JOINT UTILITIES
OF NEW YORK

Electric Vehicle Supply Equipment

Summary of September 28, 2017 Stakeholder Meeting

September 28 Stakeholder Session

- The stakeholder session agenda included:
  - Reviewing outcomes of 2016 stakeholder engagement discussions
  - An overview of the 2017 implementation plan
  - Updates on JU working group collaboration efforts
  - Updates on utility-specific engagement activities with local governments
  - Reviewing utility-specific demonstration and pilot projects
  - Status of the development of the EV Readiness Framework
- The following organizations provided a presentation on EVSE related issues:
  - Charge Point
  - Electrification Coalition
  - EVgo
  - NYC Mayor's Office of Sustainability
  - NYSERDA
- The following slides provide an overview of the discussion during the stakeholder session and supplement information that was presented by stakeholders

Key Stakeholder Feedback from September 28 Session

Stakeholder Input	Discussion Points	Next Steps
It was suggested that since last year's JU EVSE stakeholder sessions, EVs are much more of a "now" issue rather than a "when" issue	• Another participant reinforced the 'here and now' issue and reflected that things are moving a lot faster than predicted two years ago	**Closed** – The JU agree and will continue to work internally and with stakeholders to advance EVSE readiness

Key Stakeholder Feedback from September 28 Session

Stakeholder Input	Discussion Points	Next Steps
Some stakeholders requested additional time outside of the stakeholder session to have focused discussions on interoperability and standardization	• Some stakeholders raised the point that this is an important area to discuss and the JU could play a potentially important role in advancing and supporting efforts moving forward • The JU agree that this is an important area of the Readiness Framework	**OPEN** – The JU welcome further discussion with stakeholders offline, either through email or 1v1 calls. Please email info@jointutilitiesofny.org with your interest.
Stakeholders suggested that JU should continue to strengthen their roles in education and outreach efforts	• Utilities can play an important role in raising awareness of locations of charging stations. The role of utilities to communicate where the stations are could be a useful pilot or demonstration project to be completed by the JU • Utilities, automakers, and the industry need to work together and separately on their EV marketing efforts • There was agreement among the group that uniformed communication from the JU would be valuable to the public	**OPEN** – The JU agree with stakeholders on the importance of education and outreach and will continue to build out their efforts, while soliciting feedback from a diverse group of stakeholders to help inform their efforts

Next Steps for the EVSE Stakeholder Group

- **Second Stakeholder Session – Q1, 2018**
  - Review current draft of EV Readiness Framework which will incorporate stakeholder comments from September 28, 2017 session
  - Provide a preview of implementation efforts moving into 2018, including utility specific initiatives guided or informed by the EV Readiness Framework
  - Solicit feedback from stakeholders regarding EV Readiness Framework and planned 2018 initiatives

JOINT UTILITIES OF NEW YORK

Please visit www.jointutilitiesofny.org or
email info@jointutilitiesofny.org with any additional feedback or questions

Appendix

Guiding Principles for Utility Involvement in EVSE

SDSIP pg. 115: *Through a robust and collaborative stakeholder engagement process, the Joint Utilities developed the following Guiding Principles for Utility Involvement in EVSE, which will form the basis of the joint EV Readiness Framework:*

- *The Joint Utilities will facilitate EVSE growth and encourage EV adoption in New York by increasing their collective readiness for future market development;*
- *The resulting EV Readiness Framework will be aligned with and responsive to New York initiatives for advancing the adoption of EVs;*
- *The development of the EV Readiness Framework will be directed by federal, state, and Commission policies for advancing the adoption of EVs;*
- *The Joint Utilities and each utility are stakeholders that must collaborate to support the achievement of state and regional EV market objectives;*
- *The utilities will seek to maximize long-term net benefits to utility customers by enabling the improved asset utilization that EVs offer, while mitigating incremental peak load impacts and supporting local, state, regional, and federal energy policy goals; and*
- *For the near-term, demonstration and pilot projects will be the primary means for the utilities, in concert with stakeholders, to develop and test different EVSE deployment approaches.*

JOINT UTILITIES OF NEW YORK

http://jointutilitiesofny.org/wp-content/uploads/2016/10/3A80BFC9-CBD4-4DFD-AE62-831271013816.pdf

Stakeholder Presentations:

Ben Prochazka, Electrification Coalition

Ben Mandel, NYC Mayor's Office of Sustainability

Kevin Miller, ChargePoint

Terry O'Day, eVgo

Adam Ruder, NYSERDA

Leading the Charge

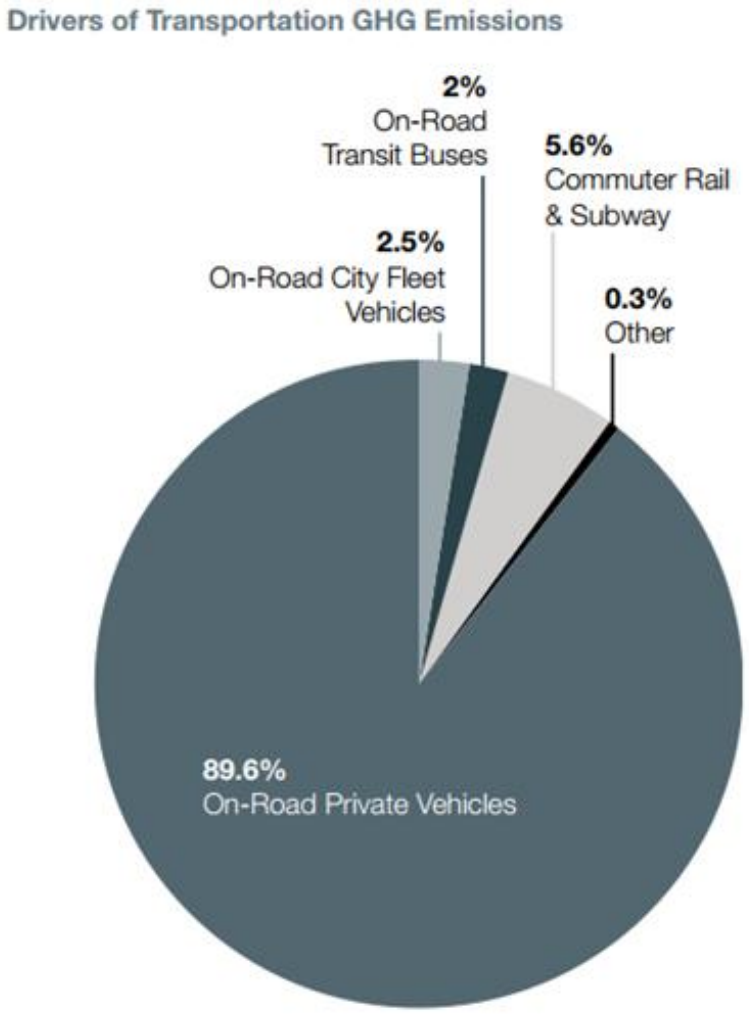
Transportation Electrification in New York City

Benjamin Mandel
Senior Policy Advisor, Energy Regulatory Affairs
NYC Mayor's Office of Sustainability

Joint Utilities EVSE Engagement Group
September 28, 2017

NYC Mayor's Office of Sustainability

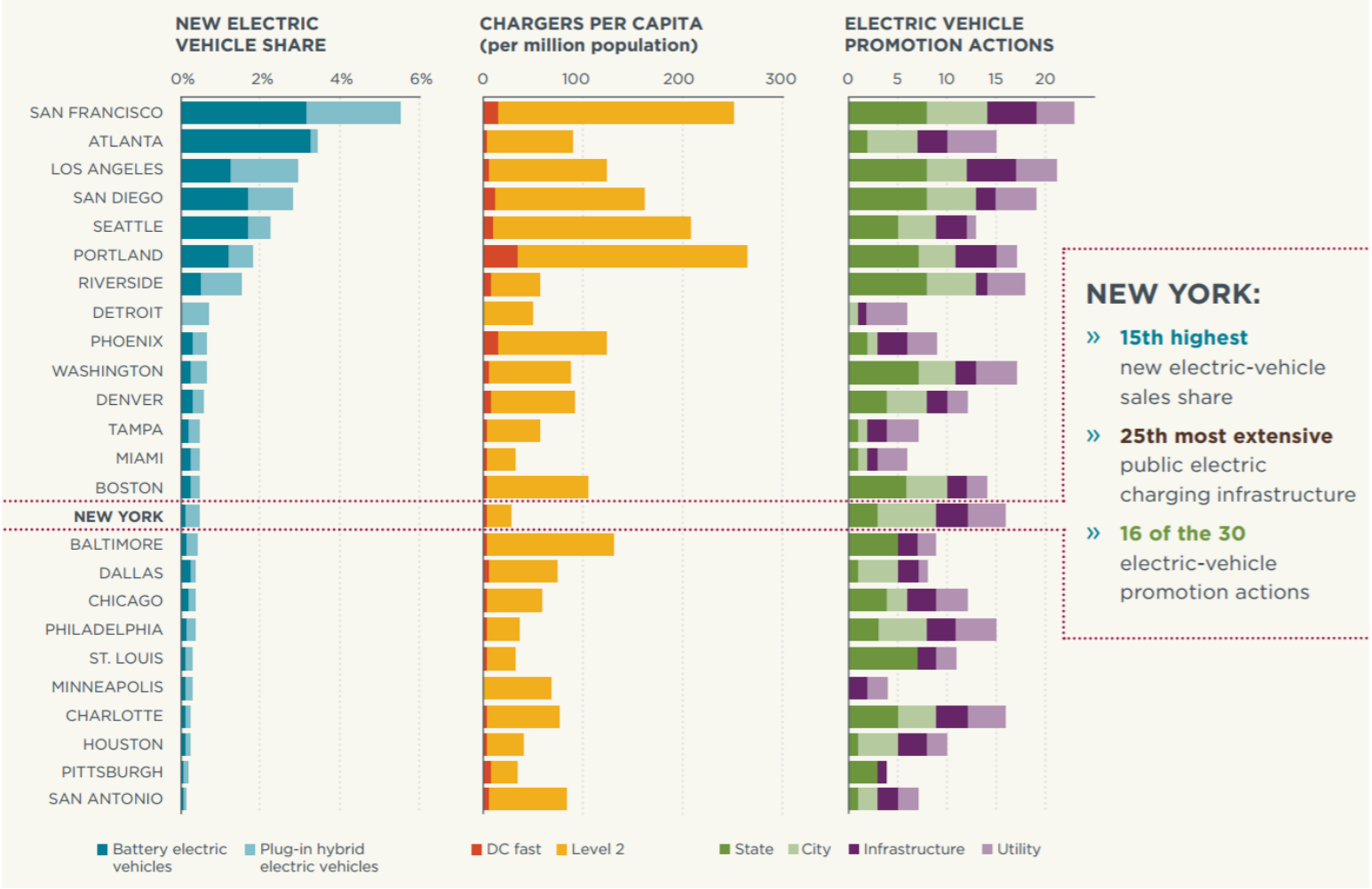
Transportation currently accounts for ~30% of NYC's GHG emissions



- NYC must reduce quantity and improve GHG efficiency of private vehicle trips
  - Shift more trips (80%) to sustainable modes (walking, biking, transit)
  - Improve efficiency of transportation networks (passenger + freight)
  - ***Transition remaining vehicle trips to zero- and near-zero emissions technologies and fuels***
    - Supporting infrastructure is critical, particularly with lack of dedicated private and workplace charging
    - Proactive investments in infrastructure necessary to enable necessary levels of uptake

Mayor's Office of Sustainability

NYC lags behind other large metro areas for public EVSE presence



Credit: International Council on Clean Transportation

Mayor's Office of Sustainability

NYC Clean Fleet is the City's blueprint for fleet sustainability

LIGHT-DUTY

- Phase in **2000 EV sedans** to give NYC largest municipal EV fleet in U.S.
  - April 2016: All nonemergency sedan purchases shall be plug-ins
  - July 2017: Surpassed 1000 EVs in fleet

MEDIUM/HEAVY-DUTY

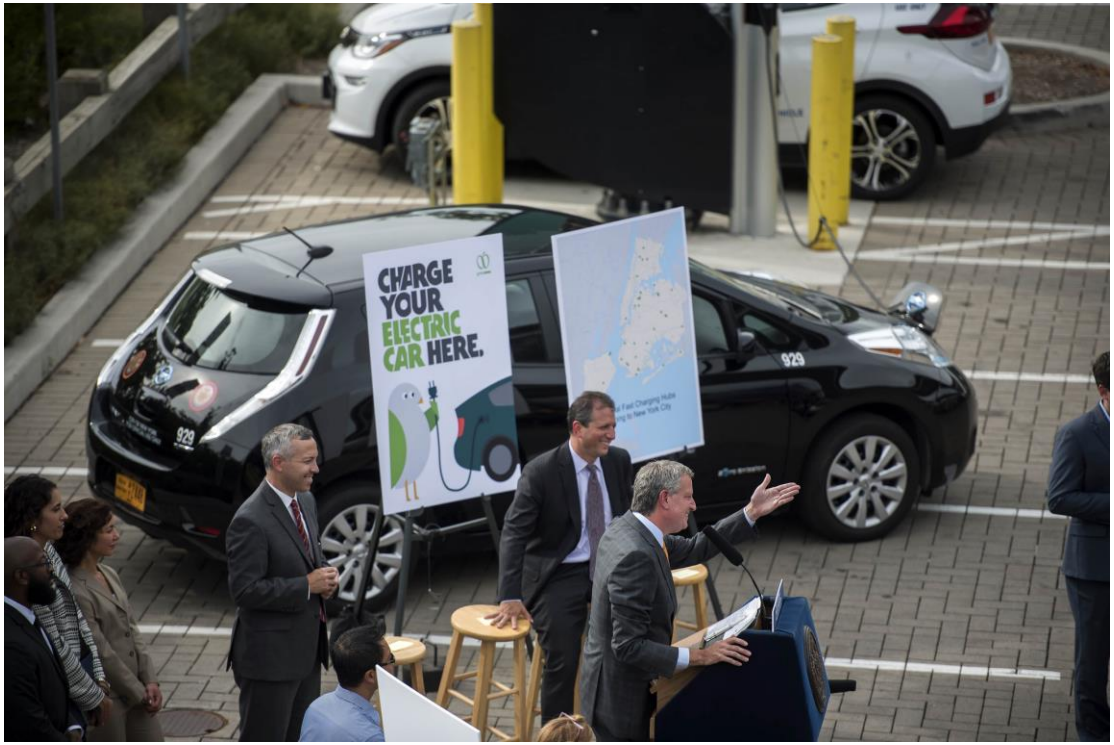
- Expand use of **anti-idling, hybrid, and stop-start technologies**
- Increase use of **diesel alternatives** (biodiesel, CNG, renewable diesel)
- Scale-up **cutting-edge technologies** (EV batteries, hydrogen, others)

Credit: NYC Mayor's Office

Mayor's Office of Sustainability

The City is working to enable greater private EV adoption

- April 2017: **20% plug-in share** of new vehicle registrations in NYC by 2025
  - $10 million of City capital to expand access to fast charging
- September 2017: one **fast charge hub in each borough** in 2018 (up to 20 stalls each)
  - Mix of City-owned and utility-owned property
  - 50 fast charge locations (4-20 stalls) by 2020



Credit: Ed Reed/Mayoral Photography Office

Mayor's Office of Sustainability

Collaborating for greater EV readiness

ONGOING

- NYC Building Code requires **conduit for L2 EVSE in 20% of new spaces** (no wiring/capacity requirement)
- 5 **fast charge hubs** in 2018, 50 by 2020
- NYC DOT collaborating with Con Edison on **100+ on-street charging spaces** (2018)

NECESSARY STEPS FOR EV READINESS

- City: will review adequacy of **codes and permitting** process
- Utilities: should assess role of **rate design** in near-term adoption
  - Can utility pilots innovate around barriers (e.g., demand charges)?
- **Public-private partnership**:
  - Determine proper roles, **distribution of costs/benefits** for municipality, utility, and industry
  - Launch **public-facing EV resource page**

Mayor's Office of Sustainability

Benjamin Mandel
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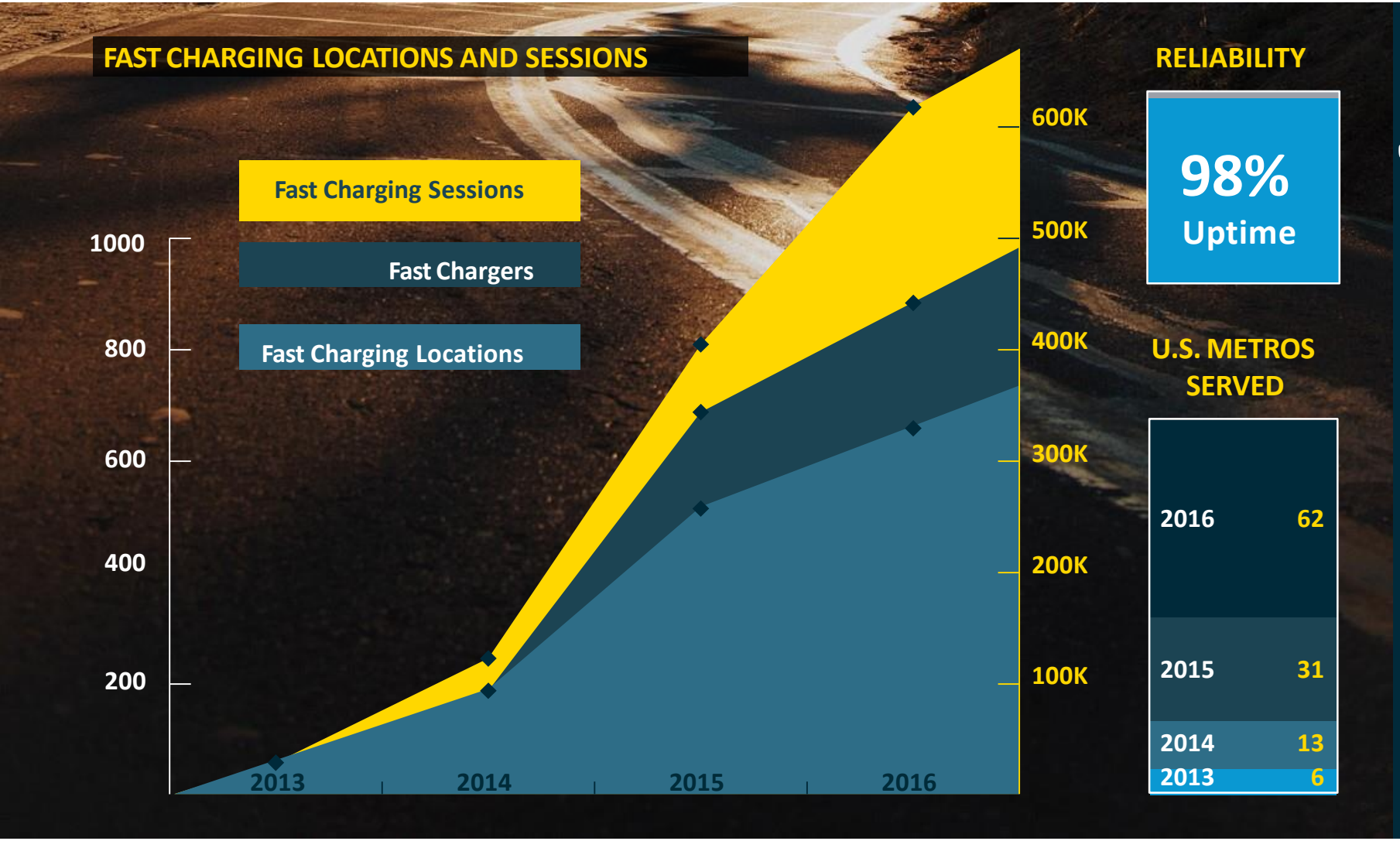
Credit: NYC Dept of Citywide Admin Services

Sept 27, 2017

Stakeholder Engagement Session

Joint Utilities of New York

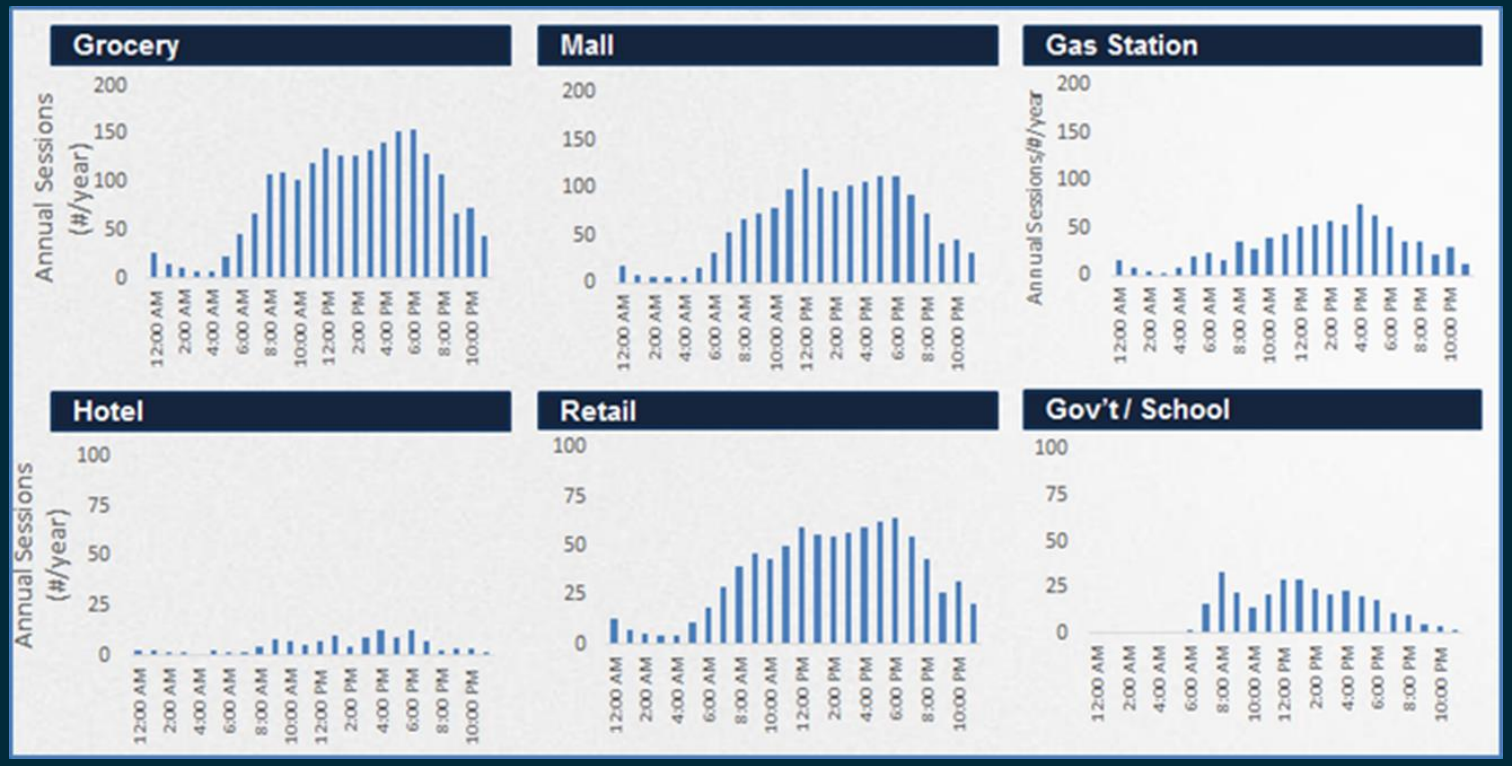
EVgo


FAST CHARGING LOCATIONS AND SESSIONS
Fast Charging Sessions
Fast Chargers
Fast Charging Locations
1000
800
600
400
200
600K
500K
400K
300K
200K
100K
2013
2014
2015
2016
RELIABILITY
98%
Uptime
U.S. METROS SERVED
2016 62
2015 31
2014 13
2013 6
By The Numbers

22 Freedom Stations in New York

Freedom Stations

Load Profiles of Public Charging

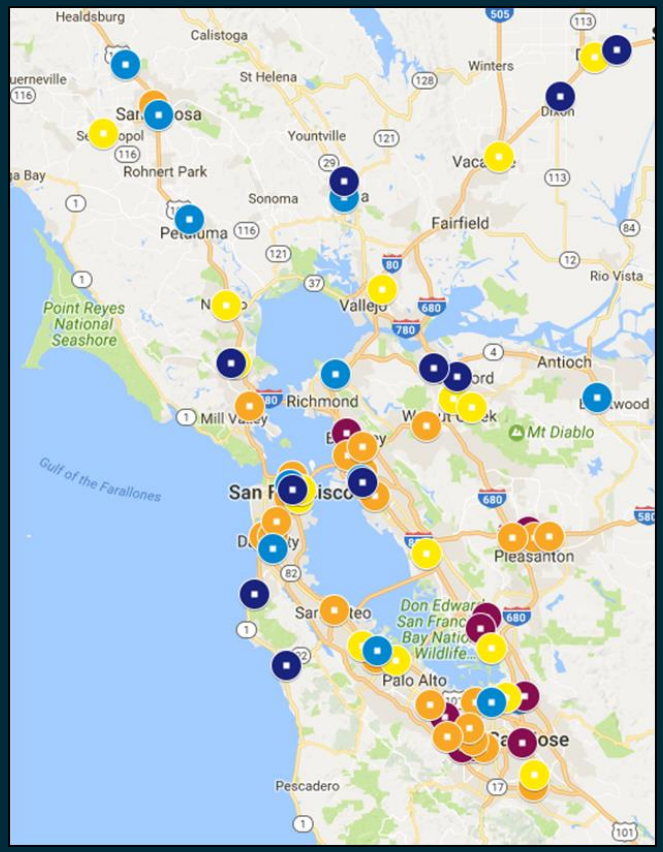


EVgo

Network Utilization

Legend: Avg. Flow Min/Site/Day

- Very high (>640/day)
- High (320-640/day)
- Medium (160-320/day)
- Low (80-160/day)
- Very low (<80/day)



- Providing a network inherently means that some sites will be high utilization and some will be low
- *Even the low utilization sites are important*

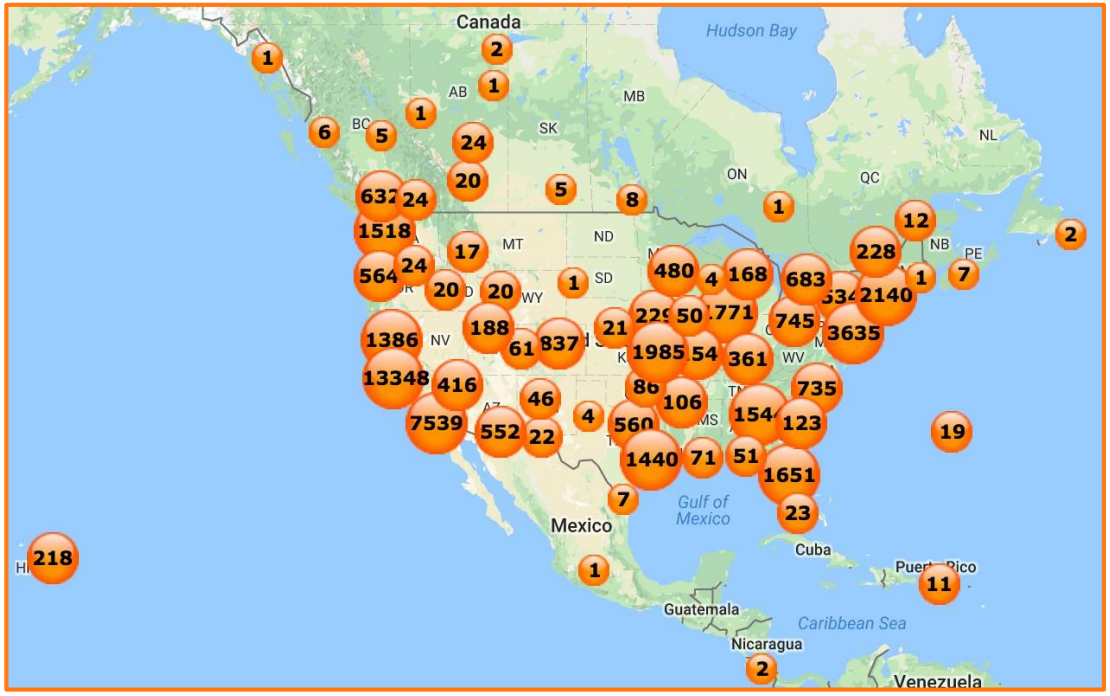
Joint Utilities of New York

9/28 EVSE Stakeholder Session

Kevin George Miller

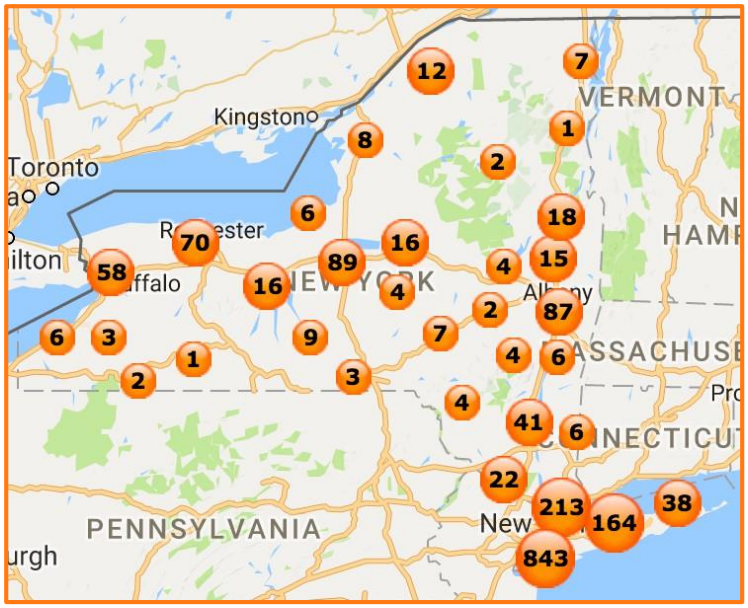
Director, Public Policy

The ChargePoint Network



ChargePoint's network features over 40,000 charging spots

ChargePoint Stations in New York



- ~1,800 charging spots
- Site hosts include:
  - Retail (Tanger, Kohl's, Key Food)
  - Workplaces (Verizon, PepsiCo)
  - Universities (SUNYs, Rensselaer Polytech)
  - Hospitals (Orange Regional, Montefiore)
  - Hotels (Holiday Inn, Turf Hotels)
  - State/Quasi (NYSERDA, PANYNJ)
  - Munis (Schenectady, Rochester, NYC)
  - Parking (Edison ParkFast)
  - Residential (SFH and MUD)
  - Commercial RE (SI Green, Columbia Prop.)

Stations for Every Situation

Single Family Home

Home
Level 2

Multi-Family, Fleet

CPF25
Level 2

Commercial/Municipal, Mixed Use

CT4000
Level 2

On-Route, Commercial

CPE100
24kW

CPE200
50kW

CPE250 Express Plus
62.5kW 400kW

Fast DC Chargers *Ultra-fast DC Chargers*

Regional Update: EVSE Regulation & Policy

- **Regulatory**
  - **OH**: Settlement by AEP Ohio, environmental groups, & EVCA for rebate-based program
  - **CA**: SB 350 filings included alternatives to traditional demand charge rate structures
  - **MA**: Eversource (make ready) and National Grid (rebate) programs before DPU.
  - **RI**: Power Sector Transformation proceeding currently considering role for utility.
  - **MD**: PC44 collaborative process to include substantive stakeholder feedback on utility EVSE programs
  - **PA**: Docket on kWh Pricing docket
  - **MN**: EV-Only TOU Rate Pilots
  - **MI**: Technical Conference on Utility Role
- **Policy**
  - **MA**: ZEV Bill adopted (Ch. 446 of the Acts of 2016), including:
    - "Publicly available charging stations" required to accept multiple forms of payment and prevented them from requiring subscription/membership for use; site hosts that aren't solely offering EV services may restrict use of public spaces
    - Electric utilities allowed to submit proposals to DPU for cost recovery provided that program is (1) in the public interest, (2) meets a need regarding the advancement of EVs, and (3) does not hinder the development of the competitive EV charging market
  - **National**: Volkswagen Appendix D
  - **Various**: Adoption of EV Ready Building Codes

Recommendations for Readiness Framework

- **Include Guiding Principles for Sustainable & Scalable Market Growth**
  - Enable *customer choice* in charging equipment and services
  - Allow for *continuing innovation* by avoiding a single RFP or customized utility requirements
  - *Leverage available private funding* and make sure site hosts have “skin in the game”
  - Support flexibility for *site host to control access and pricing* for charging services
  - *Avoid island networks* or regulatory boundaries for EV drivers
  - Encourage *smart charging* behaviors and enable grid benefits
- **Triage Key Issues to be Addressed in Standalone Proceeding**
  - Identify clear criteria for evaluating utility EV charging proposals quickly & fairly
  - Pilot alternatives to traditional demand charge structures for **corridor** and **fleet** fast charging
  - Overcome barriers to economical & accurate smart residential charging
  - Support equitable access to clean transportation through MaaS electrification pilots

Thank You

For more information, please visit http://chargepoint.com

Electrification Coalition

Rochester EV Accelerator Community

Electrification Coalition

ELECTRIFICATION COALITION

The Electrification Coalition (EC) is a nonpartisan, not-for profit group of business leaders committed to promoting policies and actions that facilitate the deployment of electric vehicles on a mass scale in order to combat economic, environmental, and national security dangers caused by our dependence on oil

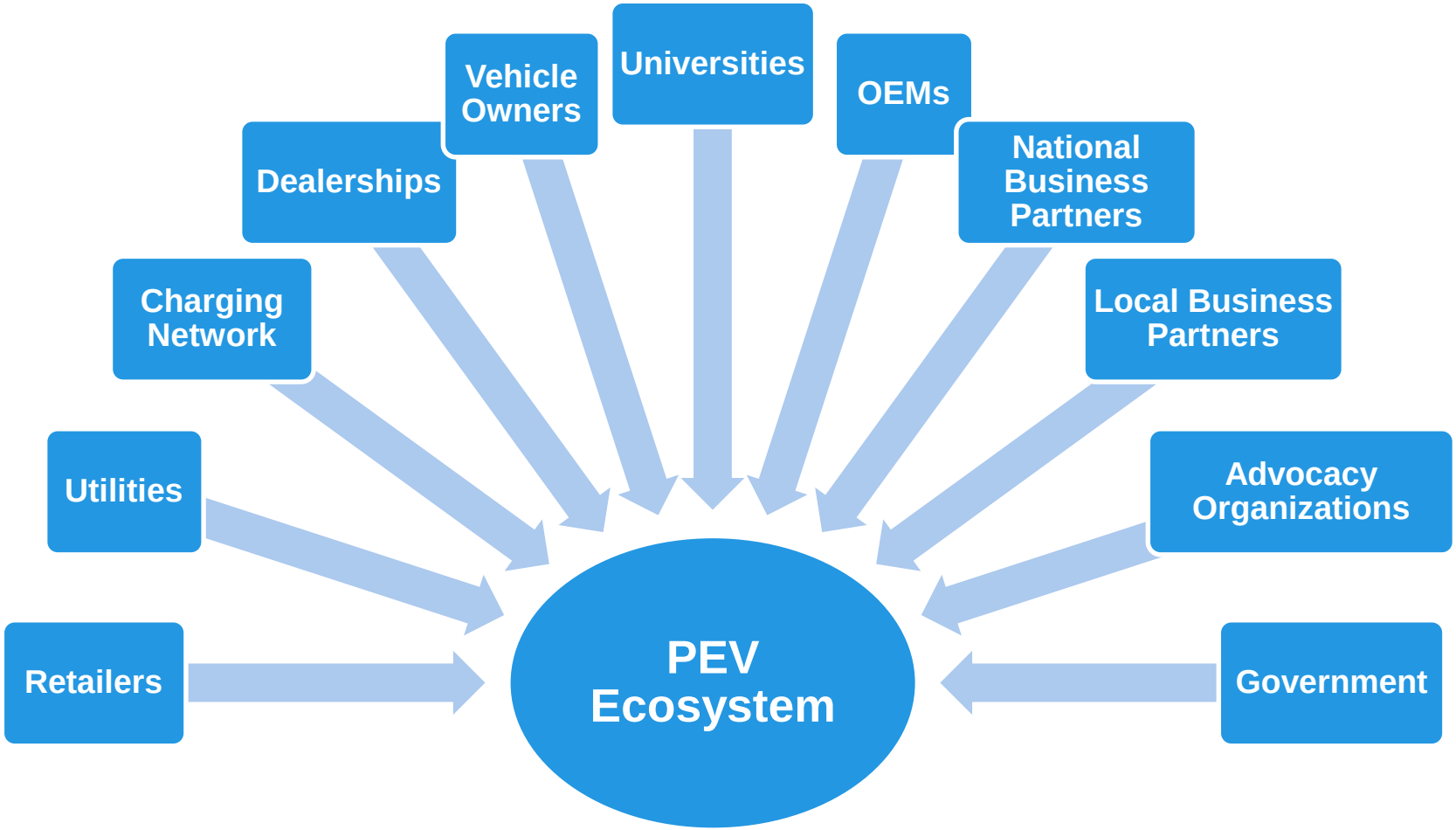

92% OF AMERICA'S
TRANSPORTATION IS
MONOPOLIZED BY OIL

The Accelerator Community Concept

Creating a replicable and scalable model as a roadmap for other communities across the nation.

EV Readiness	• Charging infrastructure, codes, regulations, support services, time of use.
EV Education	• Existing networks, events, institutional opportunities, speakers panel, cost/ROI
EV Experience	• Car library, car share, rental cars, ride along, corporate educational events, campus programs.
Fleet	• State, city, medium duty, light duty, big and small.
Consumer Purchase	• OEM priority, best pricing, dealer coordination, incentives, dealer training.

EV Ecosystem

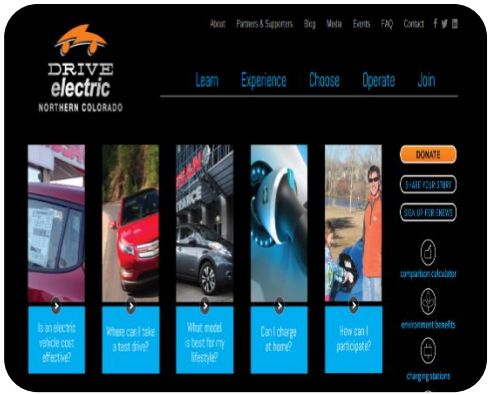


EC's First EV Accelerator Community

Drive Electric Northern Colorado (DENC)

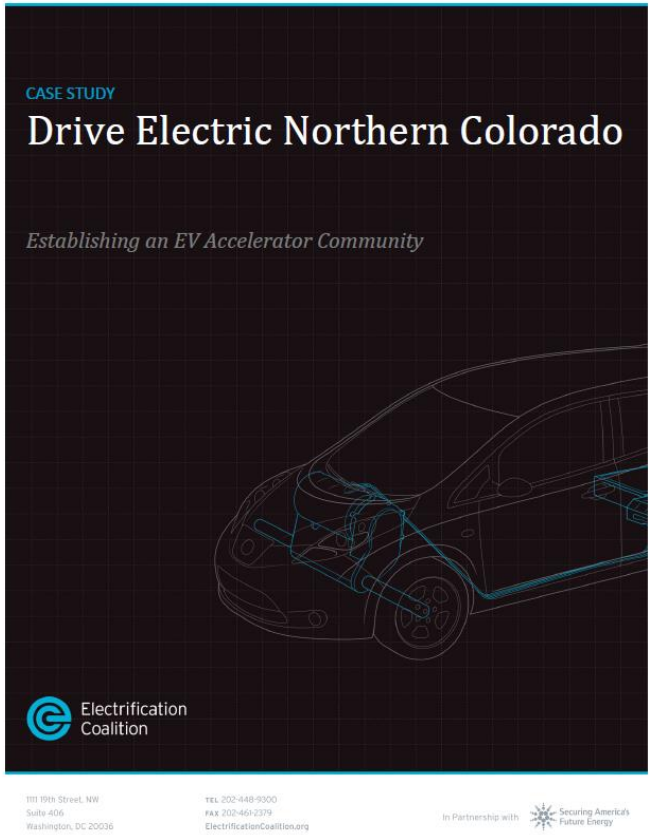
DRIVE electric NORTHERN COLORADO
Let's Charge Our Community!
DriveElectricNoCo.org

Partners include: the City of Fort Collins, the City of Loveland, Colorado State University, Odells Brewery, the Fort Collins Downtown Business Association, Colorado auto dealerships, and more.

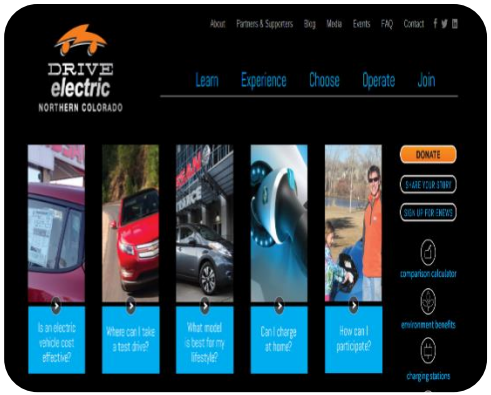


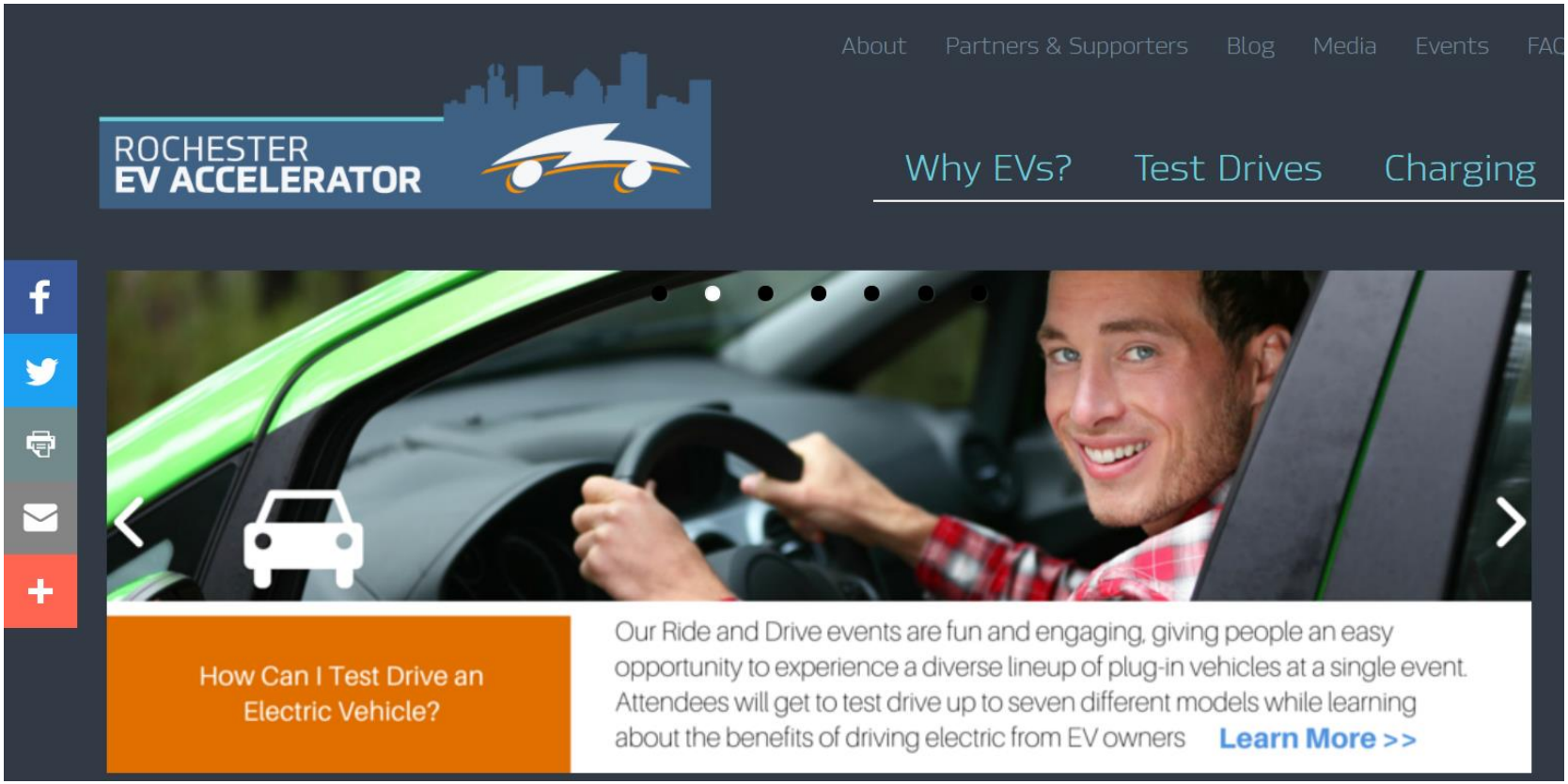
EC's First EV Accelerator Community

Drive Electric Northern Colorado (DENC)



DRIVE electric
NORTHERN COLORADO
Let's Charge Our Community!
DriveElectricNoCo.org

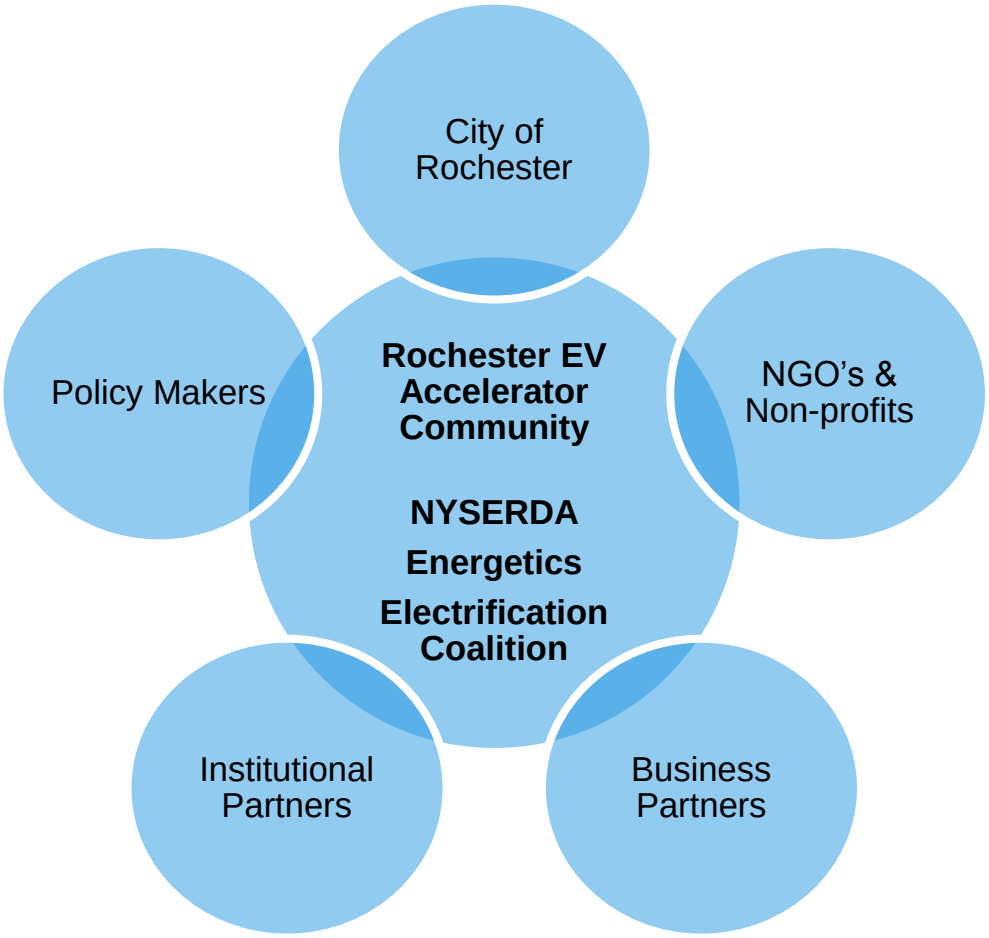




The Rochester Electric Vehicle Accelerator (ROC EV) is a community-wide initiative aimed at achieving widespread adoption of plug-in EVs through the creation of an engaged ecosystem of stakeholders who can accelerate the adoption of EVs.

ROC EV – An Electric Vehicle Movement

A Collaborative Model



- Proves concept
- Drives to scale
- Creates a national model
- Supports regional/local vision
- Reinforces national leadership

Issues/Core Strategies

Community Readiness	• **Supporting mechanisms must be established to create EV readiness.** Charging infrastructure, codes, regulations, policy, support services, time of use.
Consumer Education	• **Consumers must be engaged to support necessary behavior change.** Existing networks, events, institutional opportunities, speakers panel, cost/ROI
PEV Experience	• **A visible community experience must be created.** Car library, car share, rental cars, ride alongs, corporate educational events, campus programs.
Fleet Transition	• **Fleet managers must see benefits and opt in.** State, city, medium duty, light duty, big and small.
Consumer Purchase	• **Consumers must be supported/incentivized in their purchase decisions.** OEM priority, best pricing, dealer coordination, incentives, dealer training.
Program Analysis	• **Industry , universities & utilities must continue to advance the state of PEV technology.** Basic research, pilot studies, demonstration projects.

How Do Stakeholders Participate?

There are several ways that dozens of Northern Colorado companies and organizations accelerated the adoption of Electric Vehicles.

A VARIETY OF WAYS TO GET INVOLVED:

- **Workplace Charging:** Over 150 companies across the U.S. have joined up in providing charging availability to employees.
- **Host an Employee Ride and Drive:** The Rochester EV Accelerator will take care of the planning process from start to finish to bring an innovative program to your workplace where you and your co-workers can take educational test drives in EVs. We can also host Lunch and Learn presentations to couple with the Ride and Drive.
- **Fleet Vehicles:** EV fleets across the nation are saving companies thousands of dollars in fueling and maintenance costs, along with additional benefits including increased employee retention and joining other top companies across the U.S.

Drive Leadership

An opportunity for leaders in Rochester region companies to take an extended test drive with an EV for 3 to 5 days.

WHY PARTICIPATE?

- **A Starting Point to Learn More:** Curious about EVs, but want to know more about the technology as a starting point?
- **Spread the Word:** Spread the word throughout your company or organization about EV opportunities.
- **Fleet Vehicles**: See if EVs would work well for your fleet, learn about the cost savings from fueling and maintenance.

Overarching Goal

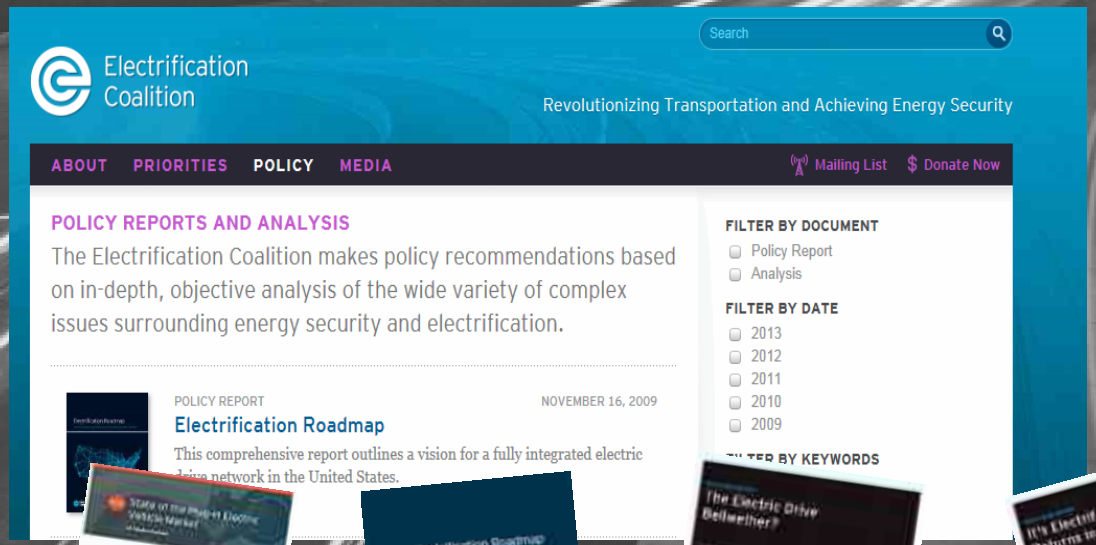
- Accelerate the adoptions of EVs in the Rochester, NY region to be a state example.

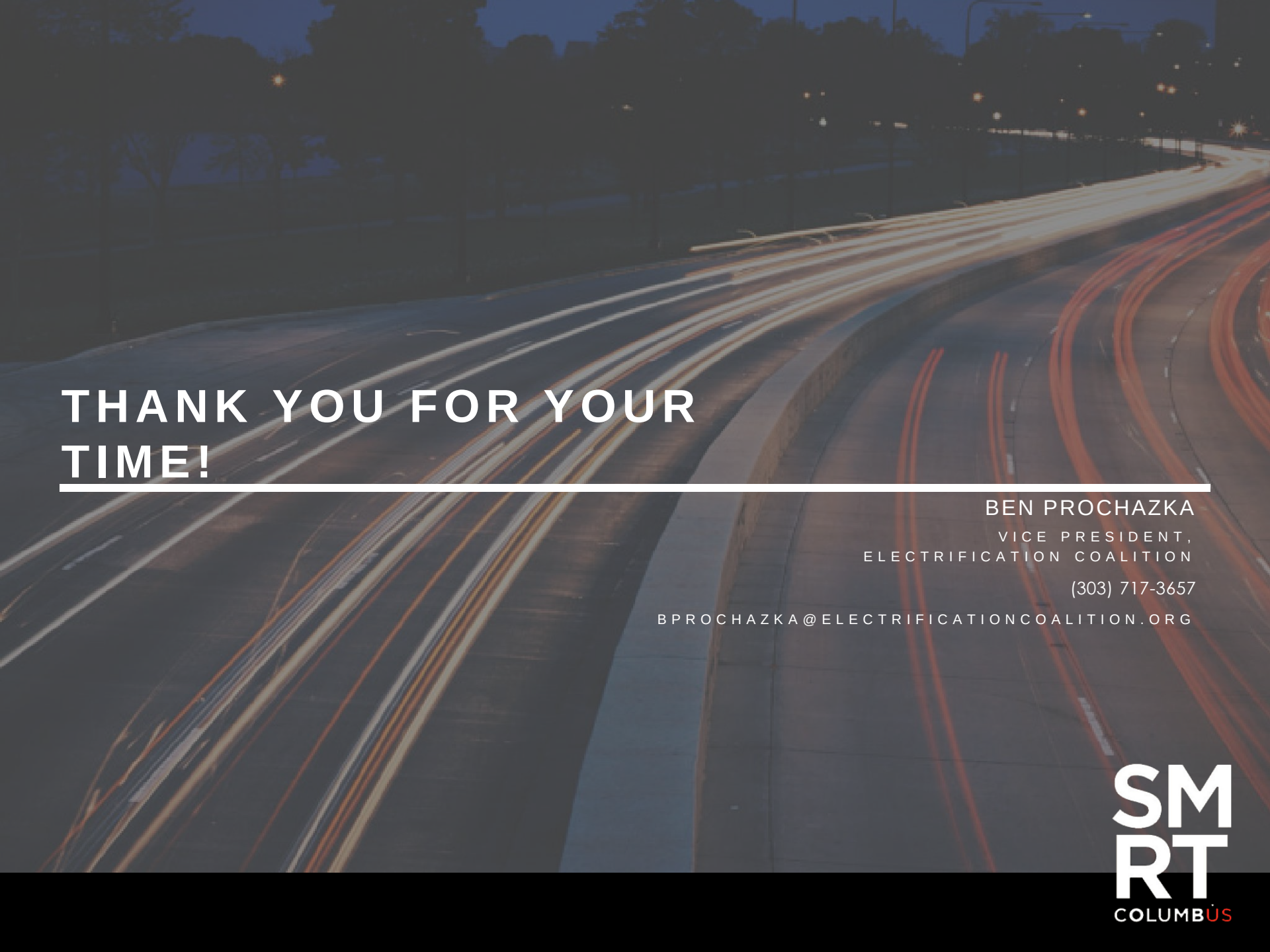
- Utilize new innovations, test new ideas, and pursue interesting opportunities to better understand how consumers think about and use PEVs in order to rapidly increase the market penetration of PEVs in the Rochester region.

Metrics for Success – draft

- Large number of EVs on the road
- National new stories, EV stories in blogs stories
- Branding: website to act as concentrated hub, social media, email list
- Set number of Ride and Drives/month
- Set number of Group Buy annually
- Assist in adoption of comprehensive infrastructure plan
- Implement workplace charging incentive programs
- EV Enthusiast group established
- Streamlined codes & regulations - If possible, have incentive based rate structures in place
- Fleet Transitions – both public fleets and area companies

The Electrification Coalition





THANK YOU FOR YOUR TIME!

BEN PROCHAZKA

VICE PRESIDENT,
ELECTRIFICATION COALITION

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BPROCHAZKA@ELECTRIFICATIONCOALITION.ORG

SMRT COLUMBUS

Presentation to JU EV Stakeholder Group

Adam Ruder
Clean Transportation Program Manager
September 28, 2017

Significant Progress in NYS Since 2016

Summer 2016	Summer 2017
15,000 current EV registrations	20,000 current EV registrations
Sales up 45% from previous year	Sales up 75% from previous year
No EV rebates	Consumer and municipal EV rebates available
1,500 Charging Ports	1,750 Charging Ports
EVSE Tax Credit	EVSE Tax Credit, Municipal Rebates, Additional Incentives
Beginning of Consumer Awareness and Outreach Activities	Wide-reaching Consumer Awareness and Outreach Activities

EV Benefit-Cost Analysis - Overview

- Partnership between NYSERDA, DPS, E3, ICF, and MJ Bradley
- BCA similar in form to previous NYSERDA analyses for heat pumps, other assets *using a similar model to* CalETC EV BCA project
- Focus is on modeling and quantifying benefits and costs *per EV* for utilities, ratepayers, EV drivers, and society at large
  - For instance, if a utility were to see a net benefit of $1,000 per EV, it would presumably be willing to spend an additional $999 to help get that EV on the road

EV BCA – Scenarios and Outputs

- Nine scenarios:
  - Base case, “high infrastructure”, and “managed charging”
  - Upstate (National Grid), ConEd, and Long Island
- Utilities have been involved in providing and reviewing data and assumptions
- Running model now, expecting results later this fall to be shared with DPS, utilities, and stakeholders

Key Remaining Barriers to Adoption

- Consumer awareness and acceptance
- Price and selection of models
- Charging time and range
- Charging availability
  - Public
  - Home
- Charging station economics
- Minimizing negative electric grid impact

Advice and Potential Roles for Utilities

- Look to BCA to help quantify benefits of getting involved in EV market ***now, not later***
- Focus on your strengths to define how utilities should get involved:
  - *Consumer outreach:* work through existing EE programs to do outreach to C&I, multifamily customers
  - *Charging time:* plan ahead for coming 350 kW DCFCs
  - *Charging availability*: talk to customers and analyze their usage patterns to identify public and home charging needs

Advice and Potential Roles for Utilities

- Focus on your strengths to define how utilities should get involved:
  - *Charging station economics:*
    - Consider alternative tariff structures other than demand charges for DCFCs
    - Look for ways to help customers reduce installation costs
    - Support installations where there are specific market failures making the private sector unlikely to provide enough charging infrastructure, such as at multifamily buildings

Advice and Potential Roles for Utilities

- Focus on your strengths to define how utilities should get involved:
  - *Minimizing negative electric grid impacts:*
    - Continue to experiment with ways to encourage EV drivers to charge more off-peak
    - Partner with EVSE operators to try variable pricing of public charging stations
    - Work with transportation planners to prioritize locations for chargers on your network based on grid constraints and travel patterns

Thank you!

Adam Ruder
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NEW YORK STATE OF OPPORTUNITY. NYSERDA