, and other DM solutions, thus helping to meet public policy goals. Proposals are generally evaluated using the following criteria:

- Proposal content and presentation;
- Project costs;
- BCA;
- Execution risk;
- Respondent qualifications;
- Customer acquisition;
- Timelines;

- Coincidence with peak and deficiency period;
- Technology viability;
- Community impact; and

Considerations for assembling an NWA portfolio include but are not limited to the ability of the solutions to meet the identified load relief of the bank or circuit peak for the duration of the overload, cost-effectiveness, execution risk of the various solutions, and the ability to achieve a societal cost test ("SCT") of 1.0 or greater as required by the Commission. Where the proposals received have been insufficient to meet the need and there is adequate lead time, the Company may pursue other solicitation strategies. Examples of how the Company has been creative in assembling viable NWA portfolios include providing scoring criteria that reward innovative solutions and releasing technology-specific RFPs.

6. Describe where, how, and when the utility will provide DER developers and other stakeholders with a resource for accessing up-to-date information about all completed and in-progress NWA projects. The information provided for each project should:

a. Describe the location, type, size, and timing of the system need addressed by the project;

The Company currently has an NWA portal,[229] where it posts up-to-date information on current and future NWA projects. The website provides information on project type, project size, the status of the RFP, and relevant documents pertaining to each NWA project. The Company includes pre-bid conference presentations and posts responses to vendors' questions on its website. In addition, the Company includes NWA project information in publicly accessible hosting capacity maps. This informs developers of areas that may be earmarked for future NWA projects.

As described in the Company's response to Question 3 above, DER developers can access current Company information on location, type, size and timing of NWA opportunities through the O&R website.

b. provide the amount of traditional solution cost that was/will be avoided;

In order to encourage cost-effective bids, O&R does not provide the cost of traditional infrastructure solutions associated with NWA projects.

c. explain how the selected NWA solution enables the savings; and

The Company determines the BCA ratio of a project based on its Commission-approved BCA Handbook. A copy of the Company's BCA Handbook is included as an appendix to this filing. The BCA evaluates all costs associated with a proposed NWA project alongside the quantified benefits the solution provides. These benefits include the financial value of deferring traditional capital investments, such as substation upgrades or new infrastructure. For example, if an NWA project postpones the need for a substation, the present-value benefit of that deferral is included in the total economic evaluation. If the projected benefits exceed the associated costs, the NWA is deemed to have a positive BCA and may proceed as a viable solution.

d. describe the structure and functional characteristics of the procurement transaction between the utility and the solution provider(s)

As mentioned throughout this section, the Company has incorporated pre-bid webinars, question and answer sessions, and post-mortem interviews into the procurement processes to provide greater transparency to developers. This is in addition to NWA information posted to the Company's website.

Specific project transaction and structural information is typically confidential and often includes proprietary or vendor-specific information. O&R works to balance the need for transparency with its responsibility to protect its partners' confidential information.

2025 Distributed System Implementation Plan

Chapter 3 - Other DSIP-Related Information

DSIP Governance

Orange & Rockland Utilities, inc. ("O&R" or "the Company") and Consolidated Edison Company of New York ("CECONY") (collectively, "the Companies") are committed to a "grid of the future" ("GOTF") that results in a safe, reliable, efficient, and flexible electric grid through the energy transition. Achieving this will require encouraging adoption of and, subsequent, integration of distributed energy resources ("DER") in order to achieve an orderly and cost-effective transition to best meet customers' and society's evolving needs. O&R's work to implement the New York State's ("NYS") policies and initiatives spans nearly all Company functional groups and continues to drive a fundamental shift in the role of the Company, its employees, and its relationship with its customers.

O&R's organizational structure brings together policy, business, and technical experts to enable NYS's clean energy goals. This holistic approach incorporates all areas of the business into the Company's Distributed Service Platform ("DSP") vision to provide services in DER integration, information sharing, and market enablement. The Company has embraced the State's clean energy transition across the organization.

The Distributed Resource Integration organization ("DRI" - formerly the Utility of the Future group) has governance and oversight over the initiatives that the Company undertakes to support the implementation of the DSP and enable NYS's energy policy goals. The DRI organization is responsible for managing and overseeing the Company's efforts to implement programs and projects that support greater adoption of DER and clean energy, in line with the State's clean energy goals. This includes supporting initiatives such as Reforming the Energy Vision ("REV"), the Climate Leadership and Community Protection Act ("CLCPA"), Grid of the Future ("GOTF"), and other decarbonization-related proceedings. The organization also represents the Company at meetings with the Public Service Commission ("PSC" or "the Commission") Commission, DPS Staff, working groups, and various stakeholder outreach activities performed as part of the Joint Utilities ("JU").

In addition to its oversight role, the DRI organization designs, implements, and manages projects and programs that result from these proceedings. These include Non-Wires Alternatives ("NWAs"), demonstration projects, electrification of transportation and heating, bulk storage solicitations, non-pipeline alternatives ("NPAs"), market development, and customer engagement programs. The DRI organization coordinates internal and external activities across various Company organizations, such as Gas and Electric Engineering and Operations, Energy Services, New Business, Rate Engineering, Customer Service, Transmission Energy Policy, Regional and Community Affairs, as well as with CECONY's Customer Energy Solutions Team and the JU. It also leads the development of key regulatory filings, including the Company's biennial DSIP filings.

The DRI organization also bridges O&R's efforts to implement NY clean energy initiatives with other corporate regulatory initiatives, such as the Company's Long-Range Plan and regulatory initiatives in the Company's affiliate, Rockland Electric Company's ("RECO") New Jersey service territory. In addition, the DRI group provides a consistent approach between the clean energy initiatives described in this DSIP and other regulatory filings (*e.g.*, base rate case filings) which outline the Company's plans and investments for meeting the NYS's energy policy goals.

Previously known as Utility of the Future ("UotF"), the organization was renamed DRI in January 2024. This change reflects the organization's evolving mission to expand ownership, capabilities, operation, and facilitation of DER, as well as to support Electric Vehicle ("EV") infrastructure and grid efficient charging. The new name also aligns more closely with a similar organization within CECONY.

The DRI organization consists of the following three functional groups:

- DER Integration group;
- E-Mobility group
- Clean Energy Planning group

The DER Integration group manages programs and processes to integrate DERs on O&R's electric distribution system and oversees the Company's energy storage assets. It collaborates with internal teams like Distribution Engineering, System Operations, and System Planning to leverage DERs for Company, developer, and customer benefit. The group also manages REV demonstration projects, working with local stakeholders—including emergency response teams—to inform them of the benefits of DER and develop emergency response plans and associated training. Additionally, it coordinates with the Transmission Policy group to address infrastructure upgrades required to provide for increased DER penetration in the O&R service territory and is working with the New York Independent System Operator ("NYISO") to register DER assets into their capacity, energy, and ancillary markets.

The E-Mobility group develops and implements initiatives to support decarbonization goals through transportation electrification. It manages programs to accelerate EV adoption, including EV infrastructure initiatives like the New York State EV Make Ready Program. The group also oversees grid-efficient charging programs like Smart Charge New York ("SCNY") and the Commercial Managed Charging Program ("CMCP") to reduce financial barriers and promote off-peak charging. Beyond program administration, the E-Mobility group established partnerships, identifies business opportunities, and develops leads for EV projects and programs. The group administers and governs the Company's e-mobility programs and leads the coordination of the Company's transportation electrification efforts across internal organizations, and manages third-party partnerships. It engages with customers and fleet operators through EV outreach and education activities, acting as a trusted advisor for transportation electrification activities. Importantly, it collaborates and maintains alignment with Operations, Customer Service, and Engineering to ensure system reliability and safety as transportation electrification progresses.

The Clean Energy Planning group leads the Company's coordination and response to many of New York's clean energy regulatory initiatives, particularly those connected to GOTF, REV, DSP Implementation, CLCPA, climate resiliency, and broader electrification efforts. It develops Company positions by collaborating with internal experts, engaging stakeholders, and aligning policies with CECONY. The group aligns DSP capabilities with strategy and either directly implements or supports organizations in their implementation journey. It also provides support related to changing utility business needs, including data sharing, climate resiliency, greenhouse gas emissions, and the future of gas. The group evaluates new business models, market designs, and approaches, to meet clean energy goals and works with internal experts to identify and propose earning adjustment mechanisms ("EAMs"). Finally, it supports building and heating sector electrification projects, such as thermal energy network pilots, and manages non-pipe alternatives.

As clean energy policies and priorities continue to evolve, the DRI organization will adapt to support the development and execution of O&R's business strategy in alignment with environmental and societal goals. This includes expanding the team and evolving the necessary skill sets to achieve key objectives. The recent growth of the DRI team strengthens O&R's ability to build and operate new Battery Energy Storage Systems ("BESS"), optimize battery performance and market participation, and manage maintenance and warranty needs. This expansion also enhances the Company's capacity to grow its EV programs, deploy charging infrastructure, and improve customer education and outreach. Additionally, the DRI organization will leverage these new resources to navigate regulatory and market changes, engage key stakeholders, and explore innovative business models that advance electrification and clean energy adoption across O&R's service territory.

The DRI organization reports to O&R's Vice President, Operations, and provides frequent briefings and updates to all Company leadership on clean energy initiatives, including progress toward implementing CLCPA targets. These functions and activities align organizations across the Company and support cohesive progress toward the implementation of New York State's clean energy goals.

1. **Describe the DSIP's scope, objectives, and participant roles and responsibilities. A participant could be a utility employee, a third party supporting the utility's implementation, or a party representing one or more stakeholder entities.**

DSIP Scope and Objectives

Internally, the DSIP serves as a core planning document for the Company, outlining its plans across DER Integration, Information Sharing, and Market Services, as well as outlining the Company's path forward for meeting the State's clean energy goals. Externally, the DSIP serves as a roadmap and resource for DER providers, third parties, and customers to participate in the clean energy transition, as well as to the Commission to detail the Company's path toward meeting State goals as the DSP provider.

DSP Participant Roles and Responsibilities

As in prior DSIPs, the Company identifies primary DSP participants as the following:

- Utilities;
- Customers;
- Market Participants;
- Stakeholders;[212]
- Third Parties; and
- Climate Action Council.

2. **Describe the nature, organization, governance, and timing of the work processes that comprise the utility's current scope of DSIP work. Also describe and explain how the work processes are expected to evolve over the next five years.**

O&R's development of DSP functions and capabilities continues to scale with market adoption. This approach aligns the pace of investment with the needs of the system, market, and customers, recognizing that some capabilities are not required until DER penetration reaches higher levels. The Company has implemented core DSP capabilities as a foundation for achieving the State's clean energy goals and continues to evolve its policies and processes with the State's clean energy landscape.

To accommodate the scale of investment needed to meet State clean energy goals, the Company considers how investments made in current projects may lower the cost of meeting future policy objectives. For example, the impact of transportation and heating electrification efforts on infrastructure needs in 2028 (or beyond) cannot be known with a high degree of certainty, particularly as infrastructure requirements will to a large degree depend on customer adoption of electrification technologies (e.g., heat pumps and EVs). The Company seeks to anticipate these trends and make investments that either support multiple goals (multi-value investments) or provide futureproofing against a range of potential

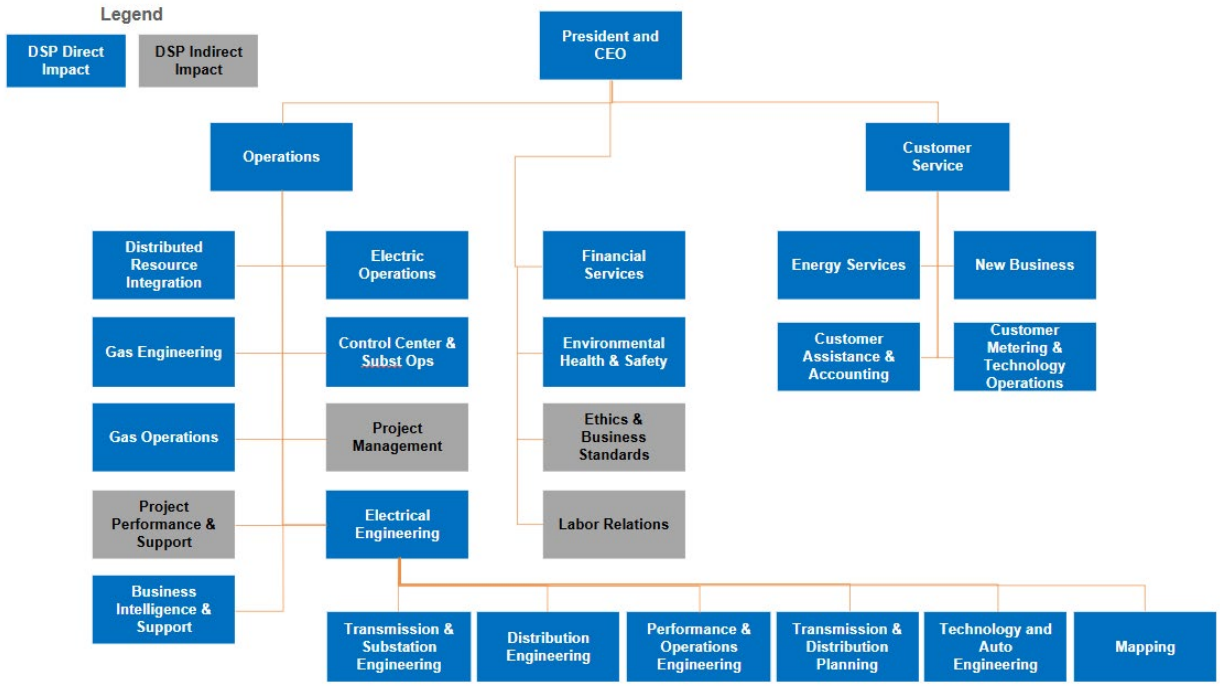
[212] DPS Staff, NYSERDA, EPRI, DER providers and aggregators, software and hardware vendors, the NYPA, the NYISO, Independent Power Producers of New York ("IPPNY"), environmental advocates, organizations representing large and small commercial and residential customers.

outcomes. Examples of this approach are explained in greater detail in the Integrated Planning, section in Chapter 2 of this DSIP.

DSP Organization, Roles, and Responsibilities

Figure 53 below depicts O&R's current organizational structure. Organizations in dark blue are those directly impacted by or heavily involved in the clean energy transition. Organizations in gray are those that are less involved and indirectly impacted. Additional support service organizations and functions that are shared with CECONY are shown in Figure 54.

Figure 53: O&R Organizations Impacted by REV and CLCPA



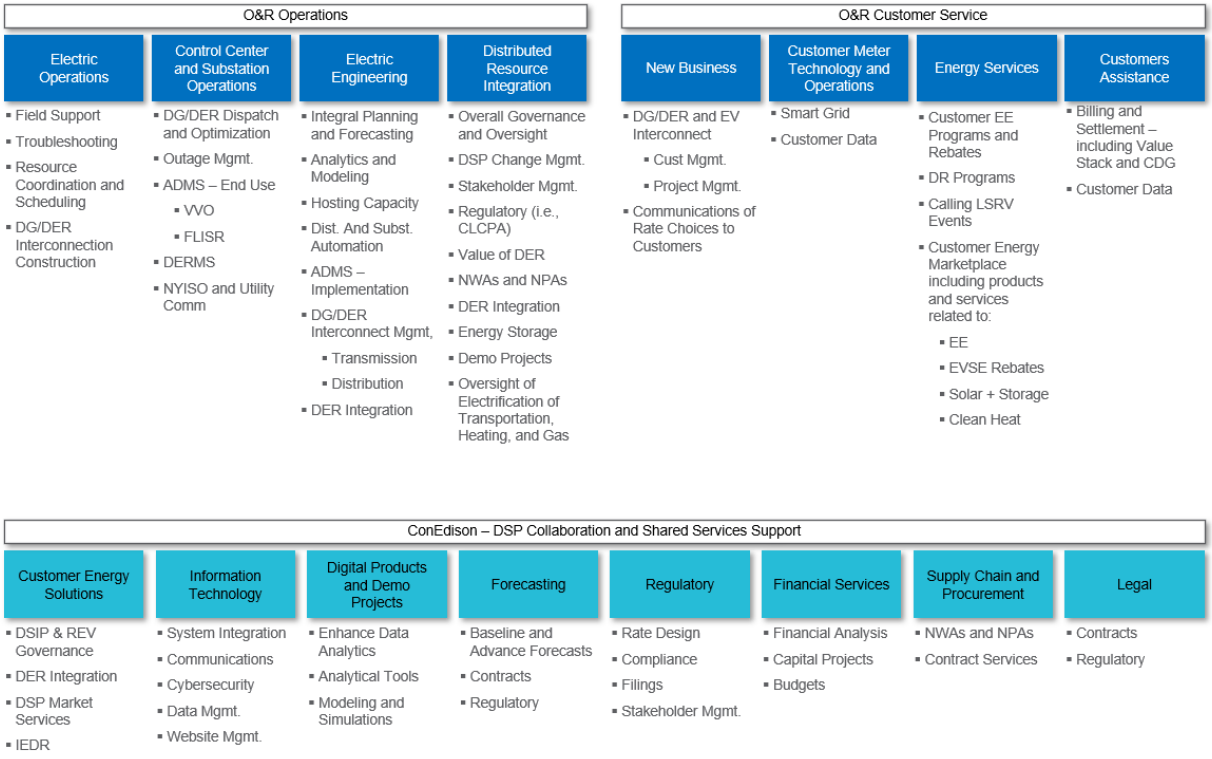
As described in previous DSIPs, the Company has laid the foundation to provide the core services of the DSP. Since 2023, the Company has sustained momentum and made additional progress to support those functions and services. For example, the Company completed the discovery phase of DERMS implementation, which included scoping, developing specifications, and benchmarking for the system that will provide advanced functionality to meet the present and future utility, market, and customer DER operational requirements. The Company also continued to enhance communications and telemetry with 4G technologies and preparations for continued enhancements like Software-Defined Wide Area Network ("SD-WAN") technologies (information for both technologies is available in the Grid Operations section of this DSIP). O&R also activated New York's largest residential virtual power plant ("VPP") during the summer of 2024 in partnership with Sunrun Inc. as a part of their Innovated Storage Business Model ("ISBM") program. These accomplishments, as well as others highlighted throughout this DSIP, provide an example of how DSP roles and capabilities continue to become business-as-usual across the O&R organization.

In addition to DSP functionality, other State initiatives have broadened the reach and involvement of O&R organizations. The advancement of data sharing platforms like the IEDR, hosting capacity maps, and O&R's My Account portal are making distribution system and customer data much more accessible to industry stakeholders, as well as O&R's customers themselves. By enabling access to valuable system and customer

data through secure protocols, O&R supports the transition to a cleaner, more resilient, and affordable energy system, attracting investment and expanding opportunities for cleaner energy solutions across all communities

Figure 54 reflects the functional roles and responsibilities carried out by the primary O&R organizations that are impacted by the DSP as they exist today.

Figure 54: O&R Organizations Impacted by REV and CLCPA



As described in Chapters 1 and 2 of this DSIP, the next five years will continue to see major shifts in the electric industry that require the Company to be adaptable in its DSP approach. The Company continues to invest in change management activities for its employees, customers, partners, vendors, and other stakeholders. To that end, the DRI organization will play a critical role in providing guidance and coordination to support internal and external stakeholders to realize a clean energy future.

Joint Utilities Collaboration

The JU are working together to foster common and consistent approaches, tools, and methodologies that will support statewide markets for DER products and services and help reduce transaction costs for third-party providers. This involves harmonizing technical standards, designing market mechanisms, and defining utility roles in the distributed energy ecosystem. The JU strive for standardization where possible, recognizing that the utilities are diverse in their service territories, grid configurations, data availability, and the degree of development of existing capabilities. The JU also regularly share lessons learned from ongoing efforts in implementing the State's clean energy goals.

In 2014, each utility appointed leaders to serve on the REV Leadership Team ("RLT"), which meets weekly to raise awareness of emerging issues, collaborate on shared initiatives, and work toward alignment on the way the JU plan for and transition to their new roles as DSP operators. The RLT established two committees—the Regulatory Policy Committee ("RPC") and the DSP Steering Committee. The RPC

coordinates the JU efforts in policy and rate-related proceedings that fall under the larger REV framework. The DSP Steering Committee meets twice per month to discuss strategic issues affecting the JU and make collective decisions on behalf of the JU.

The Steering Committee oversees topic-specific implementation Working Groups, which Table 28 lists below.[213] These Working Groups, staffed by utility SMEs, were formed to discuss specific technical details, share best practices, and reach common recommendations on how to implement DSP functions. Through this collaborative structure, the JU helps establish the foundational components of New York's DSPs, which are envisioned as the future "operating systems" of the grid, enabling real-time coordination and compensation for DERs, fostering grid reliability, and supporting customer choice. By collectively addressing technical, regulatory, and policy challenges, the JU—and specifically, their RPC and DSP Steering Committees—play a crucial role in transforming New York's electric grid to support a cleaner, more resilient, and more customer-focused energy system.

Table 28: Sample List of JU Working Groups

Working Groups			
1	Grid of the Future	7	Interconnection
2	CDG Billing and Crediting	8	Electric Vehicles
3	DER Integration	9	ISO-DSP Coordination
4	DER Sourcing	10	Market Design and Integration
5	Proactive Planning	11	Climate Change
6	Information Sharing (IEDR)	12	Integrated Planning

To improve transparency and facilitate information sharing, the JU collectively maintain and regularly update the JU website (https://jointutilitiesofny.org/) with valuable resources for interested parties. For example, the utilities post a quarterly summary of current JU DSP enablement activities to the website homepage each month to keep third parties informed of efforts to advance DSP implementation. The JU enhanced their website by compiling utility-specific links for hosting capacity, system data, EVs, and NWA opportunities. The website also serves as a valuable repository for stakeholder information, providing key policy and regulatory documents, detailing past stakeholder meetings, summarizing inputs that stakeholders have previously provided and next steps for addressing them, and providing links to other resources. The JU welcome suggestions to enrich the website through their email address at: info@jointutilitiesofny.org.

Processes and Procedures

As a DSP provider, O&R is developing the capabilities, processes, and systems that support key DSP functions: integrated planning, DER interconnection, and DER management (DER integration services); information management and customer engagement (information sharing services); and procurement, market coordination, wholesale tariff, and settlement and billing (market services). Impacts from these changes are seen in changes to work processes, people skill-set requirements, and technologies.

[213] Sample list of JU working groups mentioned in this DSIP, this is not a comprehensive list of JU or Statewide working groups O&R participates in.

Details surrounding these and other DSP functional and capability impacts on work processes are provided throughout Chapters 1 and 2 of this DSIP Update. Managing the rapid pace of such impacts on processes, functions, and organizations is an ongoing effort requiring strong cross-functional and cross-organizational coordination, governance, and oversight.

Marginal Cost of Service Study

The 2023 DSIP Guidance requires utilities to include a publicly accessible web link to the latest version of the utility's MCOS Study. O&R's latest MCOS study was filed concurrently with this DSIP in the MCOS proceeding and VDER proceeding and is available by searching for Case 16-M-0411, 19-E-0283 or 15-E-0751 on the DPS website found here: https://documents.dps.ny.gov/public/common/search.html.

Benefit Cost Analysis

The 2023 DSIP Guidance requires utilities to include a publicly accessible web link to the latest version of the utility's BCA Handbook. O&R's Electric BCA Handbook was updated and filed concurrently with this filing and is available by searching for Case 16-M-0411 or Case 14-M-0101 on the DPS website found here: https://documents.dps.ny.gov/public/common/search.html.

Utility Code of Conduct[214]

As directed by the Commission in its Order Setting Standards for Codes of Conduct,[215] O&R currently provides training covering the rules about information sharing between regulated utilities and competitive energy affiliates.[216] Designated O&R employees that interact with DERs and other competitive energy companies are required to take this training course annually. The training requirement is included in O&R's Affiliate Transactions Policy.

In the Code of Conduct Order, the Commission also required O&R to include any code of conduct modifications with its biannual DSIP filings. Currently, O&R does not have any competitive energy affiliates and has suspended the code of conduct training.

O&R will provide notice to the Commission of any new competitive energy affiliates for the Company and in such event will update and reinstitute the code of conduct training accordingly.

[214] O&R's code of conduct is called the Affiliate Transactions Policy.
[215] Case 15-M-0501, *In the Matter of a Review of Utility Codes of Conduct as Impacted by Reforming the Energy Vision*, Order Setting Standards for Codes of Conduct, issued and effective September 15, 2016, p. 22 ("Code of Conduct Order").
[216] *Id*., p. 21.

2025 Distributed System Implementation Plan

Appendices

Appendix A: Peak Load and DER Forecast Details

The forecast data is organized in the sections below as follows:

- System-level forecasts
  - 5-year peak demand forecast
  - 10-year peak demand forecast
  - 5-year energy forecast
- Substation-level forecasts
  - 10-year coincident peak demand forecast
- DER forecasts
  - Demand Side Management ("DSM") (including Energy Efficiency ("EE") and Demand Response ("DR")
  - Distributed Generation ("DG") (including solar Photovoltaic ("PV"), Combined Heat and Power ("CHP"), other generation, and Battery Energy Storage Systems ("BESS")

System Peak Demand Forecasts

Forecast of System Peak Demand Growth

This Appendix provides additional details on the Company's system peak demand, load area peak demand, and DER forecasts.

These forecasts are developed using a hybrid of top-down and bottom-up methodologies, which improves forecasting accuracy by allowing for cross-referencing of meter data and queued projects with overall macroeconomic trends. Additionally, by comparing the top-down system-wide peak load analysis to the bottom-up substation peak load analyses, the Company can verify the allocations of load in its annual peak load forecast.

The system peak demand forecast is produced by adding the incremental MW demand growth for the residential and commercial sectors to the most recent summer weather-adjusted peak ("WAP"). In addition to sector demand growth, non-sector-specific technology-driven load growth is also added, such as Electric Vehicles ("EV").

To determine residential sector growth, the residential top-down econometric model drivers include, but are not limited to, the number of households and/or population, all of which are provided by Moody's Analytics. To determine commercial sector demand growth, the commercial top-down econometric model drivers, including but not limited to gross county product and/or private non-farm payroll employment, are provided by Moody's Analytics. For the bottom-up methodology, load growth attributed to the new business forecast is included, which is provided by the ORU New Business Services Department.

Various DER measures offset demand such as EE, DR, DG, PV, BESS and targeted load relief programs, collectively referred to as negative load modifiers. Organic EE (i.e., EE occurring naturally outside of programs) was added as a load modifier in the fall 2017 forecast. Distributed Energy Resources ("DER") are forecasted primarily using bottom-up methodologies by counting projects or program totals for both system and substation forecasts. EE and DR forecasts are based on program-level projections based on historical and expected future performance. DG, including all solar, CHP, and BESS are forecasted using cumulative historical penetration, known queued projects, and extrapolated future growth rates. The details and underlying assumptions regarding the forecasting of DER will be described in greater detail below in the DER Forecasts section of this Appendix.

Positive load modifiers, such as EVs, are also forecasted using a bottom-up methodology. EV forecasting is based on current registration data from the Department of Motor Vehicles ("DMV"), expected growth rates based on State goals and consultant studies, and the assumed average kW usage per vehicle. The Building Electrification ("BE") forecast encompasses the conversion of fossil fuel burning building equipment to electric. The BE model is stock-and-flow, the stock being the total potential fossil fuel universe available in the Orange & Rockland, Utilities, Inc. ("O&R" or "the Company") and Rockland Electric Company ("RECO") territory, and the flow being the annual rate of adoption of electric equipment technologies, which results in diminishing stock over time. The adoption rate is determined through a scoring system based off a combination of endogenous and exogenous factors.

As noted above, the sector forecasts generally use a top-down methodology, which takes a holistic view of macroeconomic conditions that influence electric demand. Bottom-up methodologies are generally used when there is sufficient data available to build a forecast. The combination of top-down and bottom-up works well for forecasting demand growth, as it allows cross-referencing of the meter data and queued projects with the overall macroeconomic trends.

Figure 55 and Figure 56 show the basic process of producing a system peak forecast.

Figure 55: System Peak Forecasting Process

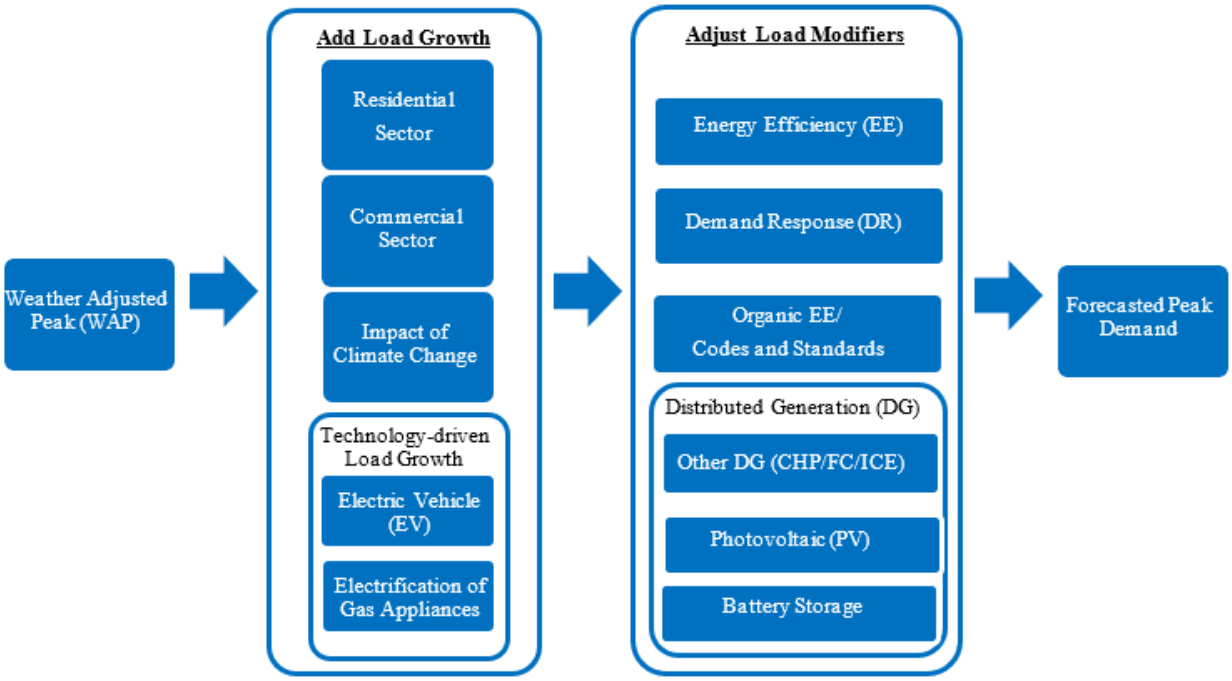
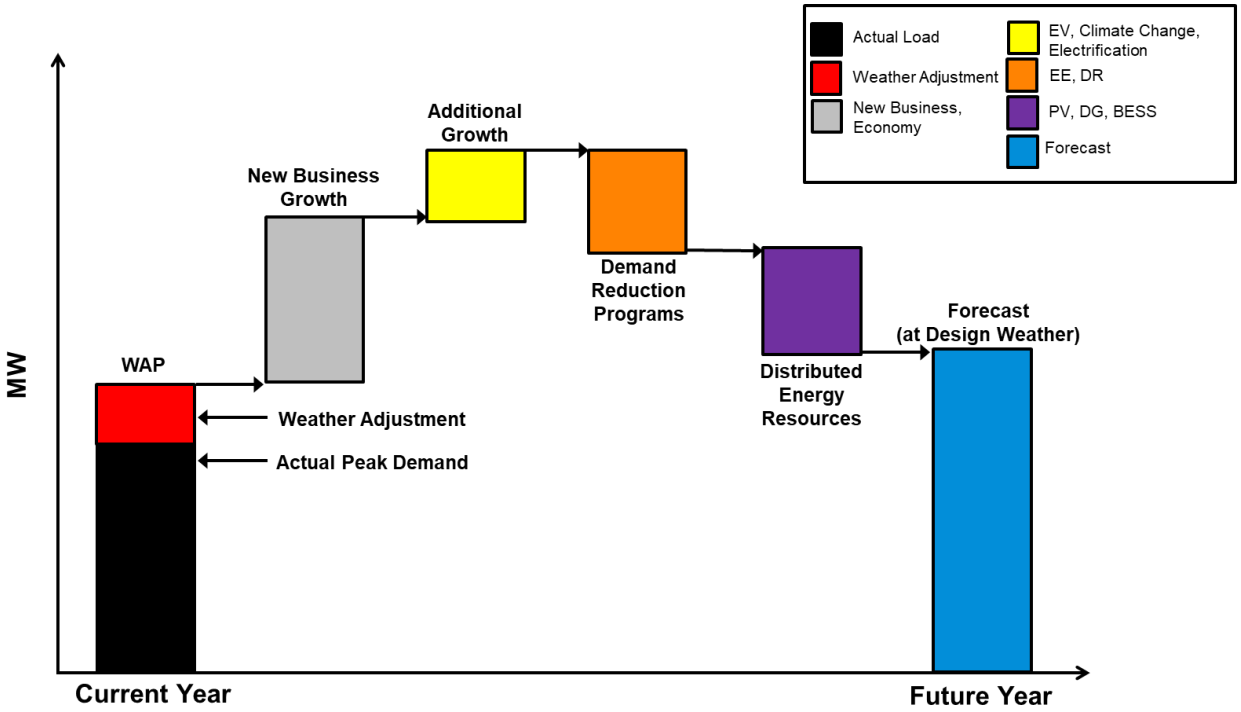


Figure 56: Illustrative Process of Adjusting Forecasting (not to scale)



The Company continues to improve the accuracy of its forecasts, with deviations between forecasts and actuals being minor.

Five-Year System Peak Demand Forecast

The five-year system peak demand forecast show in Table 29 was issued in October 2024 and covers the years 2024 to 2029 and shows the overall forecasted electric system load growth with a CAGR of 2 percent over the five-year period.

Table 29: 2024 Electric Five-Year System Peak Demand Forecast (MW) – Summer Peak

		2024	2025	2026	2027	2028	2029
1	WAP/ Load Growth Forecast	1,533	1,611	1,688	1,741	1,757	1,786
2	MW Growth		78	77	53	16	28
3	% Growth		5.1%	4.8%	3.1%	0.9%	1.6%
4	Additional MW Growth (Rolling Incremental)						
5	BE		2	4	6	8	10
6	EV		27	55	90	129	174
7	Load Modifiers (Rolling Incremental)						
8	PV		-8	-14	-19	-25	-29
9	DG		0	0	-1	-1	-1
10	BESS		-11	-18	-23	-36	-51
11	Organic EE/Codes and Standards		-1	-1	-1	-2	-2
12	Coincident DSM (Incremental)						
13	O&R EE		-10	-6	-2	-2	-2
14	RECO EE		-2.6	-3.4	-3.9	-4.0	-4.0
15	NYSERDA		-4.0	-2.9	-1.6	-1.3	-1.1
16	NJ OCE		-0.2	-0.3	-0.3	-0.3	-0.3
17	DR		-1.3	-1.6	-1.5	-1.7	-1.3
18	Total Incremental DSM		-19	-14	-9	-9	-8
19	Rolling Incremental DSM		-19	-32	-42	-51	-59
20	System Forecast net of both positive and negative modifiers		1,602	1,681	1,751	1,781	1,828
21	MW Growth		69	79	70	30	46
22	Rounded System Forecast net of both positive and negative modifiers		1,600	1,680	1,750	1,780	1,830
23	MW Growth (Rounded)		67	80	70	30	50
24	% Growth		4.4%	5.0%	4.2%	1.7%	2.8%

Note: 2024 Demand is Weather-Adjusted. The forecast was prepared in fall of 2024 for summer 2025 and represents the entire system, including RECO.

System forecast line-item descriptions:

Line 1: WAP/Load Growth Forecast: WAP in 2024, new business load growth forecasts in 2025 and beyond

Line 2: MW Growth: Cumulative growth of residential and commercial sectors

Line 3: Percentage Growth: Growth as a percentage of the base

Line 5: BE – The rolling incremental load growth associated with electrifying fossil fuel equipment

Line 6: EV – The rolling incremental load growth associated with EV charging

Line 8: PV – The rolling incremental effect of the solar units (PV) coincident with peak hour demand

Line 9: DG – The peak load reduction associated with non-solar generators (*e.g.*, CHP, gas turbines, *etc*.)

Line 10: BESS – The peak load reduction associated with appropriately rated batteries

Line 11: Organic EE/Codes and Standards – The peak load reduction associated with appropriately estimated Organic EE/Codes and Standards

Line 13: O&R EE: Annual incremental forecasted system coincident demand reductions from O&R's EE programs

Line 14: RECO EE: Annual incremental forecasted system coincident demand reductions from RECO's EE programs

Line 15: New York State Energy Research and Development Authority ("NYSERDA"): Annual incremental forecasted system coincident demand reductions from NYSERDA's EE programs

Line 16: NJ OCE: Annual incremental forecasted system coincident demand reductions from the NJ OCE's EE programs

Line 17: DR: Annual incremental forecasted system coincident demand reductions from O&R's commercial and residential DR programs, not including NYISO DR

Line 18: Total DSM – Annual sum of peak reduction programs

Line 19: Rolling Incremental DSM – Total sum of new (i.e., not baked into the previous year's WAP) peak reduction programs, including the previous year

Line 20: System Forecast less DSM, less DG, PV, and BESS + Electrification of non-Space Heating ("EoNH") + EVs – System forecast including all incremental growth and load modifiers

Line 21: MW Growth – Net growth; sector growth plus technology driven growth less DER load modifiers

Line 22: Rounded System Forecast net of positive and negative load modifiers to the nearest 5 MW

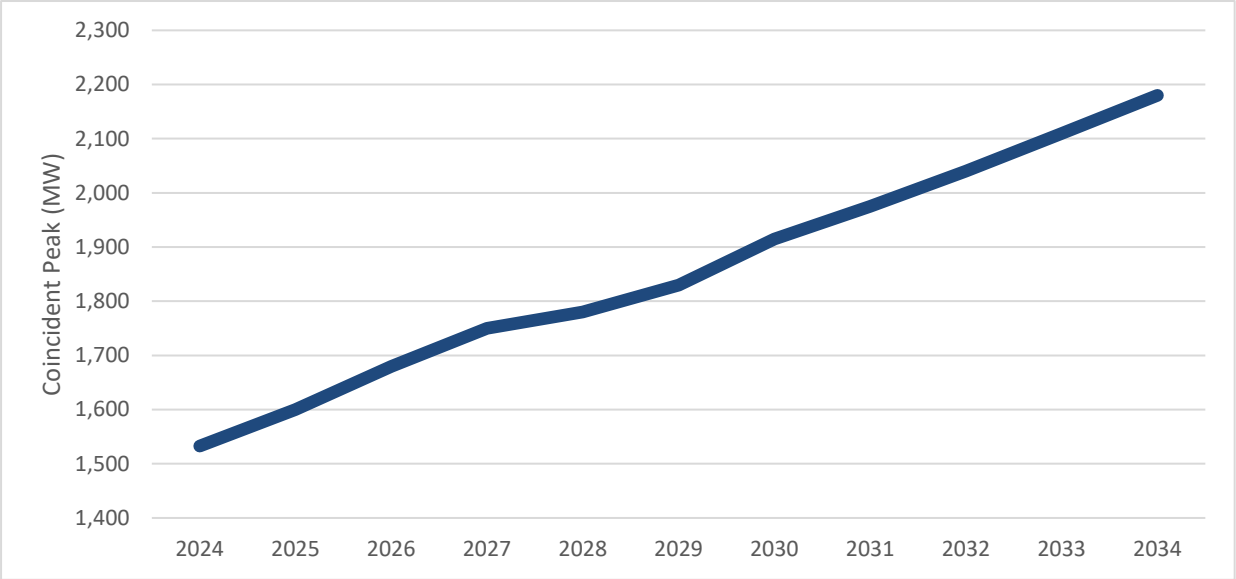
Line 23: MW Growth (Rounded): Net growth rounded to the nearest 5 MW; sector growth plus technology driven growth less DER load modifiers

Line 24: Percentage Growth – Rounded MW Growth as a percentage of the rounded system forecast

10-Year System Peak Demand Forecast

The following 10-year system peak demand forecast was issued in October 2024 and covers the years 2025 to 2034. Figure 57 shows the 10-year CAGR is 3.6 percent, resulting in a 2034 system coincident peak of 2,180 MW. This is a 365 MW increase compared to the 2023 forecast. While EVs, BE, and new business growth are contributing to an increase in load, this increase is offset by forecasted load reductions from DSM, PV, DG, and BESS and the addition of organic EE/Codes and Standards as negative load modifiers.

Figure 57: 10-Year System Coincident Peak Demand Forecast



5-Year CAGR (2024 – 2029)	3.6%
10-Year CAGR (2024 – 2034)	3.6%

Note: 2024 Demand is Weather-Adjusted. The forecast was prepared in fall of 2024 for summer 2025 and represents the entire system, including RECO.

Five-Year System Energy Forecast

The current delivery volume forecast reflects an approximate seven percent increase in sales over the five-year period, and is shown in Table 30. Factors contributing to the increase in the forecast include EVs, special projects, and BE. These increases are partially offset by EE and growth in PV.

Econometric time series models are used to forecast the billed delivery volumes for residential, secondary including small primary, primary excluding small primary, lighting, and West Point (public authority) service classes. To the extent that events or programs that are not captured by the econometric models can be anticipated, the forecasts from the econometric models have been adjusted for the effects of such events and programs, such as:

1. PV generation
2. EE/DSM programs
3. Large Projects
4. EV

5. BE
6. SC 25 - Standby Service (DG)
7. BESS

Table 30: Five-Year System Energy Forecast (GWh)

	2025	2026	2027	2028	2029
O&R	**3,916**	**3,970**	**4,026**	**4,113**	**4,178**

Substation Coincident Peak Demand Forecasts

O&R prepares substation transformer and circuit level peak demand forecasts, which roll up to the substation level. The substation-level forecasting process is similar to the system-level with some notable exceptions. The Company also develops its long-term Substation Electric-Peak Demand forecasts by using internally developed models to determine the weather-normalized ("WN") load at bank level and top-down econometric forecasts provided by the Company's Shared Services Forecasting group.

As with the system peak, O&R Distribution Planning assesses the previous summer's temperature variable ("TV") and actual peak demands of the load area, and accounts for impacts on the system's peak hour from reduced load from DSM, any interruptions, PV, and/or BESS. Substation WAPs are aggregated from bank WAP. The bank load data and TV data are collected from June 1 to August 31 for the summer period. Then perform standard regression (or "best fit") analysis for all Banks to estimate the independent Bank WAP at designed TV. The calculation of coincident bank adjusted peak demands can be estimated based on the Bank diversity of the independent to coincident peak demands.

From the bank's coincidental peak load, the circuit's weather normalized ("WN") coincidental peak load is determined. After applying the circuit's responsibility factor to determine the circuit's WN forecasted peak load, the percent imbalance for each phase is applied to provide the circuit's high-phase. The Company then accounts for known block loads or transfers in various areas. On an annual and going-forward basis, a 20-year forecast of the system and banks, and two-year forecast of the circuits are completed. The bank and system loads are utilized by Transmission Planning where a contingency analysis with respect to design standards is performed on the transmission system.

After obtaining the 20-year Bank level native forecast, the load modifier forecasts are developed at the Bank and circuit level.

DER Forecasts

Increased adoption of DER is introducing new challenges for maintaining forecasting accuracy due to uncertainties associated with the variability of DER output, its evolving correlation with net load, and the impact of geographic diversity on aggregate DER output. These new DER will have locational-specific impacts determined in part by how penetration rates evolve in each part of the distribution system, and the local electric characteristics and operating constraints in that part of the electric delivery system. As a result, increasing levels of DER will drive the need for forecasting of future net load levels at more granular levels. For example, pairing top-down econometric forecasting approaches with more granular forecasts will enable planners to more accurately evaluate distribution system level needs as DER penetration increases. These more granular load forecasts consider economic indicators and analyze load shapes based on the characteristics of local area loads. The development of these approaches for forecasting both load and DER contributions will enable more accurate representation of system operating conditions at varying load levels to help planners understand where and when operating risks and constraints may emerge.

Within O&R's internal planning processes, DERs are organized into one of two sub groups: DSM or DG. DSM includes EE programs and DR. The DG group includes subsets such as PV, CHP or other spinning generators, and BESS.

DSM Programs

Expected energy savings from EE programs are distributed across the electric substations in the forecast using planned program growth, historical consumption data, and customer demographic information. These energy savings are then converted to peak demand savings using annual hourly load curves, which vary with the measures and specific customer segment related to each program. A geographic uncertainty factor is applied to the expected demand reductions to reflect the uncertainty of where the future savings from system-wide programs will be realized.

Incremental EE program savings are projected annually into the future as far out as the programs are funded or are highly likely to be funded. Impacts of codes and standards or naturally occurring EE implemented outside of programs are captured in a separate load modifier ("Organic EE/Codes and Standards").

For DR programs, forecast data is derived from internal program managers who gather information from their implementation contractors and market participants. Currently, most of the customers in the O&R DR Programs are already enrolled in New York Independent System Operator ("NYISO") DR Programs. To avoid double-counting, the customers that are not enrolled in NYISO DR programs are only considered into the forecast. The accounts that are only enrolled in O&R DR programs are subtracted from load growth. Future volume and demand reductions are projected from filed and approved program goals and budgets adjusted by historical performance and future performance expectations. For DR programs, discount factors are applied to enrolled MW for substation forecasts based on the size and diversity of enrollments in each load area. DR programs are not included in the volume forecast because the energy savings are both uncertain (programs may or may not be called) and *de minimis* (even if events are called).

DG

DG is included in demand and energy forecasts. For purposes of forecasting, DG is defined as DER capable of operating in parallel with the grid and exporting power into the electric delivery system, including solar PV, CHP, and other rotating generation, fuel cells, and BESS, which represent the overwhelming majority of DG in the O&R service territory.

Solar PV

The forecasting of solar PV, as with other DER, involves determining both the impact of the DER and the future growth rate. To assess the impact of currently deployed solar PV, the Company collects AC nameplate kW capacity and application of PV jobs in the interconnection queue from PowerClerk®. The Company also analyzes available solar output per hour data and the location of the PV projects. The solar output for each hour is determined by reviewing interval data and is representative of three summer months of data (June 1 – August 31) across a sample set of large PV sites. Figure 58 shows a typical output curve. The average summer solar output as a percentage of nameplate capacity is shown in Table 31.

Figure 58: Measured Solar Output Curve Using Sampled Interval Meter Data

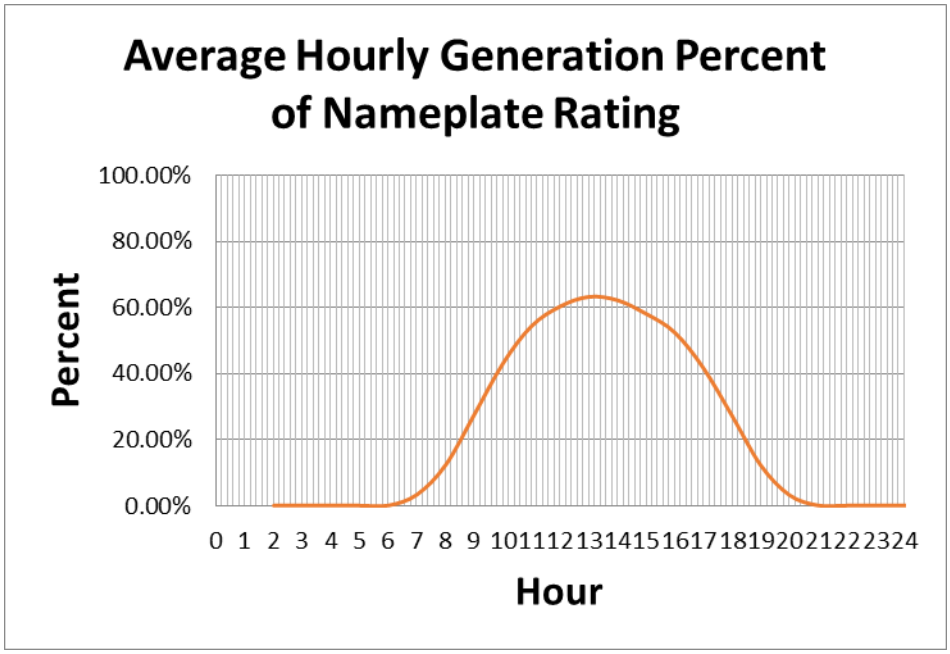


Table 31: Average Summer Solar Output as a Percentage of Nameplate Capacity (AC)

Hour Ending	Average	Hour Ending	Average
1:00:00	0.00%	**13:00:00**	62.11%
2:00:00	0.00%	**14:00:00**	58.01%
3:00:00	0.00%	**15:00:00**	52.36%
4:00:00	0.00%	**16:00:00**	41.62%
5:00:00	0.05%	**17:00:00**	27.19%
6:00:00	3.32%	**18:00:00**	12.25%
7:00:00	12.28%	**19:00:00**	3.22%
8:00:00	27.48%	**20:00:00**	0.06%
9:00:00	42.95%	**21:00:00**	0.00%
10:00:00	54.27%	**22:00:00**	0.00%
11:00:00	60.21%	**23:00:00**	0.00%
12:00:00	63.14%	**24:00:00**	0.00%

Policy Integration Forecasting works closely with the DG Ombudsman and employees in the O&R Engineering group to develop the DER forecast. The PV forecast is introduced to reconcile the impact of solar generation on coincident system peak. Once the PV forecast is determined, the inputs are analyzed and addressed in the system peak forecast.

Using the methodologies below, the PV capacities are estimated for the next 20 years. The AC coincident factor during the peak hour provided by Distribution Engineering is applied to develop the PV peak forecast.

The projections for the 2025 Forecast used the following methodologies:

The CDG forecast is based on jobs in queue data, provided by the ORU Electric Engineering group. The short-term forecast, usually around three years, includes jobs with a company forecasted PTO date from July of the previous year through June of the current year. CDG jobs that are in queue, without a PTO date, are allocated to years 3 through 5 of the forecast depending on the current status description in queue, and using things like average duration and standard deviation to create a forecasted PTO date.

In 2025, the Solar PV Breakeven Model was introduced for residential and commercial NM jobs. The Solar PV Breakeven Model, created by the Company's Revenue & Volume Forecasting team, performs a cost/benefit and moving average analysis. The model is used for both O&R and RECO NM jobs and the methodology that fits best can be chosen by the forecaster. In cases where there are large NM jobs in queue, which are not captured in the Breakeven Model, these jobs can be manually added into the forecast. In cases like this, Electric Forecasting may apply analyst judgement, along with agreement and final review with the DG Ombudsman.

The summer solar output curve is applied to capture the peaking hour impact for every substation, bank, and circuit level, as—it is important to use the correct solar curve for each season. The peak hour needs to be updated for each forecast by the Company's Planning Engineers.

DG/CHP and Other Generation

DG/CHP and other forms of rotating generation preceded the widescale adoption of solar and BESS. As such they are referred to within Company processes and forecasts as DG/CHP, even though they are a subset of DG. All references to DG/CHP in this section apply only to CHP and other rotating generators including traditional DG like gas turbines and reciprocating engines, as well as newer technologies such as fuel cells and microturbines.

DG/CHP inputs are collected from developers prior to and throughout the interconnection process. The nameplate capacity and details of the go-live timing (looking three years out) are provided through the interconnection process and verified by the Company. Furthermore, for large DG units (and some units below 1 MW), operational performance data may be collected through interval meters or other mechanisms. Long-term growth of DG/CHP is extrapolated based on historical penetration and currently queued projects.

Because non-solar DG/CHP units can be larger than PV projects and are normally dispatched at times of peak load, their impacts on the local grid may be greater and depend on several factors. These factors include the size of the DG unit, the redundancy of the local area station, the expected time of go-live, and engineering knowledge of the substation reliability and other local conditions. For the DG forecast, the Company defined the following assumptions to build the forecast model:

The assumptions for DG/CHP forecast are as below;

- DG described in this forecast are CHP, ICE, Gas & Steam Turbines, and Fuel Cells. PVs and BESS will be accounted for separately.
- All DG/CHP are assumed to be on throughout the peak load periods and full credit (-) will be taken to reduce load.

- All DG/CHP jobs in the queue will be assigned with the associated circuit and the best estimated completed/installed year by DG ombudsman.
- For each DG/CHP project, a performance factor was not applied yet but will be considered by DG ombudsman in future.
- Forecast was created using the following methodologies:
  a. Short term (usually years 1-3): Bottom-up approach using jobs in queue
  b. Long term (usually years 4-20): Bottom-up approach using jobs in queue plus a reconciliation with system level DG/CHP growth (weighted by SS/Bank/Circuit's WAP).

Battery Systems (BESS)

BESS is a separate line item in the DG forecast. While BESS is still a small component of the forecast, advancements in technology will likely result in many more BESS devices, primarily batteries, installed throughout O&R's service territory over time. BESS penetration and growth information is derived from the Company's interconnection queue, which provides a near-term view of proposed and under-construction projects.

The Company has identified factors for adoption that it believes will indicate the future pace of BESS. These factors include historical BESS market growth, policy treatment (e.g., NEM, value stack, tax credits), permitting, and interconnection processing. The Company developed a forecasting tool that blends its existing BESS forecasting methodology with proprietary techniques developed by external industry experts to dynamically model the impact of BESS on the system and circuit peaks. It can also model the interaction of BESS with other modifiers such as BE, EV, PV, and DG/CHP.

BESS are a flexible resource in terms of the value they can provide. For example, a 10 MW, four-hour (or 40 MWh) battery can discharge in several ways – 10 MW discharged for four hours, 5 MW discharged for eight hours, or different levels of discharge for varying durations. Battery systems could also target a use case that provides more consistent output of intermittent renewable sources or flattening the peaks of load curves of customers with highly variable loads. These systems are most predictable when they discharge in a manner set by program rules (*e.g.,* the Company's DR program specifies the battery must discharge from 2:00 p.m. to 6:00 p.m.). For planning purposes, the Company will view the load reduction from the battery as the amount of discharge it can provide over four hours, in line with the system peak load. Thus, a 500 kW reduction from peak will be a 2 MWh battery discharged over four hours. The Company understands that a battery system could discharge in a variety of ways and if an incentive mechanism (*e.g.,* DR or program rules) caused the battery discharge pattern to vary from this standard, then the Company could adjust the amount of reduction the forecast includes.

The Company recognizes that several factors require further study, including BESS use and charging method. In general, an BESS resource serves as a load to the utility when it charges from the grid and serves as a resource to the utility when it discharges. Charging at off-peak times and discharging at peak times generally leads to less carbon-intensive supply sources being utilized and serves to flatten the peak and fill in the troughs for the utility, leading to a better overall utilization and load factor and better system efficiency. BESS will not serve as a load to the utility if it charges using BTM generation (i.e*.,* solar and battery both behind a one-way inverter). The charging of the battery will not increase the load seen by the utility.

BESS use, and its impact on peak load, varies by intended purpose (*e.g.,* customer-peak shaving, DR, direct utility-control) and size of the resource. Customer-peak shaving is dependent on the time of the customer's peak and may not be coincident with utility or NYISO peak. Resources used for customer-specific energy needs may be unavailable at other times.

Other BESS uses are measurable and able to be influenced or controlled by the utility (through contracts and/or in real-time). Programs that support a higher level of utility visibility include the REV Demonstration projects, discussed elsewhere. These programs are administered by the Company and provide greater visibility and impact to peak demand. Depending on BESS capacity, technology, and project economics, utility-owned BESS projects may also be capable of bidding into NYISO DR and/or ancillary services markets.

The BESS forecast has been reconciled in O&R's Electric System Peak Forecast. In 2024, large Behind the Meter ("BTM") jobs, as well as Front of the Meter ("FTM") jobs, were based on jobs in the queue. To forecast BTM jobs less than 50 KW, growth rates from a recent Bloomberg BESS market study were utilized.

The nameplate capacity forecast is analyzed to consider only the impact at the peak hour by Policy Integration Forecasting. The peak impact, called "coincident factor" was about 80 percent for FTM batteries with 4 hours of operation and about 38 percent for BTM batteries with 2 hours of operation. This was calculated using the previous summer's bank WAP and peaking hours and assumptions around intended customer-owned BESS behavior at the time of the system peak.

Electric Vehicles

The EV forecast includes the peak impact of charging for both light-duty and medium/heavy-duty electric vehicles. The EV coincident system peak forecast is developed by reviewing current registration data via the DMV, forecasting growth based on consultant studies and State Policies, and applying an assumed average kW demand per EV. The following text contains an outline of each of the inputs and assumptions used to develop the EV forecast.

1. The total number of forecasted EVs at the bank and segment level is projected based on historical EV registration data from the DMV, state policy targets, and EPRI scenario projections.

2. Technical assumptions include vehicle efficiency, battery size, and annual miles traveled. These values are derived from studies and historical data, varying by vehicle type and evolving with technology and consumer preferences.

3. Charging locations and Electric Vehicle Supply Equipment ("EVSE") are analyzed to estimate energy consumption at home, public, and depot locations. The allocation of charging percentages is based on studies with adjustments for public charging infrastructure growth.

4. Charging times are projected by determining the percentage of EVs that start charging at each hour and their participation in managed charging programs. Historical data and studies inform these projections, considering both light-duty and medium/heavy-duty vehicles.

5. The peak impact of new service requests for EV chargers is aggregated by EVSE type and supply area. This aggregated load is compared with a top-down model to set the magnitude of the EV load curve, ensuring accurate forecasting of the additional load from new EV charger installations.

BE

As mentioned earlier, the BE model operates on a stock-and-flow principle. Specifically, the stock component is determined through a combination of internal and external inputs, internal being the Company's five-year base gas volume forecast (minus the previous BE component) extended out 20 years using the gas peak forecast, and externally using publicly available heating oil/propane usage data available through the U.S. Energy Information Administration ("EIA") data coupled with census data. The flow component, in terms of adoption rates, is determined through a scoring system based off various

categories which include the economy, customer economics, laws/regulations, customer disruption, technical limitations, and gas supply. There also is a technical component which determines the net efficiency of conversion that will translate the lost MMBTUs of fossil fuel into gained MWh of electric. This is determination relies on inputs derived from a combination of the state's Technical Resource Manual ("TRM"), historical AMI gas/electric usage data, and EIA energy consumption surveys.

Appendix B: Tools and Information Sources

Tools and Information Sources by Organization

Resource Name and Link	Topic(s) Covered
O&R Links	
O&R: Hosting Capacity – https://www.oru.com/en/business-partners/hosting-capacity	• Advanced Forecasting • Electric Vehicle Integration • Data Sharing • Hosting Capacity • Beneficial Locations for DERs and NWAs
O&R: Business Opportunities – https://www.oru.com/en/business-partners/business-opportunities	• Beneficial Locations for DERs and NWA
O&R: Non-Wires Alternatives – https://www.oru.com/en/business-partners/business-opportunities/non-wires-alternatives	• Beneficial Locations for DERs and NWA
O&R: Applying for Private Generation Interconnection – https://www.oru.com/en/save-money/using-private-generation-energy-sources/applying-for-interconnection	• DER Interconnections
O&R: Community Distributed Generation – https://www.oru.com/en/save-money/using-private-generation-energy-sources/solar-energy/community-distributed-generation	• Billing and Compensation
O&R: Request and Share Energy Data – https://www.oru.com/en/accounts-billing/share-energy-usage-data	• Data Sharing
O&R: Electric Vehicles – https://www.oru.com/ev	• Electric Vehicle Integration
O&R: AMI – https://www.oru.com/en/our-energy-future/our-energy-projects/smart-meters	• Advanced Metering Infrastructure
O&R: Energy Storage – https://www.oru.com/en/our-energy-future/our-energy-projects/energy-storage	• Energy Storage Integration
O&R: Cyber Security Policy – https://www.oru.com/en/privacy-statement	• Data Sharing
O&R: EE Incentives – https://www.oru.com/en/save-money/rebates-incentives-credits/new-york-customers	• Clean Heat Integration • Energy Efficiency Integration
O&R: Clean Heating and Cooling – https://www.oru.com/en/our-energy-future/clean-heating-and-cooling	• Clean Heat
My ORU Store – https://www.myorustore.com	• Energy Storage • Energy Efficiency Integration • Clean Heat Integration

Resource Name and Link	Topic(s) Covered
	• Data Sharing • Advanced Metering Infrastructure
O&R: 2016 MCOS Study – https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={6010C7D8-0954-453A-A9DD-35C994A5E906}	• Beneficial Locations for DERs and NWA
Assorted Federal and New York Government Links	
Federal: IIJA – https://www.congress.gov/bill/117th-congress/house-bill/3684/text	• Various topics throughout DSIP chapters
Federal: IRA – https://www.congress.gov/bill/117th-congress/house-bill/5376/text	
Federal: FERC Order 2222 – https://www.ferc.gov/media/ferc-order-no-2222-fact-sheet	
Federal: FERC Order 841 – https://www.ferc.gov/media/order-no-841	
New York Senate: CLCPA – https://www.nysenate.gov/legislation/bills/2019/s6599	
New York: AREGCBA Full Legislation – https://www.budget.ny.gov/pubs/archive/fy21/exec/30day/ted-artvii-newpart-jjj.pdf	
New York: CAC Scoping Plan – https://climate.ny.gov/resources/scoping-plan/	
New York: DAC Criteria – https://climate.ny.gov/resources/disadvantaged-communities-criteria/	
NY Senate: UTEN and Jobs Act – https://www.nysenate.gov/legislation/bills/2021/s9422	• Clean Heat
NY Senate: Light-Duty and MHD ZEV goals – https://www.nysenate.gov/legislation/bills/2021/S7788	• Electric Vehicle Integration
NY Senate: Electrification of School Buses – https://www.nysenate.gov/legislation/bills/2021/S8006	• Electric Vehicle Integration
New York State's Standardized Interconnection Requirements website – https://dps.ny.gov/distributed-generation-information	• Grid Operations • Energy Storage • Billing and Compensation • DER Interconnections
Department of Public Service Commission File Search – https://documents.dps.ny.gov/public/common/search.html	• Various topics throughout DSIP chapters
NYSERDA: NY NEVI Program – https://www.nyserda.ny.gov/All-Programs/Charging-Station-Programs/National-Electric-Vehicle-Infrastructure-Program	• Electric Vehicle Integration

Resource Name and Link	Topic(s) Covered
NYSERDA: IEDR Resources – https://www.nyserda.ny.gov/all-programs/integrated-energy-data-resource-program	• Data Sharing
NYSERDA: PONs – https://www.nyserda.ny.gov/Funding-Opportunities/Current-Funding-Opportunities	• Grid Operations • Electric Vehicle Integration • Energy Efficiency Integration and Innovation • DER Interconnections
NYSERDA: Solar Guidebook – https://www.nyserda.ny.gov/All-Programs/Clean-Energy-Siting-Resources/Solar-Guidebook	• General guide for solar programs discussed throughout the DSIP
NYSERDA: EvaluateNY tool – https://atlaspolicy.com/evaluateny/	• Electric Vehicle Integration
Joint Utilities of NY Links	
Joint Utilities of New York Website – https://jointutilitiesofny.org/	• Various topics throughout DSIP chapters
Joint Utilities: Regulatory and CLCPA Resources – https://jointutilitiesofny.org/regulatory-resources	
Joint Utilities: Utility-Specific NWA Opportunities – http://jointutilitiesofny.org/utility-specific-pages/nwa-opportunities/	• Beneficial Locations for DERs and NWS
Joint Utilities: EV Readiness Framework – https://jointutilitiesofny.org/electric-vehicles	• Source for JU-level information EV programs in New York
Other Links	
New York: NYISO Wholesale Market – https://www.nyiso.com/markets	• Various topics throughout DSIP chapters
NYS Clean Heat Resources: Participating Contractors – https://cleanheat.ny.gov/contractor-resources/	• Clean Heat
NYISO: DER & Aggregation Participation Model – https://www.nyiso.com/der-aggregations	• Grid Operations
IEEE: Standards for Interconnection – https://ieeexplore.ieee.org/document/8332112 **IEEE Application Guide for IEEE Std 1547™-2018 –** https://ieeexplore.ieee.org/document/10534228	• Grid Operations • Energy Storage • DER Interconnections

Appendix C: Acronyms

Acronym	Description
ACOS	Allocated Cost of Service
ADMS	Advanced Distribution Management System
AEIC	Association of Edison Illuminating Companies
AHJ	Authorities Having Jurisdiction
AMI	Area Median Income (Energy Efficiency)
AMI	Advanced Metering Infrastructure
API	Application Program Interface
AREGCBA	Accelerated Renewable Energy Growth and Community Benefit Act
ASHP	Air Source Heat Pump
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ATWG	Advanced Technology Working Group
Auto-DLM	Auto-Dynamic Load Management
AWHP	Air-to-Water Heat Pump
BCA	Benefit Cost Analysis
BDI	Business Direct Install
BESS	Battery Energy Storage System
BEUP	Building Energy Usage Portal
BEV	Battery Electric Vehicle
BTM	Behind the Meter
BYOT	Bring Your Own Thermostat
C&I	Commercial and Industrial
CAC	Climate Action Council
CAIDI	Customer Average Interruption Duration Index
CARE	Customer Analytics, Reporting, and Engagement
CBC	Customer Benefits Charge
CC&B	Customer Care and Billing
CCA	Community Choice Aggregation
CCB	Customer Care and Billing
ccASHP	Cold Climate Air Source Heat Pump
CCRP	Climate Change Resilience Plan
CCVS	Climate Change Vulnerability Study
CCWG	Customer Consent Working Group
CDD	Cooling Degree Days
CDG	Community Distributed Generation
CECONY	Consolidated Edison Company of New York, Inc.
CEII	Critical Energy Infrastructure Information
CESIR	Coordinated Electric System Interconnection Review
CGPP	Coordinated Grid Planning Process
CHP	Combined Heat and Power

Acronym	Description
CJWG	Climate Justice Working Group
CLCPA	Climate Leadership and Community Protection Act
CMCP	Commercial Managed Charging Program
CRIS	Capacity Resource Interconnection Service
CRWG	Climate Resilience Working Group
CSRP	Commercial System Relief Program
CVR	Conservation Voltage Reduction
DA	Distribution Automation
DAC	Disadvantaged Community
DAF	Data Access Framework
DAP	Data Access Platform
DCC	Distribution Control Center
DCFC	Direct Current Fast Charge
DCR	Demand Change Rebate
DEC	Department of Environmental Conservation
DER	Distributed Energy Resource
DERCoT	DER Commissioning Toolkit
DERIH	DER Interconnection Handbook
DERMS	Distributed Energy Resource Management System
DEW	Distribution Engineering Workstation
DFOTF	Distribution Feeder of the Future
DG	Distributed Generation
DIY	Do-It-Yourself
DLCP	Direct Load Control Programs
DLM	Dynamic Load Management
DLRP	Distribution Load Relief Program
DMV	Department of Motor Vehicles
DOE	Department of Energy
DPS	Department of Public Service
DR	Demand Response
DRI	Distributed Resource Integration (Group)
DRIVE	Distribution Resource Integration and Value Estimation
DRV	Demand Reduction Value
DSA	Data Security Agreement
DSCADA	Distribution Supervisory Control and Data Acquisition
DSIP	Distributed System Implementation Plan
DSM	Demand Side Management
DSO	Distribution System Operator
DSP	Distributed System Platform
DWG	Design Working Group
EAM	Earning Adjustment Mechanism
EAP	Energy Affordability Program

Acronym	Description
ECI	Electric Car Insider
EDAP	Enterprise Data Analytics Platform
EE	Energy Efficiency
EEDM	Energy Efficiency Demand Management
eGIS	Enterprise-wide Geographic Information System
EGPC	Effective Grounding & Protection Coordination
EIA	Energy Information Administration
EIAT	Electronic Infrastructure Assessment Tool
EJ	Environmental Justice
EJWG	Environmental Justice Working Group
EMS	Energy Management System
EMT	Electromagnetic Transient
EoH	Electrification of Heating
EoNH	Electrification of Non-Space Heating
EPPAC	Energy Policy Planning Advisory Council
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
EPS	Electric Power Systems
ERP	Emergency Response Plans
ERV	Energy Recovery Ventilator
ESCO	Energy Service Companies
ESPM	ENERGY STAR® Portfolio Manager®
ESSA	Energy Storage Service Agreement
EV	Electric Vehicle
EVSE	Electric Vehicle Supply Equipment
FAS	Fleet Assessment Services
FERC	Federal Energy Regulatory Commission
FICS	Flexible Interconnection Capacity Solutions
FLISR	Fault Location, Isolation, and Service Restoration
FTM	Front of the Meter
GBC	Green Button Connect
GERL	Grid Edge Research Lab
GHG	Greenhouse Gas
GIS	Geographic Information System
GOTF	Grid of the Future
GSHP	Ground Source Heat Pump
HBA	High Bill Alert
HC Map	Hosting Capacity Map
HEA	Home Energy Analysis
HER	Home Energy Report
HPWH	Heat Pump Water Heater
HRV	Heat Recovery Ventilator

Acronym	Description
HVAC	Heating, Ventilation, and Air Conditioning
ICAP	Installed Capacity
ICE	Internal Combustion Engine
IEDR	Integrated Energy Data Resource
IEEE	Institute of Electrical and Electronics Engineers
IFPSM	Integrated Forecast Pathway Sensitivity Model
IIJA	Infrastructure Investment and Jobs Act
IOAP	Interconnection Online Application Portal
IOU	Investor-Owned Utility
IPPNY	Independent Power Producers of New York
IPV	Initial Public Version
IPWG	Interconnection Policy Work Group
IRA	Inflation Reduction Act
ISBM	Innovative Storage Business Model
ISO	Independent System Operator
ISWG	Information Sharing Working Group
IT	Information Technology
ITWG	Interconnection Technical Work Group
JU	Joint Utilities
L2	Level 2
LCF	Low-Carbon Fuels
LDES	Long Duration Energy Storage
Li-Ion	Lithium Ion (Battery)
LMI	Low and Moderate Income
LMTIP	Load Management Technology Incentive Program
LPP	Leak-Prone Pipe
LSRV	Locational System Relief Value
LT&D	Local Transmission and Distribution
LTC	Load Tap Changer
M&C	Monitoring and Control
MARS	Modular Multi-Application Multi-Resolution Sensor Fusion Optimization Architecture for Transmission System Operation (Project)
MCOS	Marginal Cost of Service
MDMS	Meter Data Management System
MHD	Medium and Heavy Duty
MMBtu	Million British Thermal Units
MOABS	Motor Operated Air Break Switches
MOU	Memorandum of Understanding
MRP	Make-Ready Program
MUD	Multi-Unit Dwelling
MVP	Minimum Viable Product
MW	Megawatt

Acronym	Description
NEEP	Northeast Energy Efficiency Partnership
NEM	Net Energy Metering
NEMS	Net Energy Metering Successor
NENY	New Efficiency New York
NERC	North America Electric Reliability Corporation
NEVI	National Electric Vehicle Infrastructure
NPA	Non-Pipe Alternative
NREL	National Renewable Energy Laboratory
NWA	Non-Wires Alternative
NYISO	New York Independent System Operator
NYPA	New York Power Authority
NYS	New York State in the context of New York State Clean Heat Program
NYSERDA	New York State Energy Research and Development Authority
O&R	Orange and Rockland Utilities, Inc.
OMS	Outage Management System
PHEV	Plug-In Hybrid Electric Vehicle
PIF	Policy Integration Forecasting
PII	Personally Identifiable Information
PIR	Phase-In Rates
PLSF	Peak Load Shape Factor
PON	Program Opportunity Notice
PPI	Per-Plug Incentive
PQ	Power Quality
PSC	Public Service Commission
PSL	Public Service Law
PTO	Permission to Operate
PV	Photovoltaic
R&D	Research and Development
RC	Remote Crediting
REACH	Renewable Energy Access and Community Help
RECO	Rockland Electric Company
REV	Reforming the Energy Vision
RFP	Request for Proposal
RLT	REV Leadership Team
RNM	Remote Net Metering
RPC	Regulatory Policy Committee
RTU	Remote Terminal Unit
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SCADA	Supervisory Control and Data Acquisition
SCC	Smart Charge Commercial
SCNY	Smart Charge New York

Acronym	Description
SCT	SmartCharge Tech (EV-related)
SCT	Societal Cost Test
SD-WAN	Software-Defined Wide Area Network
SGS	Smart Grid Solutions
SEEP	System Energy Efficiency Plan
SEM	Strategic Energy Management
SIR	Standardized Interconnection Requirements
SIWG	Smart Inverter Initiative Working Group
SME	Subject Matter Expert
SMI	State Median Income
SOC	State of Charge
S-SFA	Statewide Solar for All
SSO	Single Sign-On
T&D	Transmission and Distribution
TAM	Total Addressable Market
TBtu	Trillion British thermal units
Term-DLM	Term-Dynamic Load Management
TOU	Time of Use
TRM	Technical Resource Manual
TV	Temperature Variable
UCG	Utility Coordination Group
UDR	Utility Dispatch Rights
UER	Utility Energy Registry
UIS	Utility Integrated Storage
UotF	Utility of the Future
USIS	Utility System Interconnection Study
UTEN	Utility Thermal Energy Network
VDER	Value of DER
VEIC	Vermont Energy Investment Corporation
VPP	Virtual Power Plant
VS	Value Stack
VVO	Volt VAR Optimization
WAMI	Weekly Advanced Metering Infrastructure
WAP	Weather Adjusted Peak
WDS	Wholesale Distribution Service
WMS	Workforce Management System
WN	Weather Normalized
WVS	Wholesale Value Stack
ZEV	Zero Emissions Vehicle

Appendix D: List of Tables and Figures