# Niagara Mohawk Power Corporation
# d/b/a National Grid

# Electric Marginal Cost of Service Study

# Cases 19-E-0283 and 15-E-0751

# June 30, 2025

## Table of Contents

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost of Service Study**
**Page 1**

# Purpose

This document describes the electric Marginal Cost of Service ("MCOS") Study prepared by Niagara Mohawk Power Corporation ("National Grid" or the "Company"), in compliance with the August 19, 2024 *Order Addressing Marginal Cost of Service Studies* of the New York State Public Service Commission ("Commission") in Cases 19-E-0283 and 15-E-0751 ("MCOS Order").[1]

The purpose of a marginal cost of service study is to determine the incremental cost to provide an incremental megawatt ("MW") of capacity on the Company's distribution system. Marginal cost includes capital costs and operating costs. The costs are presented as an annual revenue requirement; that is, once the initial capital cost and the ongoing operating costs are determined, the annual revenue requirement needed to provide a return on capital and operating costs can be determined.

The MCOS Order requires that the Company determine marginal costs for each applicable substation serving area with planned capacity expansion, for each year over the next 10 years. National Grid utilized its latest 10-year, fiscal year ("FY") 2026 to 2036,[2] capital investment plan. The Company's planned capital expenditures were based on its forecasted load requirements. Transmission load forecasts are developed using New York Independent System Operator ("NYISO") forecasts, while distribution load forecasts utilize the Company's 10-year Electric Peak Forecast, developed annually, with the most recent forecast issued March 21, 2025. The latest peak forecast report can be found on the National Grid New York System Data Portal.[3] The MCOS Order further states that the MCOS Study should use the same information as would be presented in a utility's major rate case filing; that is, the MCOS should reflect the Company's actual expected capital costs, operating costs, and forecasted load.

# Capital Projects

To begin the MCOS Study, National Grid leveraged its latest developed capital investment plan for the period of time between FY 2026 and FY 2036. The Company excluded projects with a total cost of less than $1M, as generally those projects do not support material system capacity expansion. Where possible, the Company identified the capacity enabled by each project or group of projects, the corresponding total cost, and the impacted system facilities (*e.g.,* substations). This resulted in a portfolio of 440 discrete, mostly substation and line, projects. In many instances, projects need to be executed in conjunction with one another to enable any expansion of system capacity. This resulted in system capacity expansion at 153 assets (*i.e.,* substations, transmission network). For each project or group of projects, the following was identified:

[1] Cases 19-E-0283 et al., *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) ("MCOS Order").
[2] FY 2026 begins on April 1, 2025 and FY 2036 ends on March 31, 2036.
[3] *Available at* https://systemdataportal.nationalgrid.com/NY/

- Substation area
- Purpose of the project (*i.e.,* spending rationale): Multi-Value Transmission ("MVT"), Multi-Value Distribution ("MVD") or System Capacity. Please note, Multi-Value projects are performed both to increase capacity and to maintain or improve system reliability, whereas System Capacity projects are undertaken to increase capacity on the distribution system.
- Capacity Added for the substation measured in MWs.
    - Capacity Added means the demand that can be served in the substation area when all of the projects in that substation area are completed, compared to the demand that could be served if none of the work is undertaken and completed.
    - All projects that affect a substation are grouped to form the total Capacity Added MW quantity for that substation.
- Asset types affected: Transmission Station ("T-Station"), Transmission Line ("T-Line"), Distribution Station ("D-Station") and Distribution Line ("D-Line").
    - Transmission level are assets operating at or above 69 kilovolts ("kV").
- Annual capital spending and total forecasted spend, shown by asset type (T-Station, T-Line, D-Station, D-Line).

The portfolio of projects included in this analysis totals $10.7 billion and was grouped by substation, transmission network, or sub-transmission network.

## Capital Cost per Capacity Added MW

For each of the 153 assets identified, the individual projects were summarized, as provided in Exhibit 1, to determine the following:

- Capacity Added for the substation area *(Exhibit 1, Column B)*.
- Annual capital spending, by fiscal year, for 2026 through 2036 *(Exhibit 1, Columns C26X through C36).* The C26X column is the total spend of included projects prior to FY2026.
- Total Capital spending over the period, broken out by component: T-Station, T-Line, D-Station, D-Line *(Exhibit 1, Columns C-TS, C-TL, C-DS, C-DL and C)*.

This information was used to compute capital cost per MW of Capacity Added for each component (T-Station, T-Line, D-Station, D-Line), and in total *(Exhibit 1, Columns D-TS, D-TL, D-DS, D-DL and D).* These values are equal to Total Capital spending for each component, divided by Capacity Added.

While capital spending takes place over the years the project is under construction, the Capacity Added to the distribution system is not available until the project is completed and in service. Therefore, the last year of capital spending for all projects in the substation area was determined to be the year that capacity was added (*i.e.,* in-service year) (*Exhibit 1, Column F).*

## Marginal Cost: Revenue Requirement per Capacity Added MW

For each substation, the Company multiplied i) capital cost per MW of Capacity Added by component by ii) Economic Carrying Charge Rate ("ECCR") for that component, to determine iii) the annual revenue requirement needed to provide return on capital, return of capital, and operating costs. The annual revenue requirement for each component is shown in *Exhibit 1, Columns E-TS, E-TL, E-DS, E-DL;* the total annual revenue requirement is shown in *Exhibit 1, Column E*. This annual revenue requirement is the marginal cost to provide one additional MW of capacity.

The marginal cost determined above represents the marginal cost for the year that the project's added capacity went into service. To determine the marginal cost over the 10-year period, the annual marginal cost was deflated annually for years prior to the in-service year or inflated annually for years after the in-service year by the inflation rate *(Exhibit 1, Columns F26 through F36).* The inflation rate reflects the current expectations about inflation from the most up-to-date BlueChip consensus forecast of the Gross Domestic Price implicit price deflator, as recommended by the Staff Whitepaper in the VDER Proceeding,[4] and further supported by the Commission in the MCOS Order. As such, National Grid used a 2.1% inflation rate per the June 2, 2025 Blue Chip Financial Forecasts.

The Company also computed a system-wide average marginal cost per MW by year, with the results shown on *Page 28 of Exhibit 1, line 250*. This was computed as follows:

- For each fiscal year, the capacity of all projects that go into service that year was determined (*Page 28 of Exhibit 1, line 247*).
- The discount factor from that year back to FY 2026 was determined, using the annual inflation rate of 2.1% (*Page 28 of Exhibit 1, line 248*).
- Total marginal cost of capacity added in the year was determined by multiplying capacity added (*Page 28 of Exhibit 1, line 247*) by average marginal cost for the year (*Page 28 of Exhibit 1, line 245*), with the results on *Page 28 of Exhibit 1, line 249*.
- Each annual amount was discounted back to FY 2026, by dividing total marginal cost of capacity in the year (*Page 28 of Exhibit 1, line 249*) by the applicable discount factor (*Page 28 of Exhibit 1, line 248*), with the results on *Page 28 of Exhibit 1, line 250*.
- The annual amounts on *Page 28 of Exhibit 1, line 250* were summed and the sum was divided by total capacity added of 11,533 MW, to arrive at the system-wide average annual marginal cost per MW of $71,524 (*Page 28 of Exhibit 1, line 251*). This is equal to the FY 2026 Annual Marginal Cost per MW (*Page 28 of Exhibit 1, line 245, column F26*).
- This calculation includes only substations with capital projects over the period FY 2026-FY 2036 that are included in the MCOS Study.

[4] Case 15-E-0751, *In the Matter of the Value of Distributed Energy Resources* (VDER Proceeding), Department of Public Service Staff Whitepaper on Allocated Cost of Service Methods Used to Develop Standby and Buyback Service Rates (filed November 25, 2020) (Staff Whitepaper).

## Economic Carrying Charge Rate (ECCR)

The ECCR is a rate that is applied to a capital cost in order to determine the annual revenue requirement needed to provide return on capital, return of capital, and operating costs.

The following inputs are used in computing the ECCR (using data from the National Grid electric rate case currently pending before the Commission):[5]

- Return on capital and return of capital:
  - Weighted average cost of capital and weighted return on equity
  - Federal and State income tax rates
  - Federal: Depreciation life, depreciation method, Year 1 depreciation, Double Declining Balance ("DDB") Rate
  - State: Depreciation life, depreciation method, Year 1 depreciation, DDB Rate
  - Book: Depreciation life, salvage value
- Operating costs:
  - Operation & Maintenance ("O&M") as percent of Plant
  - Property Tax as percent of Plant
  - Insurance as percent of Plant

The rate base applicable to the asset is determined for each year, based on original cost, depreciation, and accumulated deferred income tax (the difference between taxes paid and taxes included in rates). A return on rate base is determined, reflecting the after-tax cost of capital and a gross-up for income taxes. Next, annual depreciation expenses is computed. Finally, operating expenses are computed. The annual revenue requirement is the sum of return on capital, return of capital, and operating expenses.

The ECCRs for each component of assets included in the MCOS are shown below. The percentages are multiplied by the original capital cost to determine annual revenue requirement.

| | |
|---|---|
| T-Station | 8.21% |
| T-Line | 8.44% |
| D-Station | 8.06% |
| D-Line | 14.13% |

The calculation of the ECCRs and supporting detail are provided in Exhibit 2.

[5] Case 24-E-0322, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Niagara Mohawk Power Corporation d/b/a National Grid for Electric Service* ("National Grid Electric 2024 Rate Case Proceeding").

# Exhibits

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



| | | | | Capital Spending $000s | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line | Reference | Station | Capacity Added MW | Prior to 2026 CapEx | FY26 Capex | FY27 Capex | FY28 Capex | FY29 Capex | FY30 Capex | FY31 Capex | FY32 Capex | FY33 Capex | FY34 Capex | FY35 Capex | FY36 Capex | Sum |
| | (A) | (A1) | (B) | (C26X) | (C26) | (C27) | (C28) | (C29) | (C30) | (C31) | (C32) | (C33) | (C34) | (C35) | (C36) | (C-Sum) |
| 1 | FN000507 | HAGUE | 1.5 | 110 | 751 | 2,167 | - | - | - | - | - | - | - | - | - | 3,029 |
| 2 | FN010416 | GREENBUSH | 2.2 | 121 | - | 700 | - | - | - | - | - | - | - | - | - | 821 |
| 3 | FN010097 | Sawyer Ave | 12.0 | - | 130 | 520 | 2,922 | 50 | - | - | - | - | - | - | - | 3,622 |
| 4 | FN000138 | BRUNSWICK | 2.2 | 41 | - | 271 | - | - | - | - | - | - | - | - | - | 312 |
| 5 | FN002420 | STARR RD. | 2.6 | 133 | - | 1,071 | - | - | - | - | - | - | - | - | - | 1,204 |
| 6 | FN014043 | New 3rd Ave S | 40.0 | - | 80 | 240 | 680 | 690 | 5,302 | 8,769 | 6,207 | 8,602 | 8,602 | 5,255 | 1,561 | 45,988 |
| 7 | FN000570 | THOUSAND ISL | 0.3 | 45 | 306 | - | - | - | - | - | - | - | - | - | - | 350 |
| 8 | FN014243 | ALTAMONT | 26.5 | - | - | - | - | 100 | 3,900 | 4,439 | - | - | - | - | - | 8,439 |
| 9 | FN011042 | Avenue A | 6.4 | 21 | 102 | 0 | 36 | 3,010 | 7,590 | 8,409 | 5,709 | 1,053 | - | - | - | 25,929 |
| 10 | FN011558 | BAKER STREET | 5.0 | - | - | - | - | 1,891 | 1,218 | 693 | - | - | - | - | - | 3,802 |
| 11 | FN011559 | BAKER STREET | 5.0 | - | - | - | - | - | - | 250 | 1,300 | 2,610 | 950 | - | - | 5,110 |
| 12 | FN011978 | BALLSTON | 17.6 | - | - | - | - | - | - | - | - | 105 | 1,397 | 1,256 | 4,303 | 7,062 |
| 13 | FN014323 | Beech | 40.0 | - | - | 1,260 | 1,800 | 2,168 | 10,253 | 13,774 | 13,542 | 8,461 | - | - | - | 51,258 |
| 14 | FN012619 | Belmont | 10.0 | - | - | - | - | - | - | 127 | 1,048 | 607 | 906 | - | - | 2,688 |
| 15 | FN002393 | BETHLEHEM | 0.5 | 114 | 398 | - | - | - | - | - | - | - | - | - | - | 512 |
| 16 | FN012008 | BETHLEHEM | 1.0 | - | - | - | - | 172 | 662 | 769 | - | - | - | - | - | 1,603 |
| 17 | FN011227 | Birch Avenue | 1.5 | 93 | - | 446 | 1,469 | - | - | - | - | - | - | - | - | 2,008 |
| 18 | FN012140 | Birch Avenue | 24.6 | - | - | - | - | 320 | 3,184 | 1,647 | 11,744 | 14,553 | 7,710 | 10,995 | - | 50,154 |
| 19 | FN011964 | Gabriels Statio | 4.0 | - | - | - | 375 | 1,501 | 1,501 | 1,500 | - | - | 1,378 | 574 | - | 6,830 |
| 20 | FN011975 | Boyntonville | 32.5 | - | - | - | - | 617 | 3,597 | 2,563 | 1,442 | 9,579 | 9,579 | 5,794 | - | 33,171 |
| 21 | FN011363 | Bridgeport | 15.0 | - | - | - | - | - | 128 | 1,059 | 1,520 | 3,526 | 3,409 | 354 | - | 9,996 |
| 22 | FN012610 | Bridgeport | 15.0 | - | - | - | - | - | - | 127 | 1,048 | 607 | 960 | - | - | 2,742 |
| 23 | FN011439 | Brook Road | 43.4 | - | - | - | - | - | - | - | - | - | 128 | 1,697 | 613 | 2,438 |
| 24 | FN011352 | Brunswick | 12.5 | - | - | - | - | - | - | 121 | 1,428 | 6,483 | 9,483 | 8,794 | - | 26,309 |
| 25 | FN011997 | Buckley | 32.5 | - | - | - | - | - | - | 99 | 2,131 | 5,219 | 5,914 | 9,204 | 4,562 | 27,130 |
| 26 | FN011369 | Buffalo Station | 5.3 | - | - | - | - | - | - | - | - | - | 171 | 1,886 | 2,799 | 4,856 |
| 27 | FN012851 | 54 MAIN | 5.0 | - | - | - | - | - | - | - | - | - | - | 3,841 | 4,432 | 8,274 |
| 28 | FN012851A | Buffalo Station | 40.0 | - | - | - | - | - | - | - | 128 | 1,697 | 613 | 1,515 | 10,058 | 14,010 |
| 29 | FN012817 | 61 STATION 61 | 5.0 | - | - | - | - | - | - | - | 417 | 2,951 | 4,432 | 4,095 | 4,938 | 16,834 |
| 30 | FN005875 | Buffalo Station | 6.0 | 21,103 | 1,399 | - | - | - | - | - | - | - | - | - | - | 22,502 |
| 31 | FN005840 | Buffalo Station | 9.0 | - | 150 | 150 | 733 | 776 | 2,432 | 1,200 | 2,440 | 7,950 | 2,890 | - | - | 18,721 |
| 32 | FN005818 | 30 SPILLMAN | 9.0 | 6,891 | 365 | 2,267 | 4,355 | 7,562 | 6,119 | 524 | - | - | - | - | - | 28,083 |
| 33 | FN005832 | 31 STATION | 9.0 | 10,741 | 5,586 | 8,176 | 4,693 | 457 | - | - | - | - | - | - | - | 29,652 |
| 34 | FN005771 | 32 BAILEY | 9.0 | 36,807 | 3,278 | 808 | - | - | - | - | - | - | - | - | - | 40,893 |
| 35 | FN005819 | 34 BEST ST. | 9.0 | - | - | 51 | 250 | 100 | 2,364 | 3,664 | 4,874 | 3,834 | 63 | - | - | 15,200 |
| 36 | FN005842 | 35 WALDEN | 9.0 | - | 150 | 510 | 2,061 | 1,009 | 2,430 | 7,580 | 8,850 | 580 | - | - | - | 23,170 |
| 37 | FN005791 | 38 SPRING | 9.0 | 30,314 | 5,245 | 5,295 | - | - | - | - | - | - | - | - | - | 40,854 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | *E* |
| | | | | Capital Spending $000s | | | | | Capital $000s per Capacity Added MW | | | | |
| Line | Reference | Station | Capacity Added MW | T_Station | T_Line | D_Station | D_Line | Sum | T_Station | T_Line | D_Station | D_Line | Sum |
| | (A) | (A1) | (B) | (C-TS) | (C-TL) | (C-DS) | (C-DL) | (C) | (D-TS) (C-TS)/(B) | (D-TL) (C-TL)/(B) | (D-DS) (C-DS)/(B) | (D-DL) (C-DL)/((B) | (D) |
| 1 | FN000507 | HAGUE | 1.5 | - | - | - | 3,029 | 3,029 | - | - | - | 2,019 | 2,019 |
| 2 | FN010416 | GREENBUSH | 2.2 | - | - | - | 821 | 821 | - | - | - | 373 | 373 |
| 3 | FN010097 | Sawyer Ave | 12.0 | 650 | - | - | 2,972 | 3,622 | 54 | - | - | 248 | 302 |
| 4 | FN000138 | BRUNSWICK | 2.2 | - | - | - | 312 | 312 | - | - | - | 142 | 142 |
| 5 | FN002420 | STARR RD. | 2.6 | - | - | - | 1,204 | 1,204 | - | - | - | 463 | 463 |
| 6 | FN014043 | New 3rd Ave S | 40.0 | - | - | 25,424 | 20,564 | 45,988 | - | - | 636 | 514 | 1,150 |
| 7 | FN000570 | THOUSAND ISL | 0.3 | - | - | - | 350 | 350 | - | - | - | 1,062 | 1,062 |
| 8 | FN014243 | ALTAMONT | 26.5 | - | - | 8,439 | - | 8,439 | - | - | 318 | - | 318 |
| 9 | FN011042 | Avenue A | 6.4 | - | - | 20,894 | 5,035 | 25,929 | - | - | 3,265 | 787 | 4,051 |
| 10 | FN011558 | BAKER STREET | 5.0 | - | - | - | 3,802 | 3,802 | - | - | - | 760 | 760 |
| 11 | FN011559 | BAKER STREET | 5.0 | - | - | - | 5,110 | 5,110 | - | - | - | 1,022 | 1,022 |
| 12 | FN011978 | BALLSTON | 17.6 | 3,415 | - | - | 3,647 | 7,062 | 194 | - | - | 207 | 401 |
| 13 | FN014323 | Beech | 40.0 | - | - | 37,009 | 14,249 | 51,258 | - | - | 925 | 356 | 1,281 |
| 14 | FN012619 | Belmont | 10.0 | - | - | - | 2,688 | 2,688 | - | - | - | 269 | 269 |
| 15 | FN002393 | BETHLEHEM | 0.5 | - | - | - | 512 | 512 | - | - | - | 1,024 | 1,024 |
| 16 | FN012008 | BETHLEHEM | 1.0 | - | - | - | 1,603 | 1,603 | - | - | - | 1,603 | 1,603 |
| 17 | FN011227 | Birch Avenue | 1.5 | - | - | - | 2,008 | 2,008 | - | - | - | 1,339 | 1,339 |
| 18 | FN012140 | Birch Avenue | 24.6 | - | - | 50,154 | - | 50,154 | - | - | 2,039 | - | 2,039 |
| 19 | FN011964 | Gabriels Statio | 4.0 | - | - | 3,829 | 3,001 | 6,830 | - | - | 957 | 750 | 1,707 |
| 20 | FN011975 | Boyntonville | 32.5 | - | - | 28,716 | 4,455 | 33,171 | - | - | 884 | 137 | 1,021 |
| 21 | FN011363 | Bridgeport | 15.0 | - | - | 9,996 | - | 9,996 | - | - | 666 | - | 666 |
| 22 | FN012610 | Bridgeport | 15.0 | - | - | - | 2,742 | 2,742 | - | - | - | 183 | 183 |
| 23 | FN011439 | Brook Road | 43.4 | - | - | 2,438 | - | 2,438 | - | - | 56 | - | 56 |
| 24 | FN011352 | Brunswick | 12.5 | - | - | 26,309 | - | 26,309 | - | - | 2,105 | - | 2,105 |
| 25 | FN011997 | Buckley | 32.5 | - | - | 11,461 | 15,669 | 27,130 | - | - | 353 | 482 | 835 |
| 26 | FN011369 | Buffalo Station | 5.3 | - | - | 2,412 | 2,444 | 4,856 | - | - | 459 | 466 | 925 |
| 27 | FN012851 | 54 MAIN | 5.0 | - | - | - | 8,274 | 8,274 | - | - | - | 1,655 | 1,655 |
| 28 | FN012851A | Buffalo Station | 40.0 | - | - | 14,010 | - | 14,010 | - | - | 350 | - | 350 |
| 29 | FN012817 | 61 STATION 61 | 5.0 | - | - | - | 16,834 | 16,834 | - | - | - | 3,367 | 3,367 |
| 30 | FN005875 | Buffalo Station | 6.0 | - | - | 17,406 | 5,096 | 22,502 | - | - | 2,901 | 849 | 3,750 |
| 31 | FN005840 | Buffalo Station | 9.0 | - | - | 15,890 | 2,831 | 18,721 | - | - | 1,766 | 315 | 2,080 |
| 32 | FN005818 | 30 SPILLMAN | 9.0 | - | - | 27,148 | 935 | 28,083 | - | - | 3,016 | 104 | 3,120 |
| 33 | FN005832 | 31 STATION | 9.0 | - | - | 27,070 | 2,582 | 29,652 | - | - | 3,008 | 287 | 3,295 |
| 34 | FN005771 | 32 BAILEY | 9.0 | - | - | 32,772 | 8,121 | 40,893 | - | - | 3,641 | 902 | 4,544 |
| 35 | FN005819 | 34 BEST ST. | 9.0 | - | - | 12,460 | 2,740 | 15,200 | - | - | 1,384 | 304 | 1,689 |
| 36 | FN005842 | 35 WALDEN | 9.0 | - | - | 20,000 | 3,170 | 23,170 | - | - | 2,222 | 352 | 2,574 |
| 37 | FN005791 | 38 SPRING | 9.0 | - | - | 25,137 | 15,717 | 40,854 | - | - | 2,793 | 1,746 | 4,539 |

Exhibit 1



**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**

| | | | | | *CCR Rates=>* | 8.21% | 8.44% | 8.06% | 14.13% | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Annual Cost $000s Using ECCR per Capacity Added MW | | | | |
| Line | Reference | Station | Capacity Added MW | In-Service Year | | T_Station | T_Line | D_Station | D_Line | Sum |
| | (A) | (A1) | (B) | (F) | | (E-TS) | (E-TL) | (E-DS) | (E-DL) | (E) |
| | | | | | | (D-TS)*ECCR | (D-TL)*ECCR | (D-DS)*ECCR | (D-DL)*ECCR | |
| 1 | FN000507 | HAGUE | 1.5 | 2027 | | - | - | - | 285 | 285 |
| 2 | FN010416 | GREENBUSH | 2.2 | 2027 | | - | - | - | 53 | 53 |
| 3 | FN010097 | Sawyer Ave | 12.0 | 2029 | | 4 | - | - | 35 | 39 |
| 4 | FN000138 | BRUNSWICK | 2.2 | 2027 | | - | - | - | 20 | 20 |
| 5 | FN002420 | STARR RD. | 2.6 | 2027 | | - | - | - | 65 | 65 |
| 6 | FN014043 | New 3rd Ave S | 40.0 | 2036 | | - | - | 51 | 73 | 124 |
| 7 | FN000570 | THOUSAND ISL | 0.3 | 2026 | | - | - | - | 150 | 150 |
| 8 | FN014243 | ALTAMONT | 26.5 | 2031 | | - | - | 26 | - | 26 |
| 9 | FN011042 | Avenue A | 6.4 | 2033 | | - | - | 263 | 111 | 374 |
| 10 | FN011558 | BAKER STREET | 5.0 | 2031 | | - | - | - | 107 | 107 |
| 11 | FN011559 | BAKER STREET | 5.0 | 2034 | | - | - | - | 144 | 144 |
| 12 | FN011978 | BALLSTON | 17.6 | 2036 | | 16 | - | - | 29 | 45 |
| 13 | FN014323 | Beech | 40.0 | 2033 | | - | - | 75 | 50 | 125 |
| 14 | FN012619 | Belmont | 10.0 | 2034 | | - | - | - | 38 | 38 |
| 15 | FN002393 | BETHLEHEM | 0.5 | 2026 | | - | - | - | 145 | 145 |
| 16 | FN012008 | BETHLEHEM | 1.0 | 2031 | | - | - | - | 226 | 226 |
| 17 | FN011227 | Birch Avenue | 1.5 | 2028 | | - | - | - | 189 | 189 |
| 18 | FN012140 | Birch Avenue | 24.6 | 2035 | | - | - | 164 | - | 164 |
| 19 | FN011964 | Gabriels Statio | 4.0 | 2035 | | - | - | 77 | 106 | 183 |
| 20 | FN011975 | Boyntonville | 32.5 | 2035 | | - | - | 71 | 19 | 91 |
| 21 | FN011363 | Bridgeport | 15.0 | 2035 | | - | - | 54 | - | 54 |
| 22 | FN012610 | Bridgeport | 15.0 | 2034 | | - | - | - | 26 | 26 |
| 23 | FN011439 | Brook Road | 43.4 | 2036 | | - | - | 5 | - | 5 |
| 24 | FN011352 | Brunswick | 12.5 | 2035 | | - | - | 170 | - | 170 |
| 25 | FN011997 | Buckley | 32.5 | 2036 | | - | - | 28 | 68 | 97 |
| 26 | FN011369 | Buffalo Station | 5.3 | 2036 | | - | - | 37 | 66 | 103 |
| 27 | FN012851 | 54 MAIN | 5.0 | 2036 | | - | - | - | 234 | 234 |
| 28 | FN012851A | Buffalo Station | 40.0 | 2036 | | - | - | 28 | - | 28 |
| 29 | FN012817 | 61 STATION 61 | 5.0 | 2036 | | - | - | - | 476 | 476 |
| 30 | FN005875 | Buffalo Station | 6.0 | 2026 | | - | - | 234 | 120 | 354 |
| 31 | FN005840 | Buffalo Station | 9.0 | 2034 | | - | - | 142 | 44 | 187 |
| 32 | FN005818 | 30 SPILLMAN | 9.0 | 2031 | | - | - | 243 | 15 | 258 |
| 33 | FN005832 | 31 STATION | 9.0 | 2029 | | - | - | 242 | 41 | 283 |
| 34 | FN005771 | 32 BAILEY | 9.0 | 2027 | | - | - | 293 | 127 | 421 |
| 35 | FN005819 | 34 BEST ST. | 9.0 | 2034 | | - | - | 112 | 43 | 155 |
| 36 | FN005842 | 35 WALDEN | 9.0 | 2033 | | - | - | 179 | 50 | 229 |
| 37 | FN005791 | 38 SPRING | 9.0 | 2027 | | - | - | 225 | 247 | 472 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



*Annual Inflation=>* 102.1%

| Line | Reference | Station | Capacity Added MW | In-Service Year | Rationale | Marginal Cost $000s in Each Year | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 |
| | (A) | (A1) | (B) | (F) | (F-1) | (F26) | (F27) | (F28) | (F29) | (F30) | (F31) | (F32) | (F33) | (F34) | (F35) | (F36) |
| 1 | FN000507 | HAGUE | 1.5 | 2027 | Cap | 279 | 285 | 291 | 297 | 304 | 310 | 317 | 323 | 330 | 337 | 344 |
| 2 | FN010416 | GREENBUSH | 2.2 | 2027 | MVD | 52 | 53 | 54 | 55 | 56 | 57 | 59 | 60 | 61 | 62 | 64 |
| 3 | FN010097 | Sawyer Ave | 12.0 | 2029 | Cap | 37 | 38 | 39 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 |
| 4 | FN000138 | BRUNSWICK | 2.2 | 2027 | Cap | 20 | 20 | 20 | 21 | 21 | 22 | 22 | 23 | 23 | 24 | 24 |
| 5 | FN002420 | STARR RD. | 2.6 | 2027 | Cap | 64 | 65 | 67 | 68 | 70 | 71 | 73 | 74 | 76 | 77 | 79 |
| 6 | FN014043 | New 3rd Ave S | 40.0 | 2036 | MVD | 101 | 103 | 105 | 107 | 109 | 112 | 114 | 116 | 119 | 121 | 124 |
| 7 | FN000570 | THOUSAND ISL | 0.3 | 2026 | Cap | 150 | 153 | 156 | 160 | 163 | 166 | 170 | 173 | 177 | 181 | 185 |
| 8 | FN014243 | ALTAMONT | 26.5 | 2031 | MVD | 23 | 24 | 24 | 25 | 25 | 26 | 26 | 27 | 27 | 28 | 28 |
| 9 | FN011042 | Avenue A | 6.4 | 2033 | MVD | 324 | 330 | 337 | 344 | 352 | 359 | 367 | 374 | 382 | 390 | 398 |
| 10 | FN011558 | BAKER STREET | 5.0 | 2031 | Cap | 97 | 99 | 101 | 103 | 105 | 107 | 110 | 112 | 114 | 117 | 119 |
| 11 | FN011559 | BAKER STREET | 5.0 | 2034 | Cap | 122 | 125 | 127 | 130 | 133 | 136 | 139 | 141 | 144 | 147 | 151 |
| 12 | FN011978 | BALLSTON | 17.6 | 2036 | MVD | 37 | 37 | 38 | 39 | 40 | 41 | 42 | 42 | 43 | 44 | 45 |
| 13 | FN014323 | Beech | 40.0 | 2033 | MVD | 108 | 110 | 113 | 115 | 117 | 120 | 122 | 125 | 128 | 130 | 133 |
| 14 | FN012619 | Belmont | 10.0 | 2034 | Cap | 32 | 33 | 34 | 34 | 35 | 36 | 36 | 37 | 38 | 39 | 40 |
| 15 | FN002393 | BETHLEHEM | 0.5 | 2026 | Cap | 145 | 148 | 151 | 154 | 157 | 160 | 164 | 167 | 171 | 174 | 178 |
| 16 | FN012008 | BETHLEHEM | 1.0 | 2031 | MVD | 204 | 208 | 213 | 217 | 222 | 226 | 231 | 236 | 241 | 246 | 251 |
| 17 | FN011227 | Birch Avenue | 1.5 | 2028 | Cap | 181 | 185 | 189 | 193 | 197 | 201 | 206 | 210 | 214 | 219 | 223 |
| 18 | FN012140 | Birch Avenue | 24.6 | 2035 | MVD | 136 | 139 | 142 | 145 | 148 | 151 | 154 | 158 | 161 | 164 | 168 |
| 19 | FN011964 | Gabriels Statio | 4.0 | 2035 | MVD | 152 | 155 | 158 | 162 | 165 | 169 | 172 | 176 | 179 | 183 | 187 |
| 20 | FN011975 | Boyntonville | 32.5 | 2035 | MVD | 75 | 77 | 78 | 80 | 82 | 83 | 85 | 87 | 89 | 91 | 92 |
| 21 | FN011363 | Bridgeport | 15.0 | 2035 | MVD | 45 | 45 | 46 | 47 | 48 | 49 | 50 | 52 | 53 | 54 | 55 |
| 22 | FN012610 | Bridgeport | 15.0 | 2034 | Cap | 22 | 22 | 23 | 23 | 24 | 24 | 25 | 25 | 26 | 26 | 27 |
| 23 | FN011439 | Brook Road | 43.4 | 2036 | MVD | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 |
| 24 | FN011352 | Brunswick | 12.5 | 2035 | MVD | 141 | 144 | 147 | 150 | 153 | 156 | 159 | 163 | 166 | 170 | 173 |
| 25 | FN011997 | Buckley | 32.5 | 2036 | MVD | 78 | 80 | 82 | 83 | 85 | 87 | 89 | 91 | 93 | 95 | 97 |
| 26 | FN011369 | Buffalo Station | 5.3 | 2036 | Cap | 84 | 85 | 87 | 89 | 91 | 93 | 95 | 97 | 99 | 101 | 103 |
| 27 | FN012851 | 54 MAIN | 5.0 | 2036 | MVD | 190 | 194 | 198 | 202 | 206 | 211 | 215 | 220 | 224 | 229 | 234 |
| 28 | FN012851A | Buffalo Station | 40.0 | 2036 | MVD | 23 | 23 | 24 | 24 | 25 | 25 | 26 | 27 | 27 | 28 | 28 |
| 29 | FN012817 | 61 STATION 61 | 5.0 | 2036 | MVD | 386 | 395 | 403 | 411 | 420 | 429 | 438 | 447 | 456 | 466 | 476 |
| 30 | FN005875 | Buffalo Station | 6.0 | 2026 | MVD | 354 | 361 | 369 | 377 | 384 | 393 | 401 | 409 | 418 | 427 | 436 |
| 31 | FN005840 | Buffalo Station | 9.0 | 2034 | MVD | 158 | 161 | 165 | 168 | 172 | 175 | 179 | 183 | 187 | 191 | 195 |
| 32 | FN005818 | 30 SPILLMAN | 9.0 | 2031 | MVD | 232 | 237 | 242 | 247 | 252 | 258 | 263 | 269 | 274 | 280 | 286 |
| 33 | FN005832 | 31 STATION | 9.0 | 2029 | MVD | 266 | 271 | 277 | 283 | 289 | 295 | 301 | 307 | 314 | 321 | 327 |
| 34 | FN005771 | 32 BAILEY | 9.0 | 2027 | MVD | 412 | 421 | 430 | 439 | 448 | 457 | 467 | 477 | 487 | 497 | 508 |
| 35 | FN005819 | 34 BEST ST. | 9.0 | 2034 | MVD | 131 | 134 | 136 | 139 | 142 | 145 | 148 | 151 | 155 | 158 | 161 |
| 36 | FN005842 | 35 WALDEN | 9.0 | 2033 | MVD | 198 | 202 | 206 | 211 | 215 | 220 | 224 | 229 | 234 | 239 | 244 |
| 37 | FN005791 | 38 SPRING | 9.0 | 2027 | MVD | 462 | 472 | 482 | 492 | 502 | 513 | 524 | 534 | 546 | 557 | 569 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



| | | | | Capital Spending $000s | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line | Reference | Station | Capacity Added MW | Prior to 2026 CapEx | FY26 Capex | FY27 Capex | FY28 Capex | FY29 Capex | FY30 Capex | FY31 Capex | FY32 Capex | FY33 Capex | FY34 Capex | FY35 Capex | FY36 Capex | Sum |
| | (A) | (A1) | (B) | (C26X) | (C26) | (C27) | (C28) | (C29) | (C30) | (C31) | (C32) | (C33) | (C34) | (C35) | (C36) | (C-Sum) |
| 38 | FN005820 | 41 STATION 41 | 9.0 | - | - | 51 | 250 | 100 | 2,364 | 3,664 | 4,874 | 3,834 | 63 | - | - | 15,200 |
| 39 | FN010096 | Buffalo Station | 9.0 | 10,975 | 260 | 1,683 | 2,710 | 8,595 | 5,966 | 1,505 | - | - | - | - | - | 31,693 |
| 40 | FN005821 | 51 ELK ST | 9.0 | 10,873 | 171 | 306 | 352 | 2,632 | 4,165 | 9,038 | 5,935 | 72 | - | - | - | 33,544 |
| 41 | FN005822 | 68 ELMWOOD | 9.0 | - | - | - | 51 | 339 | 2,374 | 3,664 | 4,874 | 3,834 | 63 | - | - | 15,199 |
| 42 | FN011290 | New Buffalo St | 15.0 | - | - | - | - | - | - | - | 2,134 | 1,984 | 2,941 | 14,554 | 14,830 | 36,443 |
| 43 | FN014248 | Burdeck | 19.9 | - | - | - | 56 | 741 | 268 | 661 | 4,501 | 5,856 | 3,184 | 1,479 | 10,739 | 27,484 |
| 44 | FN014222 | Burgoyne | 8.8 | 42 | 15 | 616 | - | - | - | - | - | - | - | - | - | 673 |
| 45 | FN011414 | Burgoyne | 17.6 | - | - | - | - | 110 | 1,466 | 529 | 1,479 | 10,739 | 10,739 | 6,496 | - | 31,559 |
| 46 | FN012964 | 171 BURT | 5.0 | 55 | 569 | 4,510 | - | - | 166 | 638 | 2,543 | 677 | 202 | 776 | 3,091 | 13,227 |
| 47 | FN011413 | Butler | 17.6 | - | - | - | - | 110 | 1,466 | 529 | 1,308 | 8,689 | 8,689 | 5,255 | - | 26,047 |
| 48 | FN012612 | Butternut | 15.0 | - | - | - | - | - | - | - | - | 140 | 1,156 | 758 | 390 | 2,444 |
| 49 | FN011415 | Cedar | 15.0 | - | - | - | - | - | - | - | - | - | - | 122 | 1,617 | 1,738 |
| 50 | FN012138 | Chestertown | 34.5 | - | - | - | - | 250 | 2,020 | 8,577 | 15,707 | 27,553 | 28,432 | 37,194 | 15,945 | 135,679 |
| 51 | FN011946 | New Cicero Su | 80.0 | 3,017 | 1,024 | 2,793 | 3,926 | 20,715 | 15,428 | 2,390 | 3 | - | - | - | - | 49,295 |
| 52 | FN014417 | Cleveland | 7.0 | - | 240 | 1,273 | 5,805 | 7,094 | 3,435 | 489 | - | - | - | - | - | 18,336 |
| 53 | FN011920 | COBLESKILL | 9.4 | 1,921 | 1,838 | 2,121 | 1,032 | - | - | - | - | - | - | - | - | 6,913 |
| 54 | FN011848 | Coffeen | 5.0 | - | - | - | 240 | 940 | 1,090 | - | - | - | - | - | - | 2,270 |
| 55 | FN006634 | RUSSELL RD | 1.0 | 192 | 191 | 191 | 144 | 3,339 | 494 | 85 | - | - | - | - | - | 4,635 |
| 56 | FN006637 | Commerce | 4.4 | 519 | 211 | 803 | 914 | 335 | 7,190 | 494 | - | - | - | - | - | 10,466 |
| 57 | FN011440 | Corinth | 9.5 | - | - | - | - | 122 | 1,617 | 583 | 1,442 | 9,579 | 9,579 | 5,794 | - | 28,716 |
| 58 | FN010312 | Vail Mills | 2.5 | 14 | - | 192 | - | - | - | - | - | - | - | - | - | 206 |
| 59 | | | | | | | | | | | | | | | | |
| 60 | FN011976 | CURTIS GREEN | 40.0 | - | - | - | - | 857 | 4,291 | 3,869 | 1,246 | 578 | 8,275 | 5,005 | - | 24,121 |
| 61 | FN004729 | Delanson | 1.2 | 23 | 164 | - | - | - | - | - | - | - | - | - | - | 188 |
| 62 | FN004723 | Delanson | 1.2 | 38 | 207 | - | - | - | - | - | - | - | - | - | - | 245 |
| 63 | FN010831 | Delanson | 11.2 | - | - | - | - | - | 55 | 1,100 | 1,100 | 1,600 | 3,400 | 2,050 | 205 | 9,510 |
| 64 | FN011939 | Delmar | 7.2 | 10,352 | 8,745 | 6,162 | 2,883 | 1,465 | 189 | - | - | - | - | - | - | 29,795 |
| 65 | FN011387A | Dorwin | 2.0 | - | - | 410 | 1,575 | 6,277 | 401 | - | - | - | - | - | - | 8,663 |
| 66 | FN011971 | East Fulton | 40.0 | - | - | - | - | - | - | 176 | 2,691 | 6,924 | 8,307 | 7,117 | 99 | 25,314 |
| 67 | FN011545 | BATAVIA STAT | 5.0 | - | - | - | - | - | - | - | 426 | 1,634 | 1,901 | - | - | 3,960 |
| 68 | FN011544 | EAST GOLAH | 5.0 | - | - | - | - | - | - | 250 | 1,830 | 1,850 | 1,020 | - | - | 4,950 |
| 69 | FN011543 | EAST GOLAH | 5.0 | - | - | - | - | - | - | - | 426 | 1,634 | 1,901 | - | - | 3,960 |
| 70 | FN000216A | East Pulaski | 15.6 | 6 | 70 | 180 | 480 | 2,320 | 7,250 | 360 | - | - | - | - | - | 10,666 |
| 71 | FN011402 | East Schodack | 15.3 | - | - | - | - | - | - | - | 120 | 1,428 | 9,483 | 9,483 | 5,794 | 26,309 |
| 72 | FN010022 | Sawyer Ave | 20.0 | - | - | - | - | - | 100 | 500 | 5,000 | 2,000 | 100 | - | - | 7,700 |
| 73 | FN012052 | Delameter | 40.0 | - | 125 | 250 | 870 | 5,120 | 5,160 | 500 | - | - | - | - | - | 12,025 |
| 74 | FN012051 | Delameter | 40.0 | - | 1,200 | 1,100 | 2,700 | 7,600 | 6,900 | 1,000 | - | - | - | - | - | 20,500 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



*E*

| | | | | Capital Spending $000s | | | | | Capital $000s per Capacity Added MW | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line | Reference | Station | Capacity Added MW | T_Station | T_Line | D_Station | D_Line | Sum | T_Station | T_Line | D_Station | D_Line | Sum |
| | (A) | (A1) | (B) | (C-TS) | (C-TL) | (C-DS) | (C-DL) | (C) | (D-TS) (C-TS)/(B) | (D-TL) (C-TL)/(B) | (D-DS) (C-DS)/(B) | (D-DL) (C-DL)/((B) | (D) |
| 38 | FN005820 | 41 STATION 41 | 9.0 | - | - | 12,460 | 2,740 | 15,200 | - | - | 1,384 | 304 | 1,689 |
| 39 | FN010096 | Buffalo Station | 9.0 | - | - | 29,861 | 1,832 | 31,693 | - | - | 3,318 | 204 | 3,521 |
| 40 | FN005821 | 51 ELK ST | 9.0 | - | - | 31,896 | 1,648 | 33,544 | - | - | 3,544 | 183 | 3,727 |
| 41 | FN005822 | 68 ELMWOOD | 9.0 | - | - | 12,460 | 2,739 | 15,199 | - | - | 1,384 | 304 | 1,689 |
| 42 | FN011290 | New Buffalo St | 15.0 | - | - | 32,465 | 3,978 | 36,443 | - | - | 2,164 | 265 | 2,430 |
| 43 | FN014248 | Burdeck | 19.9 | - | - | 27,484 | - | 27,484 | - | - | 1,381 | - | 1,381 |
| 44 | FN014222 | Burgoyne | 8.8 | - | - | - | 673 | 673 | - | - | - | 76 | 76 |
| 45 | FN011414 | Burgoyne | 17.6 | - | - | 31,559 | - | 31,559 | - | - | 1,793 | - | 1,793 |
| 46 | FN012964 | 171 BURT | 5.0 | - | - | 515 | 12,712 | 13,227 | - | - | 103 | 2,542 | 2,645 |
| 47 | FN011413 | Butler | 17.6 | - | - | 26,047 | - | 26,047 | - | - | 1,480 | - | 1,480 |
| 48 | FN012612 | Butternut | 15.0 | - | - | - | 2,444 | 2,444 | - | - | - | 163 | 163 |
| 49 | FN011415 | Cedar | 15.0 | - | - | 1,738 | - | 1,738 | - | - | 116 | - | 116 |
| 50 | FN012138 | Chestertown | 34.5 | - | - | 30,539 | 105,140 | 135,679 | - | - | 885 | 3,048 | 3,933 |
| 51 | FN011946 | New Cicero Su | 80.0 | - | - | 35,188 | 14,106 | 49,295 | - | - | 440 | 176 | 616 |
| 52 | FN014417 | Cleveland | 7.0 | - | - | - | 18,336 | 18,336 | - | - | - | 2,619 | 2,619 |
| 53 | FN011920 | COBLESKILL | 9.4 | - | - | 3,723 | 3,190 | 6,913 | - | - | 396 | 339 | 735 |
| 54 | FN011848 | Coffeen | 5.0 | - | - | - | 2,270 | 2,270 | - | - | - | 454 | 454 |
| 55 | FN006634 | RUSSELL RD | 1.0 | - | - | - | 4,635 | 4,635 | - | - | - | 4,635 | 4,635 |
| 56 | FN006637 | Commerce | 4.4 | - | - | 10,466 | - | 10,466 | - | - | 2,379 | - | 2,379 |
| 57 | FN011440 | Corinth | 9.5 | - | - | 28,716 | - | 28,716 | - | - | 3,023 | - | 3,023 |
| 58 | FN010312 | Vail Mills | 2.5 | - | - | - | 206 | 206 | - | - | - | 82 | 82 |
| 59 | | | | | | | | | | | | | |
| 60 | FN011976 | CURTIS GREEN | 40.0 | - | - | 17,110 | 7,012 | 24,121 | - | - | 428 | 175 | 603 |
| 61 | FN004729 | Delanson | 1.2 | - | - | - | 188 | 188 | - | - | - | 151 | 151 |
| 62 | FN004723 | Delanson | 1.2 | - | - | - | 245 | 245 | - | - | - | 197 | 197 |
| 63 | FN010831 | Delanson | 11.2 | - | - | 9,510 | - | 9,510 | - | - | 849 | - | 849 |
| 64 | FN011939 | Delmar | 7.2 | - | - | 19,142 | 10,653 | 29,795 | - | - | 2,659 | 1,480 | 4,138 |
| 65 | FN011387A | Dorwin | 2.0 | - | - | - | 8,663 | 8,663 | - | - | - | 4,332 | 4,332 |
| 66 | FN011971 | East Fulton | 40.0 | - | - | - | 25,314 | 25,314 | - | - | - | 633 | 633 |
| 67 | FN011545 | BATAVIA STAT | 5.0 | - | - | - | 3,960 | 3,960 | - | - | - | 792 | 792 |
| 68 | FN011544 | EAST GOLAH | 5.0 | - | - | - | 4,950 | 4,950 | - | - | - | 990 | 990 |
| 69 | FN011543 | EAST GOLAH | 5.0 | - | - | - | 3,960 | 3,960 | - | - | - | 792 | 792 |
| 70 | FN000216A | East Pulaski | 15.6 | - | - | 10,666 | - | 10,666 | - | - | 684 | - | 684 |
| 71 | FN011402 | East Schodack | 15.3 | - | - | 26,309 | - | 26,309 | - | - | 1,718 | - | 1,718 |
| 72 | FN010022 | Sawyer Ave | 20.0 | - | - | - | 7,700 | 7,700 | - | - | - | 385 | 385 |
| 73 | FN012052 | Delameter | 40.0 | - | - | - | 12,025 | 12,025 | - | - | - | 301 | 301 |
| 74 | FN012051 | Delameter | 40.0 | - | - | 20,500 | - | 20,500 | - | - | 513 | - | 513 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



| | | | | *CCR Rates=>* | 8.21% | 8.44% | 8.06% | 14.13% | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Annual Cost $000s Using ECCR per Capacity Added MW | | | | |
| Line | Reference | Station | Capacity Added MW | In-Service Year | T_Station | T_Line | D_Station | D_Line | Sum |
| | (A) | (A1) | (B) | (F) | (E-TS) | (E-TL) | (E-DS) | (E-DL) | (E) |
| | | | | | (D-TS)*ECCR | (D-TL)*ECCR | (D-DS)*ECCR | (D-DL)*ECCR | |
| 38 | FN005820 | 41 STATION 41 | 9.0 | 2034 | - | - | 112 | 43 | 155 |
| 39 | FN010096 | Buffalo Station | 9.0 | 2031 | - | - | 267 | 29 | 296 |
| 40 | FN005821 | 51 ELK ST | 9.0 | 2033 | - | - | 286 | 26 | 311 |
| 41 | FN005822 | 68 ELMWOOD | 9.0 | 2034 | - | - | 112 | 43 | 155 |
| 42 | FN011290 | New Buffalo St | 15.0 | 2036 | - | - | 174 | 37 | 212 |
| 43 | FN014248 | Burdeck | 19.9 | 2036 | - | - | 111 | - | 111 |
| 44 | FN014222 | Burgoyne | 8.8 | 2027 | - | - | - | 11 | 11 |
| 45 | FN011414 | Burgoyne | 17.6 | 2035 | - | - | 145 | - | 145 |
| 46 | FN012964 | 171 BURT | 5.0 | 2036 | - | - | 8 | 359 | 368 |
| 47 | FN011413 | Butler | 17.6 | 2035 | - | - | 119 | - | 119 |
| 48 | FN012612 | Butternut | 15.0 | 2036 | - | - | - | 23 | 23 |
| 49 | FN011415 | Cedar | 15.0 | 2036 | - | - | 9 | - | 9 |
| 50 | FN012138 | Chestertown | 34.5 | 2036 | - | - | 71 | 431 | 502 |
| 51 | FN011946 | New Cicero Su | 80.0 | 2032 | - | - | 35 | 25 | 60 |
| 52 | FN014417 | Cleveland | 7.0 | 2031 | - | - | - | 370 | 370 |
| 53 | FN011920 | COBLESKILL | 9.4 | 2028 | - | - | 32 | 48 | 80 |
| 54 | FN011848 | Coffeen | 5.0 | 2030 | - | - | - | 64 | 64 |
| 55 | FN006634 | RUSSELL RD | 1.0 | 2031 | - | - | - | 655 | 655 |
| 56 | FN006637 | Commerce | 4.4 | 2031 | - | - | 192 | - | 192 |
| 57 | FN011440 | Corinth | 9.5 | 2035 | - | - | 244 | - | 244 |
| 58 | FN010312 | Vail Mills | 2.5 | 2027 | - | - | - | 12 | 12 |
| 59 | | | | | | | | | |
| 60 | FN011976 | CURTIS GREEN | 40.0 | 2035 | - | - | 34 | 25 | 59 |
| 61 | FN004729 | Delanson | 1.2 | 2026 | - | - | - | 21 | 21 |
| 62 | FN004723 | Delanson | 1.2 | 2026 | - | - | - | 28 | 28 |
| 63 | FN010831 | Delanson | 11.2 | 2036 | - | - | 68 | - | 68 |
| 64 | FN011939 | Delmar | 7.2 | 2030 | - | - | 214 | 209 | 423 |
| 65 | FN011387A | Dorwin | 2.0 | 2030 | - | - | - | 612 | 612 |
| 66 | FN011971 | East Fulton | 40.0 | 2036 | - | - | - | 89 | 89 |
| 67 | FN011545 | BATAVIA STAT | 5.0 | 2034 | - | - | - | 112 | 112 |
| 68 | FN011544 | EAST GOLAH | 5.0 | 2034 | - | - | - | 140 | 140 |
| 69 | FN011543 | EAST GOLAH | 5.0 | 2034 | - | - | - | 112 | 112 |
| 70 | FN000216A | East Pulaski | 15.6 | 2031 | - | - | 55 | - | 55 |
| 71 | FN011402 | East Schodack | 15.3 | 2036 | - | - | 138 | - | 138 |
| 72 | FN010022 | Sawyer Ave | 20.0 | 2034 | - | - | - | 54 | 54 |
| 73 | FN012052 | Delameter | 40.0 | 2031 | - | - | - | 42 | 42 |
| 74 | FN012051 | Delameter | 40.0 | 2031 | - | - | 41 | - | 41 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



| | | | | | | *Annual Inflation=>* | 102.1% | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Marginal Cost $000s in Each Year | | | | | | | | | | |
| Line | Reference | Station | Capacity Added MW | In-Service Year | Rationale | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 |
| | (A) | (A1) | (B) | (F) | (F-1) | (F26) | (F27) | (F28) | (F29) | (F30) | (F31) | (F32) | (F33) | (F34) | (F35) | (F36) |
| 38 | FN005820 | 41 STATION 41 | 9.0 | 2034 | MVD | 131 | 134 | 136 | 139 | 142 | 145 | 148 | 151 | 155 | 158 | 161 |
| 39 | FN010096 | Buffalo Station | 9.0 | 2031 | MVD | 267 | 273 | 278 | 284 | 290 | 296 | 302 | 309 | 315 | 322 | 329 |
| 40 | FN005821 | 51 ELK ST | 9.0 | 2033 | MVD | 269 | 275 | 281 | 287 | 293 | 299 | 305 | 311 | 318 | 325 | 332 |
| 41 | FN005822 | 68 ELMWOOD | 9.0 | 2034 | MVD | 131 | 134 | 136 | 139 | 142 | 145 | 148 | 151 | 155 | 158 | 161 |
| 42 | FN011290 | New Buffalo St | 15.0 | 2036 | Cap | 172 | 176 | 179 | 183 | 187 | 191 | 195 | 199 | 203 | 208 | 212 |
| 43 | FN014248 | Burdeck | 19.9 | 2036 | MVD | 90 | 92 | 94 | 96 | 98 | 100 | 102 | 105 | 107 | 109 | 111 |
| 44 | FN014222 | Burgoyne | 8.8 | 2027 | Cap | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 13 | 13 |
| 45 | FN011414 | Burgoyne | 17.6 | 2035 | MVD | 120 | 122 | 125 | 128 | 130 | 133 | 136 | 139 | 142 | 145 | 148 |
| 46 | FN012964 | 171 BURT | 5.0 | 2036 | MVD | 299 | 305 | 311 | 318 | 324 | 331 | 338 | 345 | 353 | 360 | 368 |
| 47 | FN011413 | Butler | 17.6 | 2035 | MVD | 99 | 101 | 103 | 105 | 107 | 110 | 112 | 114 | 117 | 119 | 122 |
| 48 | FN012612 | Butternut | 15.0 | 2036 | Cap | 19 | 19 | 19 | 20 | 20 | 21 | 21 | 22 | 22 | 23 | 23 |
| 49 | FN011415 | Cedar | 15.0 | 2036 | MVD | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 |
| 50 | FN012138 | Chestertown | 34.5 | 2036 | MVD | 408 | 416 | 425 | 434 | 443 | 452 | 462 | 472 | 481 | 492 | 502 |
| 51 | FN011946 | New Cicero Su | 80.0 | 2032 | Cap | 53 | 54 | 56 | 57 | 58 | 59 | 60 | 62 | 63 | 64 | 66 |
| 52 | FN014417 | Cleveland | 7.0 | 2031 | Cap | 334 | 341 | 348 | 355 | 362 | 370 | 378 | 386 | 394 | 402 | 411 |
| 53 | FN011920 | COBLESKILL | 9.4 | 2028 | MVD | 77 | 78 | 80 | 82 | 83 | 85 | 87 | 89 | 90 | 92 | 94 |
| 54 | FN011848 | Coffeen | 5.0 | 2030 | Cap | 59 | 60 | 62 | 63 | 64 | 65 | 67 | 68 | 70 | 71 | 73 |
| 55 | FN006634 | RUSSELL RD | 1.0 | 2031 | Cap | 590 | 603 | 615 | 628 | 641 | 655 | 669 | 683 | 697 | 712 | 727 |
| 56 | FN006637 | Commerce | 4.4 | 2031 | Cap | 173 | 176 | 180 | 184 | 188 | 192 | 196 | 200 | 204 | 208 | 213 |
| 57 | FN011440 | Corinth | 9.5 | 2035 | MVD | 202 | 206 | 211 | 215 | 220 | 224 | 229 | 234 | 239 | 244 | 249 |
| 58 | FN010312 | Vail Mills | 2.5 | 2027 | MVD | 11 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 14 | 14 |
| 59 | | | | | | | | | | | | | | | | |
| 60 | FN011976 | CURTIS GREEN | 40.0 | 2035 | MVD | 49 | 50 | 51 | 52 | 53 | 55 | 56 | 57 | 58 | 59 | 60 |
| 61 | FN004729 | Delanson | 1.2 | 2026 | Cap | 21 | 22 | 22 | 23 | 23 | 24 | 24 | 25 | 25 | 26 | 26 |
| 62 | FN004723 | Delanson | 1.2 | 2026 | Cap | 28 | 28 | 29 | 30 | 30 | 31 | 32 | 32 | 33 | 34 | 34 |
| 63 | FN010831 | Delanson | 11.2 | 2036 | Cap | 56 | 57 | 58 | 59 | 60 | 62 | 63 | 64 | 66 | 67 | 68 |
| 64 | FN011939 | Delmar | 7.2 | 2030 | Cap | 390 | 398 | 406 | 415 | 423 | 432 | 441 | 451 | 460 | 470 | 480 |
| 65 | FN011387A | Dorwin | 2.0 | 2030 | MVD | 563 | 575 | 587 | 599 | 612 | 625 | 638 | 651 | 665 | 679 | 693 |
| 66 | FN011971 | East Fulton | 40.0 | 2036 | MVD | 73 | 74 | 76 | 77 | 79 | 81 | 82 | 84 | 86 | 88 | 89 |
| 67 | FN011545 | BATAVIA STAT | 5.0 | 2034 | Cap | 95 | 97 | 99 | 101 | 103 | 105 | 107 | 110 | 112 | 114 | 117 |
| 68 | FN011544 | EAST GOLAH | 5.0 | 2034 | Cap | 118 | 121 | 123 | 126 | 129 | 131 | 134 | 137 | 140 | 143 | 146 |
| 69 | FN011543 | EAST GOLAH | 5.0 | 2034 | Cap | 95 | 97 | 99 | 101 | 103 | 105 | 107 | 110 | 112 | 114 | 117 |
| 70 | FN000216A | East Pulaski | 15.6 | 2031 | Cap | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 59 | 60 | 61 |
| 71 | FN011402 | East Schodack | 15.3 | 2036 | MVD | 113 | 115 | 117 | 120 | 122 | 125 | 127 | 130 | 133 | 136 | 138 |
| 72 | FN010022 | Sawyer Ave | 20.0 | 2034 | Cap | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 56 | 57 |
| 73 | FN012052 | Delameter | 40.0 | 2031 | Cap | 38 | 39 | 40 | 41 | 42 | 42 | 43 | 44 | 45 | 46 | 47 |
| 74 | FN012051 | Delameter | 40.0 | 2031 | Cap | 37 | 38 | 39 | 40 | 40 | 41 | 42 | 43 | 44 | 45 | 46 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



| | | | | Capital Spending $000s | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line | Reference | Station | Capacity Added MW | Prior to 2026 CapEx | FY26 Capex | FY27 Capex | FY28 Capex | FY29 Capex | FY30 Capex | FY31 Capex | FY32 Capex | FY33 Capex | FY34 Capex | FY35 Capex | FY36 Capex | Sum |
| | (A) | (A1) | (B) | (C26X) | (C26) | (C27) | (C28) | (C29) | (C30) | (C31) | (C32) | (C33) | (C34) | (C35) | (C36) | (C-Sum) |
| 75 | | | | | | | | | | | | | | | | |
| 76 | FN012062 | Bridgeport | 22.0 | - | 120 | 220 | 1,070 | 7,450 | 1,990 | 500 | - | - | - | - | - | 11,350 |
| 77 | FN012061 | Bridgeport | 25.0 | - | 2,300 | 850 | 5,100 | 8,500 | 5,300 | 1,000 | - | - | - | - | - | 23,050 |
| 78 | FN012057 | East Molloy | 22.0 | - | 120 | 220 | 1,580 | 7,150 | 3,040 | 500 | - | - | - | - | - | 12,610 |
| 79 | FN012055 | East Molloy | 25.0 | - | 2,300 | 850 | 5,100 | 7,100 | 5,850 | 1,000 | - | - | - | - | - | 22,200 |
| 80 | FN012048 | BATAVIA STAT | 40.0 | - | 120 | 275 | 1,190 | 5,700 | 5,750 | 500 | - | - | - | - | - | 13,535 |
| 81 | FN012041 | BATAVIA STAT | 40.0 | - | 2,300 | 850 | 5,100 | 7,670 | 5,850 | 1,000 | - | - | - | - | - | 22,770 |
| 82 | FN014033 | Everett | 15.0 | 762 | - | - | - | 323 | - | - | - | 1,515 | - | 220 | 2,932 | 5,753 |
| 83 | FN013818 | 64 STATION 64 | 4.6 | 213 | - | - | - | - | 798 | - | - | - | - | - | - | 1,011 |
| 84 | FN005770 | Fayette St | 41.5 | 10,897 | 9,117 | 15,915 | 13,464 | 9,764 | 5,239 | 223 | - | - | - | - | - | 64,619 |
| 85 | FN000459 | FIREHOUSE | 10.0 | 159 | - | - | 24 | 1,900 | - | - | - | - | - | - | - | 2,083 |
| 86 | FN011347 | FIREHOUSE | 15.0 | - | - | - | - | - | - | - | - | - | 154 | 2,032 | 1,179 | 3,365 |
| 87 | FN006171 | Florida | 2.0 | - | - | 15 | 338 | - | - | - | - | - | - | - | - | 353 |
| 88 | FN014455 | FRENCH MOUI | 5.0 | - | - | 350 | - | - | - | - | - | - | - | - | - | 350 |
| 89 | FN013397 | Geneseo | 6.8 | - | - | - | - | - | - | - | 128 | 1,672 | 970 | 3,526 | 3,409 | 9,705 |
| 90 | FN013415 | Geneseo | 1.4 | - | - | - | - | - | - | - | 100 | 3,574 | 3,199 | 3,199 | 3,199 | 13,271 |
| 91 | FN000195A | Gilbert Mills | 15.0 | 906 | 238 | 662 | 774 | 5,343 | 5,746 | - | - | - | - | - | - | 13,668 |
| 92 | FN011476 | Gilmantown | 10.0 | - | - | - | 137 | 525 | 2,383 | 2,379 | - | - | - | - | - | 5,423 |
| 93 | FN011422 | GLOVERSVILLE | 15.0 | - | - | - | - | 105 | 1,397 | 504 | 4,409 | 11,228 | 11,228 | 1,186 | - | 30,056 |
| 94 | FN011970 | GRANBY CENT | 32.9 | - | - | - | 128 | 1,059 | 1,583 | 2,884 | 15,726 | 10,208 | 2,578 | - | - | 34,166 |
| 95 | FN002240 | Grand Island | 15.0 | 3,863 | 1,060 | - | - | - | - | 289 | 3,520 | 1,894 | - | - | - | 10,625 |
| 96 | FN011384 | Grand Island | 22.6 | - | - | - | - | - | - | - | 116 | 1,540 | 556 | 1,374 | 9,123 | 12,709 |
| 97 | FN006457 | GREENBUSH | 12.5 | - | 15 | - | 2,170 | - | - | - | - | - | - | - | - | 2,185 |
| 98 | FN011442 | New Greenwic | 20.0 | - | - | - | - | - | - | - | - | 100 | 1,330 | 480 | 1,342 | 3,252 |
| 99 | FN011527 | GROOMS | 29.7 | - | - | - | - | - | - | 134 | 2,425 | 3,798 | 11,063 | 17,932 | 12,405 | 47,757 |
| 100 | FN002374 | HAGUE | 4.0 | 192 | 734 | 807 | - | - | - | - | - | - | - | - | - | 1,733 |
| 101 | FN011445 | Hague | 17.6 | - | - | - | - | - | - | 134 | 1,782 | 2,233 | 8,561 | 12,561 | 6,388 | 31,659 |
| 102 | FN011353 | Hemstreet | 12.5 | - | - | - | - | - | - | - | - | - | - | 139 | 1,853 | 1,992 |
| 103 | FN014119 | Indian Lake | 12.0 | - | - | - | - | - | - | - | - | - | 155 | 2,063 | 745 | 2,963 |
| 104 | FN011417 | Inman | 14.0 | - | - | - | - | - | 1,660 | 6,381 | 9,605 | - | - | - | - | 17,646 |
| 105 | FN010667 | 68 ELMWOOD | 2.2 | 78 | - | - | - | - | 706 | - | - | - | - | - | - | 784 |
| 106 | FN011010 | Karner | 17.5 | 17,369 | 1,996 | 12,500 | 18,408 | 3,835 | 842 | 439 | - | - | - | - | - | 55,389 |
| 107 | FN011605 | Kenmore Statio | 2.0 | - | - | - | - | - | 10 | 40 | 1,050 | 2,300 | 800 | - | - | 4,200 |
| 108 | FN005761 | Lakeville | 10.0 | 35,084 | 2,577 | 293 | - | - | - | - | - | - | - | - | - | 37,954 |
| 109 | FN011371 | LASHER | 11.0 | - | - | - | - | - | - | - | - | - | - | 1,505 | 5,788 | 7,293 |
| 110 | FN011411 | Latham | 7.5 | - | - | - | - | - | 128 | 1,697 | 613 | 1,515 | 10,058 | 10,058 | 6,084 | 30,152 |
| 111 | FN011974 | Liberty Street | 6.3 | 3,342 | 511 | 2,159 | 8,577 | 6,971 | 2,279 | 2,362 | - | - | - | - | - | 26,201 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



*E*

| | | | | Capital Spending $000s | | | | | Capital $000s per Capacity Added MW | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line | Reference | Station | Capacity Added MW | T_Station | T_Line | D_Station | D_Line | Sum | T_Station | T_Line | D_Station | D_Line | Sum |
| | (A) | (A1) | (B) | (C-TS) | (C-TL) | (C-DS) | (C-DL) | (C) | (D-TS) (C-TS)/(B) | (D-TL) (C-TL)/(B) | (D-DS) (C-DS)/(B) | (D-DL) (C-DL)/((B) | (D) |
| 75 | | | | | | | | | | | | | |
| 76 | FN012062 | Bridgeport | 22.0 | - | - | - | 11,350 | 11,350 | - | - | - | 516 | 516 |
| 77 | FN012061 | Bridgeport | 25.0 | - | - | 23,050 | - | 23,050 | - | - | 922 | - | 922 |
| 78 | FN012057 | East Molloy | 22.0 | - | - | - | 12,610 | 12,610 | - | - | - | 573 | 573 |
| 79 | FN012055 | East Molloy | 25.0 | - | - | 22,200 | - | 22,200 | - | - | 888 | - | 888 |
| 80 | FN012048 | BATAVIA STAT | 40.0 | - | - | - | 13,535 | 13,535 | - | - | - | 338 | 338 |
| 81 | FN012041 | BATAVIA STAT | 40.0 | - | - | 22,770 | - | 22,770 | - | - | 569 | - | 569 |
| 82 | FN014033 | Everett | 15.0 | 1,576 | - | 1,577 | 2,600 | 5,753 | 105 | - | 105 | 173 | 384 |
| 83 | FN013818 | 64 STATION 64 | 4.6 | - | - | - | 1,011 | 1,011 | - | - | - | 221 | 221 |
| 84 | FN005770 | Fayette St | 41.5 | - | - | 41,208 | 23,411 | 64,619 | - | - | 993 | 564 | 1,557 |
| 85 | FN000459 | FIREHOUSE | 10.0 | - | - | - | 2,083 | 2,083 | - | - | - | 208 | 208 |
| 86 | FN011347 | FIREHOUSE | 15.0 | - | - | 3,365 | - | 3,365 | - | - | 224 | - | 224 |
| 87 | FN006171 | Florida | 2.0 | - | - | - | 353 | 353 | - | - | - | 177 | 177 |
| 88 | FN014455 | FRENCH MOUI | 5.0 | - | - | - | 350 | 350 | - | - | - | 70 | 70 |
| 89 | FN013397 | Geneseo | 6.8 | - | - | 9,705 | - | 9,705 | - | - | 1,427 | - | 1,427 |
| 90 | FN013415 | Geneseo | 1.4 | - | - | - | 13,271 | 13,271 | - | - | - | 9,216 | 9,216 |
| 91 | FN000195A | Gilbert Mills | 15.0 | - | - | 13,668 | - | 13,668 | - | - | 911 | - | 911 |
| 92 | FN011476 | Gilmantown | 10.0 | - | - | 5,423 | - | 5,423 | - | - | 542 | - | 542 |
| 93 | FN011422 | GLOVERSVILLE | 15.0 | - | - | 30,056 | - | 30,056 | - | - | 2,004 | - | 2,004 |
| 94 | FN011970 | GRANBY CENT | 32.9 | - | - | - | 34,166 | 34,166 | - | - | - | 1,038 | 1,038 |
| 95 | FN002240 | Grand Island | 15.0 | - | - | 10,625 | - | 10,625 | - | - | 708 | - | 708 |
| 96 | FN011384 | Grand Island | 22.6 | - | - | 12,709 | - | 12,709 | - | - | 562 | - | 562 |
| 97 | FN006457 | GREENBUSH | 12.5 | - | - | - | 2,185 | 2,185 | - | - | - | 175 | 175 |
| 98 | FN011442 | New Greenwic | 20.0 | - | - | 3,252 | - | 3,252 | - | - | 163 | - | 163 |
| 99 | FN011527 | GROOMS | 29.7 | - | - | 38,360 | 9,397 | 47,757 | - | - | 1,292 | 316 | 1,608 |
| 100 | FN002374 | HAGUE | 4.0 | - | - | - | 1,733 | 1,733 | - | - | - | 433 | 433 |
| 101 | FN011445 | Hague | 17.6 | - | - | 31,659 | - | 31,659 | - | - | 1,799 | - | 1,799 |
| 102 | FN011353 | Hemstreet | 12.5 | - | - | 1,992 | - | 1,992 | - | - | 159 | - | 159 |
| 103 | FN014119 | Indian Lake | 12.0 | - | - | 2,963 | - | 2,963 | - | - | 247 | - | 247 |
| 104 | FN011417 | Inman | 14.0 | - | - | - | 17,646 | 17,646 | - | - | - | 1,260 | 1,260 |
| 105 | FN010667 | 68 ELMWOOD | 2.2 | - | - | - | 784 | 784 | - | - | - | 356 | 356 |
| 106 | FN011010 | Karner | 17.5 | - | - | 35,419 | 19,970 | 55,389 | - | - | 2,024 | 1,141 | 3,165 |
| 107 | FN011605 | Kenmore Stati | 2.0 | - | - | 4,200 | - | 4,200 | - | - | 2,100 | - | 2,100 |
| 108 | FN005761 | Lakeville | 10.0 | - | - | 21,645 | 16,309 | 37,954 | - | - | 2,164 | 1,631 | 3,795 |
| 109 | FN011371 | LASHER | 11.0 | - | - | - | 7,293 | 7,293 | - | - | - | 663 | 663 |
| 110 | FN011411 | Latham | 7.5 | - | - | 30,152 | - | 30,152 | - | - | 4,020 | - | 4,020 |
| 111 | FN011974 | Liberty Street | 6.3 | - | - | 15,876 | 10,324 | 26,201 | - | - | 2,540 | 1,652 | 4,192 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



| | | | | *CCR Rates=>* | 8.21% | 8.44% | 8.06% | 14.13% | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Annual Cost $000s Using ECCR per Capacity Added MW | | | | |
| Line | Reference | Station | Capacity Added MW | In-Service Year | T_Station | T_Line | D_Station | D_Line | Sum |
| | (A) | (A1) | (B) | (F) | (E-TS) | (E-TL) | (E-DS) | (E-DL) | (E) |
| | | | | | (D-TS)*ECCR | (D-TL)*ECCR | (D-DS)*ECCR | (D-DL)*ECCR | |
| 75 | | | | | | | | | |
| 76 | FN012062 | Bridgeport | 22.0 | 2031 | - | - | - | 73 | 73 |
| 77 | FN012061 | Bridgeport | 25.0 | 2031 | - | - | 74 | - | 74 |
| 78 | FN012057 | East Molloy | 22.0 | 2031 | - | - | - | 81 | 81 |
| 79 | FN012055 | East Molloy | 25.0 | 2031 | - | - | 72 | - | 72 |
| 80 | FN012048 | BATAVIA STAT | 40.0 | 2031 | - | - | - | 48 | 48 |
| 81 | FN012041 | BATAVIA STAT | 40.0 | 2031 | - | - | 46 | - | 46 |
| 82 | FN014033 | Everett | 15.0 | 2036 | 9 | - | 8 | 24 | 42 |
| 83 | FN013818 | 64 STATION 64 | 4.6 | 2030 | - | - | - | 31 | 31 |
| 84 | FN005770 | Fayette St | 41.5 | 2031 | - | - | 80 | 80 | 160 |
| 85 | FN000459 | FIREHOUSE | 10.0 | 2029 | - | - | - | 29 | 29 |
| 86 | FN011347 | FIREHOUSE | 15.0 | 2036 | - | - | 18 | - | 18 |
| 87 | FN006171 | Florida | 2.0 | 2028 | - | - | - | 25 | 25 |
| 88 | FN014455 | FRENCH MOUI | 5.0 | 2027 | - | - | - | 10 | 10 |
| 89 | FN013397 | Geneseo | 6.8 | 2036 | - | - | 115 | - | 115 |
| 90 | FN013415 | Geneseo | 1.4 | 2036 | - | - | - | 1,302 | 1,302 |
| 91 | FN000195A | Gilbert Mills | 15.0 | 2030 | - | - | 73 | - | 73 |
| 92 | FN011476 | Gilmantown | 10.0 | 2031 | - | - | 44 | - | 44 |
| 93 | FN011422 | GLOVERSVILLE | 15.0 | 2035 | - | - | 161 | - | 161 |
| 94 | FN011970 | GRANBY CENT | 32.9 | 2034 | - | - | - | 147 | 147 |
| 95 | FN002240 | Grand Island | 15.0 | 2033 | - | - | 57 | - | 57 |
| 96 | FN011384 | Grand Island | 22.6 | 2036 | - | - | 45 | - | 45 |
| 97 | FN006457 | GREENBUSH | 12.5 | 2028 | - | - | - | 25 | 25 |
| 98 | FN011442 | New Greenwic | 20.0 | 2036 | - | - | 13 | - | 13 |
| 99 | FN011527 | GROOMS | 29.7 | 2036 | - | - | 104 | 45 | 149 |
| 100 | FN002374 | HAGUE | 4.0 | 2027 | - | - | - | 61 | 61 |
| 101 | FN011445 | Hague | 17.6 | 2036 | - | - | 145 | - | 145 |
| 102 | FN011353 | Hemstreet | 12.5 | 2036 | - | - | 13 | - | 13 |
| 103 | FN014119 | Indian Lake | 12.0 | 2036 | - | - | 20 | - | 20 |
| 104 | FN011417 | Inman | 14.0 | 2032 | - | - | - | 178 | 178 |
| 105 | FN010667 | 68 ELMWOOD | 2.2 | 2030 | - | - | - | 50 | 50 |
| 106 | FN011010 | Karner | 17.5 | 2031 | - | - | 163 | 161 | 324 |
| 107 | FN011605 | Kenmore Stati | 2.0 | 2034 | - | - | 169 | - | 169 |
| 108 | FN005761 | Lakeville | 10.0 | 2027 | - | - | 174 | 230 | 405 |
| 109 | FN011371 | LASHER | 11.0 | 2036 | - | - | - | 94 | 94 |
| 110 | FN011411 | Latham | 7.5 | 2036 | - | - | 324 | - | 324 |
| 111 | FN011974 | Liberty Street | 6.3 | 2031 | - | - | 205 | 233 | 438 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



| | | | | | | *Annual Inflation=>* | 102.1% | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Marginal Cost $000s in Each Year | | | | | | | | | | |
| Line | Reference | Station | Capacity Added MW | In-Service Year | Rationale | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 |
| | (A) | (A1) | (B) | (F) | (F-1) | (F26) | (F27) | (F28) | (F29) | (F30) | (F31) | (F32) | (F33) | (F34) | (F35) | (F36) |
| 75 | | | | | | | | | | | | | | | | |
| 76 | FN012062 | Bridgeport | 22.0 | 2031 | Cap | 66 | 67 | 68 | 70 | 71 | 73 | 74 | 76 | 78 | 79 | 81 |
| 77 | FN012061 | Bridgeport | 25.0 | 2031 | Cap | 67 | 68 | 70 | 71 | 73 | 74 | 76 | 77 | 79 | 81 | 82 |
| 78 | FN012057 | East Molloy | 22.0 | 2031 | Cap | 73 | 75 | 76 | 78 | 79 | 81 | 83 | 84 | 86 | 88 | 90 |
| 79 | FN012055 | East Molloy | 25.0 | 2031 | Cap | 65 | 66 | 67 | 69 | 70 | 72 | 73 | 75 | 76 | 78 | 79 |
| 80 | FN012048 | BATAVIA STAT | 40.0 | 2031 | Cap | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 |
| 81 | FN012041 | BATAVIA STAT | 40.0 | 2031 | Cap | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 |
| 82 | FN014033 | Everett | 15.0 | 2036 | MVD | 34 | 34 | 35 | 36 | 37 | 37 | 38 | 39 | 40 | 41 | 42 |
| 83 | FN013818 | 64 STATION 64 | 4.6 | 2030 | Cap | 29 | 29 | 30 | 31 | 31 | 32 | 33 | 33 | 34 | 35 | 35 |
| 84 | FN005770 | Fayette St | 41.5 | 2031 | MVD | 144 | 147 | 150 | 153 | 156 | 160 | 163 | 167 | 170 | 174 | 177 |
| 85 | FN000459 | FIREHOUSE | 10.0 | 2029 | Cap | 28 | 28 | 29 | 29 | 30 | 31 | 31 | 32 | 33 | 33 | 34 |
| 86 | FN011347 | FIREHOUSE | 15.0 | 2036 | MVD | 15 | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 18 | 18 |
| 87 | FN006171 | Florida | 2.0 | 2028 | Cap | 24 | 24 | 25 | 25 | 26 | 27 | 27 | 28 | 28 | 29 | 29 |
| 88 | FN014455 | FRENCH MOUI | 5.0 | 2027 | MVD | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 |
| 89 | FN013397 | Geneseo | 6.8 | 2036 | MVD | 93 | 95 | 97 | 99 | 102 | 104 | 106 | 108 | 110 | 113 | 115 |
| 90 | FN013415 | Geneseo | 1.4 | 2036 | MVD | 1,058 | 1,080 | 1,103 | 1,126 | 1,149 | 1,174 | 1,198 | 1,223 | 1,249 | 1,275 | 1,302 |
| 91 | FN000195A | Gilbert Mills | 15.0 | 2030 | Cap | 68 | 69 | 70 | 72 | 73 | 75 | 77 | 78 | 80 | 81 | 83 |
| 92 | FN011476 | Gilmantown | 10.0 | 2031 | MVD | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 47 | 48 |
| 93 | FN011422 | GLOVERSVILLE | 15.0 | 2035 | MVD | 134 | 137 | 140 | 143 | 146 | 149 | 152 | 155 | 158 | 161 | 165 |
| 94 | FN011970 | GRANBY CENT | 32.9 | 2034 | MVD | 124 | 127 | 130 | 132 | 135 | 138 | 141 | 144 | 147 | 150 | 153 |
| 95 | FN002240 | Grand Island | 15.0 | 2033 | MVD | 49 | 50 | 51 | 53 | 54 | 55 | 56 | 57 | 58 | 60 | 61 |
| 96 | FN011384 | Grand Island | 22.6 | 2036 | MVD | 37 | 38 | 38 | 39 | 40 | 41 | 42 | 43 | 43 | 44 | 45 |
| 97 | FN006457 | GREENBUSH | 12.5 | 2028 | MVD | 24 | 24 | 25 | 25 | 26 | 26 | 27 | 27 | 28 | 29 | 29 |
| 98 | FN011442 | New Greenwic | 20.0 | 2036 | MVD | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 13 | 13 | 13 |
| 99 | FN011527 | GROOMS | 29.7 | 2036 | MVD | 121 | 123 | 126 | 129 | 131 | 134 | 137 | 140 | 143 | 146 | 149 |
| 100 | FN002374 | HAGUE | 4.0 | 2027 | Cap | 60 | 61 | 62 | 64 | 65 | 67 | 68 | 69 | 71 | 72 | 74 |
| 101 | FN011445 | Hague | 17.6 | 2036 | MVD | 118 | 120 | 123 | 125 | 128 | 131 | 133 | 136 | 139 | 142 | 145 |
| 102 | FN011353 | Hemstreet | 12.5 | 2036 | MVD | 10 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 13 | 13 |
| 103 | FN014119 | Indian Lake | 12.0 | 2036 | MVD | 16 | 17 | 17 | 17 | 18 | 18 | 18 | 19 | 19 | 19 | 20 |
| 104 | FN011417 | Inman | 14.0 | 2032 | MVD | 157 | 161 | 164 | 167 | 171 | 174 | 178 | 182 | 186 | 190 | 194 |
| 105 | FN010667 | 68 ELMWOOD | 2.2 | 2030 | Cap | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 54 | 55 | 56 | 57 |
| 106 | FN011010 | Karner | 17.5 | 2031 | MVD | 292 | 298 | 305 | 311 | 318 | 324 | 331 | 338 | 345 | 352 | 360 |
| 107 | FN011605 | Kenmore Stati | 2.0 | 2034 | Cap | 143 | 146 | 149 | 153 | 156 | 159 | 162 | 166 | 169 | 173 | 176 |
| 108 | FN005761 | Lakeville | 10.0 | 2027 | Cap | 397 | 405 | 413 | 422 | 431 | 440 | 449 | 459 | 468 | 478 | 488 |
| 109 | FN011371 | LASHER | 11.0 | 2036 | MVD | 76 | 78 | 79 | 81 | 83 | 84 | 86 | 88 | 90 | 92 | 94 |
| 110 | FN011411 | Latham | 7.5 | 2036 | MVD | 263 | 269 | 274 | 280 | 286 | 292 | 298 | 304 | 311 | 317 | 324 |
| 111 | FN011974 | Liberty Street | 6.3 | 2031 | Cap | 395 | 403 | 412 | 420 | 429 | 438 | 447 | 457 | 466 | 476 | 486 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



| | | | | Capital Spending $000s | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line | Reference | Station | Capacity Added MW | Prior to 2026 CapEx | FY26 Capex | FY27 Capex | FY28 Capex | FY29 Capex | FY30 Capex | FY31 Capex | FY32 Capex | FY33 Capex | FY34 Capex | FY35 Capex | FY36 Capex | Sum |
| | (A) | (A1) | (B) | (C26X) | (C26) | (C27) | (C28) | (C29) | (C30) | (C31) | (C32) | (C33) | (C34) | (C35) | (C36) | (C-Sum) |
| 112 | FN013411 | Livonia | 8.8 | - | - | - | - | - | - | - | 180 | 1,491 | 862 | 1,365 | 10,256 | 14,154 |
| 113 | FN013414 | 37 HUDSON A\ | 5.0 | - | - | - | - | - | - | - | - | 150 | 2,335 | 2,694 | 4,501 | 9,680 |
| 114 | FN011857 | Lowville | 5.0 | - | - | - | - | - | - | - | - | - | 1,089 | 2,198 | 2,080 | 5,367 |
| 115 | FN010006 | LYNDONVILLE | 5.0 | - | - | - | - | - | - | 35 | 346 | 1,040 | 1,386 | 495 | - | 3,302 |
| 116 | FN011424 | Mayfield | 14.5 | - | - | - | - | - | - | - | - | - | - | 105 | 1,397 | 1,502 |
| 117 | FN011534 | McClellan | 5.3 | - | - | - | - | 122 | 1,617 | 583 | 1,442 | 9,579 | 9,579 | 5,794 | - | 28,716 |
| 118 | FN011344 | Mexico | 20.0 | - | - | - | - | 149 | 4,358 | 5,746 | 4,519 | 1,782 | 6,300 | 16,673 | 6,388 | 45,915 |
| 119 | FN011382 | Middleburgh | 19.4 | - | - | - | - | 100 | 1,330 | 480 | 1,187 | 7,881 | 7,881 | 4,767 | - | 23,626 |
| 120 | FN012928 | Middleville | 5.2 | - | - | - | - | - | 1,292 | 3,952 | 5,946 | 2,596 | 1,018 | - | - | 14,805 |
| 121 | FN012193 | Delameter | 2.0 | - | 6,137 | 333 | 333 | - | - | - | - | - | - | - | - | 6,803 |
| 122 | FN011965 | Clintion Statior | 13.5 | - | - | - | - | 499 | 2,140 | 2,053 | 5,385 | 9,267 | 357 | - | - | 19,702 |
| 123 | FN011560 | North Leroy | 5.0 | - | - | - | - | - | - | - | 1,500 | 4,125 | 2,391 | 1,218 | - | 9,234 |
| 124 | FN011393 | Nassau | 13.0 | - | - | - | - | - | 109 | 1,295 | 8,602 | 8,602 | 5,255 | 1,976 | - | 25,839 |
| 125 | FN011296 | New Cuba Stat | 12.5 | - | - | - | - | - | - | 105 | 3,520 | 1,055 | 3,259 | 10,707 | 11,935 | 30,581 |
| 126 | FN012315 | NEW KRUMKIL | 60.0 | 2,180 | 1,757 | 4,433 | 9,115 | 11,210 | 13,158 | 12,518 | 4,350 | 600 | 50 | - | - | 59,370 |
| 127 | FN011311 | New Livingstor | 12.5 | - | - | - | - | - | - | 134 | 3,964 | 1,419 | 4,543 | 14,631 | 15,296 | 39,987 |
| 128 | FN010052 | Middleport | 7.0 | - | - | - | - | 30 | 644 | 2,540 | 4,950 | 3,465 | 248 | - | - | 11,877 |
| 129 | FN011103 | NEWTONVILLE | 38.7 | 2,489 | 1,317 | 4,197 | 7,578 | 6,601 | 8,797 | 3,868 | 2,223 | - | - | - | - | 37,072 |
| 130 | FN011426 | Northville Stati | 12.5 | - | - | - | - | 110 | 1,466 | 529 | 1,308 | 8,689 | 8,689 | 5,255 | - | 26,047 |
| 131 | FN011416 | Ogdenbrook | 24.6 | - | - | - | - | - | - | - | - | 148 | 1,965 | 709 | 1,982 | 4,804 |
| 132 | FN012130 | Otten | 0.3 | - | - | - | - | - | - | - | - | 192 | 739 | 2,944 | 188 | 4,063 |
| 133 | FN011443 | OTTEN | 0.5 | - | - | - | - | - | - | - | 676 | 1,980 | 1,980 | 1,980 | 1,560 | 8,176 |
| 134 | FN012945 | Paloma | 20.0 | - | - | - | - | - | - | - | - | - | - | - | 9 | 9 |
| 135 | FN011395 | Partridge | 15.0 | - | - | - | - | 110 | 1,466 | 529 | 1,308 | 8,689 | 8,689 | 5,255 | - | 26,047 |
| 136 | FN012618 | Peat | 22.0 | - | - | - | - | - | - | 128 | 1,059 | 613 | 5,100 | 5,737 | 3,060 | 15,697 |
| 137 | FN012004 | PINEBUSH | 0.7 | - | - | - | - | - | - | - | - | 328 | 1,262 | 1,468 | - | 3,058 |
| 138 | FN011397 | Pinebush | 32.6 | - | - | - | - | - | - | 110 | 1,466 | 529 | 1,479 | 10,739 | 10,739 | 25,064 |
| 139 | FN002263 | Port Henry | 2.5 | 53 | - | 686 | - | - | - | - | - | - | - | - | - | 739 |
| 140 | FN011433 | Port Henry | 14.5 | - | - | - | - | 105 | 872 | 504 | 798 | 2,901 | 2,804 | 291 | - | 8,275 |
| 141 | FN013957 | Pottersville | 13.0 | - | - | - | 20 | 1,370 | 656 | 1,732 | 4,427 | 758 | 798 | 2,901 | 2,804 | 15,467 |
| 142 | FN011942 | Raquette Lake | 0.5 | 110 | 180 | - | - | - | - | - | - | - | - | - | - | 290 |
| 143 | FN012721 | North Chautau | 4.0 | - | - | - | - | - | - | - | - | 100 | 1,330 | 1,342 | 760 | 3,532 |
| 144 | FN000126 | RIVERSIDE | 5.0 | 518 | - | - | - | 15 | 15 | 5,635 | 3,600 | 3,000 | - | - | - | 12,783 |
| 145 | FN011854 | Rome Substati | 5.0 | - | - | - | - | - | - | - | 69 | 267 | 307 | - | - | 644 |
| 146 | FN011852 | Rome Substati | 5.0 | - | - | - | - | 990 | 2,624 | 0 | - | - | - | - | - | 3,614 |
| 147 | FN011853 | Rome Substati | 5.0 | - | - | - | - | 390 | 2,000 | 1,250 | - | - | - | - | - | 3,640 |
| 148 | FN011856 | Rome Substati | 5.0 | - | - | - | - | - | - | - | 69 | 267 | 307 | - | - | 644 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



*E*

| | | | | Capital Spending $000s | | | | | Capital $000s per Capacity Added MW | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line | Reference | Station | Capacity Added MW | T_Station | T_Line | D_Station | D_Line | Sum | T_Station | T_Line | D_Station | D_Line | Sum |
| | (A) | (A1) | (B) | (C-TS) | (C-TL) | (C-DS) | (C-DL) | (C) | (D-TS) (C-TS)/(B) | (D-TL) (C-TL)/(B) | (D-DS) (C-DS)/(B) | (D-DL) (C-DL)/((B) | (D) |
| 112 | FN013411 | Livonia | 8.8 | - | - | 14,154 | - | 14,154 | - | - | 1,618 | - | 1,618 |
| 113 | FN013414 | 37 HUDSON A\ | 5.0 | - | - | 9,680 | - | 9,680 | - | - | 1,936 | - | 1,936 |
| 114 | FN011857 | Lowville | 5.0 | - | - | - | 5,367 | 5,367 | - | - | - | 1,073 | 1,073 |
| 115 | FN010006 | LYNDONVILLE | 5.0 | - | - | 3,302 | - | 3,302 | - | - | 660 | - | 660 |
| 116 | FN011424 | Mayfield | 14.5 | - | - | 1,502 | - | 1,502 | - | - | 104 | - | 104 |
| 117 | FN011534 | McClellan | 5.3 | - | - | 28,716 | - | 28,716 | - | - | 5,418 | - | 5,418 |
| 118 | FN011344 | Mexico | 20.0 | - | - | - | 45,915 | 45,915 | - | - | - | 2,296 | 2,296 |
| 119 | FN011382 | Middleburgh | 19.4 | - | - | 23,626 | - | 23,626 | - | - | 1,218 | - | 1,218 |
| 120 | FN012928 | Middleville | 5.2 | - | - | - | 14,805 | 14,805 | - | - | - | 2,847 | 2,847 |
| 121 | FN012193 | Delameter | 2.0 | - | - | - | 6,803 | 6,803 | - | - | - | 3,402 | 3,402 |
| 122 | FN011965 | Clintion Statior | 13.5 | - | - | 16,038 | 3,664 | 19,702 | - | - | 1,188 | 271 | 1,459 |
| 123 | FN011560 | North Leroy | 5.0 | - | - | - | 9,234 | 9,234 | - | - | - | 1,847 | 1,847 |
| 124 | FN011393 | Nassau | 13.0 | - | - | 25,839 | - | 25,839 | - | - | 1,988 | - | 1,988 |
| 125 | FN011296 | New Cuba Stat | 12.5 | - | - | 21,782 | 8,799 | 30,581 | - | - | 1,743 | 704 | 2,446 |
| 126 | FN012315 | NEW KRUMKIL | 60.0 | - | - | 24,914 | 34,456 | 59,370 | - | - | 415 | 574 | 989 |
| 127 | FN011311 | New Livingstor | 12.5 | - | - | 27,251 | 12,736 | 39,987 | - | - | 2,180 | 1,019 | 3,199 |
| 128 | FN010052 | Middleport | 7.0 | - | - | 11,877 | - | 11,877 | - | - | 1,697 | - | 1,697 |
| 129 | FN011103 | NEWTONVILLE | 38.7 | 5,546 | - | 16,421 | 15,105 | 37,072 | 143 | - | 424 | 390 | 957 |
| 130 | FN011426 | Northville Stati | 12.5 | - | - | 26,047 | - | 26,047 | - | - | 2,084 | - | 2,084 |
| 131 | FN011416 | Ogdenbrook | 24.6 | - | - | 4,804 | - | 4,804 | - | - | 195 | - | 195 |
| 132 | FN012130 | Otten | 0.3 | - | - | 4,063 | - | 4,063 | - | - | 12,697 | - | 12,697 |
| 133 | FN011443 | OTTEN | 0.5 | - | - | - | 8,176 | 8,176 | - | - | - | 16,353 | 16,353 |
| 134 | FN012945 | Paloma | 20.0 | - | - | - | 9 | 9 | - | - | - | 0 | 0 |
| 135 | FN011395 | Partridge | 15.0 | - | - | 26,047 | - | 26,047 | - | - | 1,736 | - | 1,736 |
| 136 | FN012618 | Peat | 22.0 | - | - | - | 15,697 | 15,697 | - | - | - | 714 | 714 |
| 137 | FN012004 | PINEBUSH | 0.7 | - | - | - | 3,058 | 3,058 | - | - | - | 4,705 | 4,705 |
| 138 | FN011397 | Pinebush | 32.6 | - | - | 25,064 | - | 25,064 | - | - | 769 | - | 769 |
| 139 | FN002263 | Port Henry | 2.5 | - | - | - | 739 | 739 | - | - | - | 296 | 296 |
| 140 | FN011433 | Port Henry | 14.5 | - | - | 8,275 | - | 8,275 | - | - | 571 | - | 571 |
| 141 | FN013957 | Pottersville | 13.0 | - | - | 9,154 | 6,313 | 15,467 | - | - | 704 | 486 | 1,190 |
| 142 | FN011942 | Raquette Lake | 0.5 | - | - | 290 | - | 290 | - | - | 579 | - | 579 |
| 143 | FN012721 | North Chautau | 4.0 | - | - | 3,532 | - | 3,532 | - | - | 883 | - | 883 |
| 144 | FN000126 | RIVERSIDE | 5.0 | - | - | - | 12,783 | 12,783 | - | - | - | 2,557 | 2,557 |
| 145 | FN011854 | Rome Substati | 5.0 | - | - | - | 644 | 644 | - | - | - | 129 | 129 |
| 146 | FN011852 | Rome Substati | 5.0 | - | - | - | 3,614 | 3,614 | - | - | - | 723 | 723 |
| 147 | FN011853 | Rome Substati | 5.0 | - | - | - | 3,640 | 3,640 | - | - | - | 728 | 728 |
| 148 | FN011856 | Rome Substati | 5.0 | - | - | - | 644 | 644 | - | - | - | 129 | 129 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



| | | | | *CCR Rates=>* | 8.21% | 8.44% | 8.06% | 14.13% | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Annual Cost $000s Using ECCR per Capacity Added MW | | | | |
| Line | Reference | Station | Capacity Added MW | In-Service Year | T_Station | T_Line | D_Station | D_Line | Sum |
| | (A) | (A1) | (B) | (F) | (E-TS) | (E-TL) | (E-DS) | (E-DL) | (E) |
| | | | | | (D-TS)*ECCR | (D-TL)*ECCR | (D-DS)*ECCR | (D-DL)*ECCR | |
| 112 | FN013411 | Livonia | 8.8 | 2036 | - | - | 130 | - | 130 |
| 113 | FN013414 | 37 HUDSON A\ | 5.0 | 2036 | - | - | 156 | - | 156 |
| 114 | FN011857 | Lowville | 5.0 | 2036 | - | - | - | 152 | 152 |
| 115 | FN010006 | LYNDONVILLE | 5.0 | 2035 | - | - | 53 | - | 53 |
| 116 | FN011424 | Mayfield | 14.5 | 2036 | - | - | 8 | - | 8 |
| 117 | FN011534 | McClellan | 5.3 | 2035 | - | - | 437 | - | 437 |
| 118 | FN011344 | Mexico | 20.0 | 2036 | - | - | - | 324 | 324 |
| 119 | FN011382 | Middleburgh | 19.4 | 2035 | - | - | 98 | - | 98 |
| 120 | FN012928 | Middleville | 5.2 | 2034 | - | - | - | 402 | 402 |
| 121 | FN012193 | Delameter | 2.0 | 2028 | - | - | - | 481 | 481 |
| 122 | FN011965 | Clintion Statior | 13.5 | 2034 | - | - | 96 | 38 | 134 |
| 123 | FN011560 | North Leroy | 5.0 | 2035 | - | - | - | 261 | 261 |
| 124 | FN011393 | Nassau | 13.0 | 2035 | - | - | 160 | - | 160 |
| 125 | FN011296 | New Cuba Stat | 12.5 | 2036 | - | - | 140 | 99 | 240 |
| 126 | FN012315 | NEW KRUMKIL | 60.0 | 2034 | - | - | 33 | 81 | 115 |
| 127 | FN011311 | New Livingstor | 12.5 | 2036 | - | - | 176 | 144 | 320 |
| 128 | FN010052 | Middleport | 7.0 | 2034 | - | - | 137 | - | 137 |
| 129 | FN011103 | NEWTONVILLE | 38.7 | 2032 | 12 | - | 34 | 55 | 101 |
| 130 | FN011426 | Northville Stati | 12.5 | 2035 | - | - | 168 | - | 168 |
| 131 | FN011416 | Ogdenbrook | 24.6 | 2036 | - | - | 16 | - | 16 |
| 132 | FN012130 | Otten | 0.3 | 2036 | - | - | 1,023 | - | 1,023 |
| 133 | FN011443 | OTTEN | 0.5 | 2036 | - | - | - | 2,311 | 2,311 |
| 134 | FN012945 | Paloma | 20.0 | 2036 | - | - | - | 0 | 0 |
| 135 | FN011395 | Partridge | 15.0 | 2035 | - | - | 140 | - | 140 |
| 136 | FN012618 | Peat | 22.0 | 2036 | - | - | - | 101 | 101 |
| 137 | FN012004 | PINEBUSH | 0.7 | 2035 | - | - | - | 665 | 665 |
| 138 | FN011397 | Pinebush | 32.6 | 2036 | - | - | 62 | - | 62 |
| 139 | FN002263 | Port Henry | 2.5 | 2027 | - | - | - | 42 | 42 |
| 140 | FN011433 | Port Henry | 14.5 | 2035 | - | - | 46 | - | 46 |
| 141 | FN013957 | Pottersville | 13.0 | 2036 | - | - | 57 | 69 | 125 |
| 142 | FN011942 | Raquette Lake | 0.5 | 2026 | - | - | 47 | - | 47 |
| 143 | FN012721 | North Chautau | 4.0 | 2036 | - | - | 71 | - | 71 |
| 144 | FN000126 | RIVERSIDE | 5.0 | 2033 | - | - | - | 361 | 361 |
| 145 | FN011854 | Rome Substati | 5.0 | 2034 | - | - | - | 18 | 18 |
| 146 | FN011852 | Rome Substati | 5.0 | 2031 | - | - | - | 102 | 102 |
| 147 | FN011853 | Rome Substati | 5.0 | 2031 | - | - | - | 103 | 103 |
| 148 | FN011856 | Rome Substati | 5.0 | 2034 | - | - | - | 18 | 18 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



*Annual Inflation=>* 102.1%

| Line | Reference | Station | Capacity Added MW | In-Service Year | Rationale | Marginal Cost $000s in Each Year | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 |
| | (A) | (A1) | (B) | (F) | (F-1) | (F26) | (F27) | (F28) | (F29) | (F30) | (F31) | (F32) | (F33) | (F34) | (F35) | (F36) |
| 112 | FN013411 | Livonia | 8.8 | 2036 | MVD | 106 | 108 | 110 | 113 | 115 | 117 | 120 | 122 | 125 | 128 | 130 |
| 113 | FN013414 | 37 HUDSON A\ | 5.0 | 2036 | MVD | 127 | 129 | 132 | 135 | 138 | 141 | 144 | 147 | 150 | 153 | 156 |
| 114 | FN011857 | Lowville | 5.0 | 2036 | Cap | 123 | 126 | 128 | 131 | 134 | 137 | 140 | 142 | 145 | 149 | 152 |
| 115 | FN010006 | LYNDONVILLE | 5.0 | 2035 | Cap | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 |
| 116 | FN011424 | Mayfield | 14.5 | 2036 | MVD | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 |
| 117 | FN011534 | McClellan | 5.3 | 2035 | MVD | 362 | 370 | 378 | 385 | 394 | 402 | 410 | 419 | 428 | 437 | 446 |
| 118 | FN011344 | Mexico | 20.0 | 2036 | MVD | 264 | 269 | 275 | 280 | 286 | 292 | 298 | 305 | 311 | 318 | 324 |
| 119 | FN011382 | Middleburgh | 19.4 | 2035 | MVD | 81 | 83 | 85 | 87 | 88 | 90 | 92 | 94 | 96 | 98 | 100 |
| 120 | FN012928 | Middleville | 5.2 | 2034 | MVD | 341 | 348 | 355 | 363 | 370 | 378 | 386 | 394 | 402 | 411 | 419 |
| 121 | FN012193 | Delameter | 2.0 | 2028 | Cap | 461 | 471 | 481 | 491 | 501 | 512 | 522 | 533 | 544 | 556 | 568 |
| 122 | FN011965 | Clintion Statior | 13.5 | 2034 | MVD | 114 | 116 | 118 | 121 | 123 | 126 | 129 | 131 | 134 | 137 | 140 |
| 123 | FN011560 | North Leroy | 5.0 | 2035 | Cap | 216 | 221 | 226 | 230 | 235 | 240 | 245 | 250 | 256 | 261 | 266 |
| 124 | FN011393 | Nassau | 13.0 | 2035 | MVD | 133 | 136 | 138 | 141 | 144 | 147 | 151 | 154 | 157 | 160 | 164 |
| 125 | FN011296 | New Cuba Stat | 12.5 | 2036 | MVD | 195 | 199 | 203 | 207 | 212 | 216 | 221 | 225 | 230 | 235 | 240 |
| 126 | FN012315 | NEW KRUMKIL | 60.0 | 2034 | Cap | 97 | 99 | 101 | 103 | 105 | 108 | 110 | 112 | 115 | 117 | 119 |
| 127 | FN011311 | New Livingstor | 12.5 | 2036 | Cap | 260 | 265 | 271 | 276 | 282 | 288 | 294 | 300 | 307 | 313 | 320 |
| 128 | FN010052 | Middleport | 7.0 | 2034 | Cap | 116 | 118 | 121 | 123 | 126 | 128 | 131 | 134 | 137 | 140 | 143 |
| 129 | FN011103 | NEWTONVILLE | 38.7 | 2032 | MVD | 89 | 91 | 93 | 95 | 97 | 99 | 101 | 103 | 105 | 108 | 110 |
| 130 | FN011426 | Northville Stati | 12.5 | 2035 | MVD | 139 | 142 | 145 | 148 | 151 | 155 | 158 | 161 | 164 | 168 | 171 |
| 131 | FN011416 | Ogdenbrook | 24.6 | 2036 | MVD | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 16 |
| 132 | FN012130 | Otten | 0.3 | 2036 | MVD | 831 | 849 | 867 | 885 | 903 | 922 | 942 | 961 | 982 | 1,002 | 1,023 |
| 133 | FN011443 | OTTEN | 0.5 | 2036 | MVD | 1,877 | 1,916 | 1,957 | 1,998 | 2,040 | 2,082 | 2,126 | 2,171 | 2,216 | 2,263 | 2,311 |
| 134 | FN012945 | Paloma | 20.0 | 2036 | Cap | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 135 | FN011395 | Partridge | 15.0 | 2035 | MVD | 116 | 119 | 121 | 124 | 126 | 129 | 131 | 134 | 137 | 140 | 143 |
| 136 | FN012618 | Peat | 22.0 | 2036 | Cap | 82 | 84 | 85 | 87 | 89 | 91 | 93 | 95 | 97 | 99 | 101 |
| 137 | FN012004 | PINEBUSH | 0.7 | 2035 | MVD | 551 | 563 | 575 | 587 | 599 | 612 | 625 | 638 | 651 | 665 | 679 |
| 138 | FN011397 | Pinebush | 32.6 | 2036 | MVD | 50 | 51 | 52 | 54 | 55 | 56 | 57 | 58 | 59 | 61 | 62 |
| 139 | FN002263 | Port Henry | 2.5 | 2027 | Cap | 41 | 42 | 43 | 44 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 140 | FN011433 | Port Henry | 14.5 | 2035 | MVD | 38 | 39 | 40 | 41 | 41 | 42 | 43 | 44 | 45 | 46 | 47 |
| 141 | FN013957 | Pottersville | 13.0 | 2036 | MVD | 102 | 104 | 106 | 108 | 111 | 113 | 115 | 118 | 120 | 123 | 125 |
| 142 | FN011942 | Raquette Lake | 0.5 | 2026 | MVD | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 |
| 143 | FN012721 | North Chautau | 4.0 | 2036 | Cap | 58 | 59 | 60 | 62 | 63 | 64 | 65 | 67 | 68 | 70 | 71 |
| 144 | FN000126 | RIVERSIDE | 5.0 | 2033 | MVD | 312 | 319 | 326 | 332 | 339 | 347 | 354 | 361 | 369 | 377 | 384 |
| 145 | FN011854 | Rome Substati | 5.0 | 2034 | Cap | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 18 | 18 | 19 | 19 |
| 146 | FN011852 | Rome Substati | 5.0 | 2031 | Cap | 92 | 94 | 96 | 98 | 100 | 102 | 104 | 106 | 109 | 111 | 113 |
| 147 | FN011853 | Rome Substati | 5.0 | 2031 | Cap | 93 | 95 | 97 | 99 | 101 | 103 | 105 | 107 | 109 | 112 | 114 |
| 148 | FN011856 | Rome Substati | 5.0 | 2034 | Cap | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 18 | 18 | 19 | 19 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



| | | | | Capital Spending $000s | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line | Reference | Station | Capacity Added MW | Prior to 2026 CapEx | FY26 Capex | FY27 Capex | FY28 Capex | FY29 Capex | FY30 Capex | FY31 Capex | FY32 Capex | FY33 Capex | FY34 Capex | FY35 Capex | FY36 Capex | Sum |
| | (A) | (A1) | (B) | (C26X) | (C26) | (C27) | (C28) | (C29) | (C30) | (C31) | (C32) | (C33) | (C34) | (C35) | (C36) | (C-Sum) |
| 149 | FN001348 | Rotterdam | 13.0 | 2,980 | 1,238 | 510 | - | - | - | - | - | - | - | - | - | 4,728 |
| 150 | FN014168 | RUSSELL RD | 2.0 | - | 236 | - | - | - | - | - | - | - | - | - | - | 236 |
| 151 | FN013424A | South Washing | 5.0 | - | - | - | - | - | - | - | 396 | 1,523 | 6,066 | 387 | - | 8,372 |
| 152 | FN011355A | Schenevus | 3.0 | - | - | - | - | 84 | 1,506 | 828 | 82 | - | - | - | - | 2,500 |
| 153 | FN011399 | Schodack | 17.6 | - | - | - | - | - | - | - | 109 | 1,464 | 10,632 | 10,632 | 6,496 | 29,333 |
| 154 | FN011465 | SCHROON LAK | 4.8 | 234 | 294 | 149 | - | - | - | - | - | - | - | - | - | 677 |
| 155 | FN011466 | Scofield | 29.5 | - | - | 50 | 472 | - | - | - | - | - | - | - | - | 522 |
| 156 | FN002211 | Scotia | 9.1 | 2 | - | 10 | - | - | - | - | 15 | 188 | 225 | 9 | - | 450 |
| 157 | FN001881 | SELKIRK | 2.5 | 73 | 438 | - | - | - | - | - | - | - | - | - | - | 511 |
| 158 | FN006212 | Sharon | 2.1 | 7 | - | - | - | 1,391 | - | - | - | - | - | - | - | 1,398 |
| 159 | FN006224 | Sharon | 2.0 | 113 | - | 56 | 756 | - | - | - | - | - | - | - | - | 925 |
| 160 | FN013868 | Shawnee Rd St | 17.6 | - | 160 | 877 | 1,814 | 3,068 | 3,355 | - | - | - | - | - | - | 9,275 |
| 161 | FN011715 | Smith Bridge S | 25.0 | 2,029 | 1,976 | 4,730 | 7,441 | 427 | - | - | - | - | - | - | - | 16,604 |
| 162 | FN005814 | EDEN CENTER | 11.0 | 12,645 | 5,355 | 9,669 | 3,572 | 6 | - | - | - | - | - | - | - | 31,247 |
| 163 | FN003350 | NORTH COLLIN | 5.6 | 5,714 | 665 | - | - | - | - | - | - | - | - | - | - | 6,379 |
| 164 | FN011436 | South Street | 7.5 | - | - | - | - | 105 | 1,397 | 504 | 1,246 | 8,275 | 8,275 | 5,005 | - | 24,806 |
| 165 | FN010876 | Station 140 | 10.0 | 1,444 | 1,796 | 5,914 | 11,599 | 8,065 | 8 | - | - | - | - | - | - | 28,825 |
| 166 | FN006255 | Station 3012 | 9.0 | 31,194 | 10,875 | 3,000 | - | - | - | - | - | - | - | - | - | 45,069 |
| 167 | FN005886 | Station 61 | 35.0 | 1,063 | 200 | 200 | 1,500 | 3,523 | 6,188 | 10,218 | 320 | - | - | - | - | 23,211 |
| 168 | FN011383 | Summit | 2.4 | - | - | - | - | 95 | 1,258 | 366 | 1,096 | 7,390 | 7,390 | 4,795 | - | 22,390 |
| 169 | FN011069 | Swaggertown | 23.4 | 476 | 175 | 536 | 1,952 | 4,184 | 6,534 | 9,139 | 6,388 | 2,948 | - | - | - | 32,332 |
| 170 | FN011562 | Swann Rd | 5.0 | - | - | - | - | - | - | - | - | 743 | 1,584 | 743 | - | 3,069 |
| 171 | FN012826 | 78 FASSETT ST | 5.0 | - | - | - | - | - | - | - | - | 417 | 2,951 | 4,432 | 4,095 | 11,896 |
| 172 | FN005852 | TULLER HILL | 6.0 | 32 | 170 | 169 | - | - | - | - | - | - | - | - | - | 371 |
| 173 | FN011404 | UNIONVILLE | 2.0 | - | - | 135 | 487 | 520 | 500 | 7,420 | 621 | 487 | - | - | - | 10,170 |
| 174 | FN011406 | UNIONVILLE | 7.5 | - | - | - | - | - | - | - | - | - | 155 | 2,063 | 745 | 2,963 |
| 175 | FN011310 | 214 Station | 23.6 | - | - | - | - | - | - | - | - | - | - | - | 1,134 | 1,134 |
| 176 | FN012943 | Paloma | 20.0 | - | - | - | - | - | - | - | - | - | 128 | 1,059 | 613 | 1,800 |
| 177 | FN006357 | VAIL MILLS | 4.0 | 1,603 | 496 | - | - | - | - | - | - | - | - | - | - | 2,099 |
| 178 | FN006234 | VAIL MILLS | 16.0 | - | - | 25 | 250 | - | - | - | - | - | - | - | - | 275 |
| 179 | FN011427 | VAIL MILLS | 15.0 | - | - | - | - | - | - | - | - | - | - | 110 | 1,466 | 1,577 |
| 180 | FN011996 | Valkin | 57.6 | - | 510 | 1,190 | 4,900 | 950 | - | - | - | - | - | - | - | 7,550 |
| 181 | FN013976 | Van Hoesen | 48.2 | - | - | - | - | 620 | 4,867 | 6,673 | 7,140 | 11,673 | 11,673 | 5,730 | - | 48,376 |
| 182 | FN011400 | Voorheesville | 15.0 | - | - | - | - | 110 | 1,466 | 529 | 1,479 | 10,739 | 10,739 | 6,496 | - | 31,559 |
| 183 | FN006517 | CHAUTAUQUA | 4.0 | - | - | 50 | 525 | - | - | - | - | - | - | - | - | 575 |
| 184 | FN012599 | Walesville | 14.0 | - | - | - | - | - | - | - | 4,803 | 1,074 | 5,888 | 5,968 | 2,656 | 20,390 |
| 185 | FN002225 | Warrensburg | 0.5 | - | 15 | 1,184 | - | - | - | - | - | - | - | - | - | 1,199 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



*E*

| | | | | Capital Spending $000s | | | | | Capital $000s per Capacity Added MW | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line | Reference | Station | Capacity Added MW | T_Station | T_Line | D_Station | D_Line | Sum | T_Station | T_Line | D_Station | D_Line | Sum |
| | (A) | (A1) | (B) | (C-TS) | (C-TL) | (C-DS) | (C-DL) | (C) | (D-TS) (C-TS)/(B) | (D-TL) (C-TL)/(B) | (D-DS) (C-DS)/(B) | (D-DL) (C-DL)/((B) | (D) |
| 149 | FN001348 | Rotterdam | 13.0 | - | - | - | 4,728 | 4,728 | - | - | - | 364 | 364 |
| 150 | FN014168 | RUSSELL RD | 2.0 | - | - | - | 236 | 236 | - | - | - | 118 | 118 |
| 151 | FN013424A | South Washing | 5.0 | - | - | - | 8,372 | 8,372 | - | - | - | 1,674 | 1,674 |
| 152 | FN011355A | Schenevus | 3.0 | - | - | 2,500 | - | 2,500 | - | - | 833 | - | 833 |
| 153 | FN011399 | Schodack | 17.6 | - | - | 29,333 | - | 29,333 | - | - | 1,667 | - | 1,667 |
| 154 | FN011465 | SCHROON LAK | 4.8 | - | - | - | 677 | 677 | - | - | - | 141 | 141 |
| 155 | FN011466 | Scofield | 29.5 | - | - | 522 | - | 522 | - | - | 18 | - | 18 |
| 156 | FN002211 | Scotia | 9.1 | - | - | 450 | - | 450 | - | - | 49 | - | 49 |
| 157 | FN001881 | SELKIRK | 2.5 | - | - | - | 511 | 511 | - | - | - | 204 | 204 |
| 158 | FN006212 | Sharon | 2.1 | - | - | - | 1,398 | 1,398 | - | - | - | 678 | 678 |
| 159 | FN006224 | Sharon | 2.0 | - | - | - | 925 | 925 | - | - | - | 471 | 471 |
| 160 | FN013868 | Shawnee Rd St | 17.6 | - | - | 9,275 | - | 9,275 | - | - | 527 | - | 527 |
| 161 | FN011715 | Smith Bridge S | 25.0 | - | - | 9,572 | 7,032 | 16,604 | - | - | 383 | 281 | 664 |
| 162 | FN005814 | EDEN CENTER | 11.0 | - | - | 26,058 | 5,188 | 31,247 | - | - | 2,369 | 472 | 2,841 |
| 163 | FN003350 | NORTH COLLIN | 5.6 | - | - | - | 6,379 | 6,379 | - | - | - | 1,139 | 1,139 |
| 164 | FN011436 | South Street | 7.5 | - | - | 24,806 | - | 24,806 | - | - | 3,308 | - | 3,308 |
| 165 | FN010876 | Station 140 | 10.0 | - | - | 28,825 | - | 28,825 | - | - | 2,882 | - | 2,882 |
| 166 | FN006255 | Station 3012 | 9.0 | - | - | 27,114 | 17,955 | 45,069 | - | - | 3,013 | 1,995 | 5,008 |
| 167 | FN005886 | Station 61 | 35.0 | - | - | 23,211 | - | 23,211 | - | - | 663 | - | 663 |
| 168 | FN011383 | Summit | 2.4 | - | - | 22,390 | - | 22,390 | - | - | 9,408 | - | 9,408 |
| 169 | FN011069 | Swaggertown | 23.4 | - | - | 11,289 | 21,043 | 32,332 | - | - | 482 | 899 | 1,382 |
| 170 | FN011562 | Swann Rd | 5.0 | - | - | - | 3,069 | 3,069 | - | - | - | 614 | 614 |
| 171 | FN012826 | 78 FASSETT ST | 5.0 | - | - | - | 11,896 | 11,896 | - | - | - | 2,379 | 2,379 |
| 172 | FN005852 | TULLER HILL | 6.0 | - | - | - | 371 | 371 | - | - | - | 62 | 62 |
| 173 | FN011404 | UNIONVILLE | 2.0 | - | - | - | 10,170 | 10,170 | - | - | - | 5,085 | 5,085 |
| 174 | FN011406 | UNIONVILLE | 7.5 | - | - | 2,963 | - | 2,963 | - | - | 395 | - | 395 |
| 175 | FN011310 | 214 Station | 23.6 | - | 1,000 | 134 | - | 1,134 | - | 42 | 6 | - | 48 |
| 176 | FN012943 | Paloma | 20.0 | - | - | 1,800 | - | 1,800 | - | - | 90 | - | 90 |
| 177 | FN006357 | VAIL MILLS | 4.0 | - | - | - | 2,099 | 2,099 | - | - | - | 525 | 525 |
| 178 | FN006234 | VAIL MILLS | 16.0 | - | - | - | 275 | 275 | - | - | - | 17 | 17 |
| 179 | FN011427 | VAIL MILLS | 15.0 | - | - | 1,577 | - | 1,577 | - | - | 105 | - | 105 |
| 180 | FN011996 | Valkin | 57.6 | - | - | 4,740 | 2,810 | 7,550 | - | - | 82 | 49 | 131 |
| 181 | FN013976 | Van Hoesen | 48.2 | - | - | 17,127 | 31,249 | 48,376 | - | - | 355 | 648 | 1,004 |
| 182 | FN011400 | Voorheesville | 15.0 | - | - | 31,559 | - | 31,559 | - | - | 2,104 | - | 2,104 |
| 183 | FN006517 | CHAUTAUQUA | 4.0 | - | - | - | 575 | 575 | - | - | - | 144 | 144 |
| 184 | FN012599 | Walesville | 14.0 | - | - | - | 20,390 | 20,390 | - | - | - | 1,456 | 1,456 |
| 185 | FN002225 | Warrensburg | 0.5 | - | - | - | 1,199 | 1,199 | - | - | - | 2,399 | 2,399 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



| | | | | *CCR Rates=>* | 8.21% | 8.44% | 8.06% | 14.13% | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Annual Cost $000s Using ECCR per Capacity Added MW | | | | |
| Line | Reference | Station | Capacity Added MW | In-Service Year | T_Station | T_Line | D_Station | D_Line | Sum |
| | (A) | (A1) | (B) | (F) | (E-TS) | (E-TL) | (E-DS) | (E-DL) | (E) |
| | | | | | (D-TS)*ECCR | (D-TL)*ECCR | (D-DS)*ECCR | (D-DL)*ECCR | |
| 149 | FN001348 | Rotterdam | 13.0 | 2027 | - | - | - | 51 | 51 |
| 150 | FN014168 | RUSSELL RD | 2.0 | 2026 | - | - | - | 17 | 17 |
| 151 | FN013424A | South Washing | 5.0 | 2035 | - | - | - | 237 | 237 |
| 152 | FN011355A | Schenevus | 3.0 | 2032 | - | - | 67 | - | 67 |
| 153 | FN011399 | Schodack | 17.6 | 2036 | - | - | 134 | - | 134 |
| 154 | FN011465 | SCHROON LAK | 4.8 | 2027 | - | - | - | 20 | 20 |
| 155 | FN011466 | Scofield | 29.5 | 2028 | - | - | 1 | - | 1 |
| 156 | FN002211 | Scotia | 9.1 | 2035 | - | - | 4 | - | 4 |
| 157 | FN001881 | SELKIRK | 2.5 | 2026 | - | - | - | 29 | 29 |
| 158 | FN006212 | Sharon | 2.1 | 2029 | - | - | - | 96 | 96 |
| 159 | FN006224 | Sharon | 2.0 | 2028 | - | - | - | 67 | 67 |
| 160 | FN013868 | Shawnee Rd St | 17.6 | 2030 | - | - | 42 | - | 42 |
| 161 | FN011715 | Smith Bridge S | 25.0 | 2029 | - | - | 31 | 40 | 71 |
| 162 | FN005814 | EDEN CENTER | 11.0 | 2029 | - | - | 191 | 67 | 258 |
| 163 | FN003350 | NORTH COLLIN | 5.6 | 2026 | - | - | - | 161 | 161 |
| 164 | FN011436 | South Street | 7.5 | 2035 | - | - | 267 | - | 267 |
| 165 | FN010876 | Station 140 | 10.0 | 2030 | - | - | 232 | - | 232 |
| 166 | FN006255 | Station 3012 | 9.0 | 2027 | - | - | 243 | 282 | 525 |
| 167 | FN005886 | Station 61 | 35.0 | 2032 | - | - | 53 | - | 53 |
| 168 | FN011383 | Summit | 2.4 | 2035 | - | - | 758 | - | 758 |
| 169 | FN011069 | Swaggertown | 23.4 | 2033 | - | - | 39 | 127 | 166 |
| 170 | FN011562 | Swann Rd | 5.0 | 2035 | - | - | - | 87 | 87 |
| 171 | FN012826 | 78 FASSETT ST | 5.0 | 2036 | - | - | - | 336 | 336 |
| 172 | FN005852 | TULLER HILL | 6.0 | 2027 | - | - | - | 9 | 9 |
| 173 | FN011404 | UNIONVILLE | 2.0 | 2033 | - | - | - | 718 | 718 |
| 174 | FN011406 | UNIONVILLE | 7.5 | 2036 | - | - | 32 | - | 32 |
| 175 | FN011310 | 214 Station | 23.6 | 2036 | - | 4 | 0 | - | 4 |
| 176 | FN012943 | Paloma | 20.0 | 2036 | - | - | 7 | - | 7 |
| 177 | FN006357 | VAIL MILLS | 4.0 | 2026 | - | - | - | 74 | 74 |
| 178 | FN006234 | VAIL MILLS | 16.0 | 2028 | - | - | - | 2 | 2 |
| 179 | FN011427 | VAIL MILLS | 15.0 | 2036 | - | - | 8 | - | 8 |
| 180 | FN011996 | Valkin | 57.6 | 2029 | - | - | 7 | 7 | 14 |
| 181 | FN013976 | Van Hoesen | 48.2 | 2035 | - | - | 29 | 92 | 120 |
| 182 | FN011400 | Voorheesville | 15.0 | 2035 | - | - | 170 | - | 170 |
| 183 | FN006517 | CHAUTAUQUA | 4.0 | 2028 | - | - | - | 20 | 20 |
| 184 | FN012599 | Walesville | 14.0 | 2036 | - | - | - | 206 | 206 |
| 185 | FN002225 | Warrensburg | 0.5 | 2027 | - | - | - | 339 | 339 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



*Annual Inflation=>* 102.1%

| Line | Reference | Station | Capacity Added MW | In-Service Year | Rationale | Marginal Cost $000s in Each Year | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 |
| | (A) | (A1) | (B) | (F) | (F-1) | (F26) | (F27) | (F28) | (F29) | (F30) | (F31) | (F32) | (F33) | (F34) | (F35) | (F36) |
| 149 | FN001348 | Rotterdam | 13.0 | 2027 | MVD | 50 | 51 | 52 | 54 | 55 | 56 | 57 | 58 | 59 | 61 | 62 |
| 150 | FN014168 | RUSSELL RD | 2.0 | 2026 | Cap | 17 | 17 | 17 | 18 | 18 | 18 | 19 | 19 | 20 | 20 | 21 |
| 151 | FN013424A | South Washing | 5.0 | 2035 | MVD | 196 | 200 | 205 | 209 | 213 | 218 | 222 | 227 | 232 | 237 | 242 |
| 152 | FN011355A | Schenevus | 3.0 | 2032 | MVD | 59 | 61 | 62 | 63 | 64 | 66 | 67 | 69 | 70 | 71 | 73 |
| 153 | FN011399 | Schodack | 17.6 | 2036 | MVD | 109 | 111 | 114 | 116 | 119 | 121 | 124 | 126 | 129 | 132 | 134 |
| 154 | FN011465 | SCHROON LAK | 4.8 | 2027 | MVD | 20 | 20 | 20 | 21 | 21 | 22 | 22 | 23 | 23 | 24 | 24 |
| 155 | FN011466 | Scofield | 29.5 | 2028 | MVD | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| 156 | FN002211 | Scotia | 9.1 | 2035 | MVD | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 157 | FN001881 | SELKIRK | 2.5 | 2026 | Cap | 29 | 29 | 30 | 31 | 31 | 32 | 33 | 33 | 34 | 35 | 36 |
| 158 | FN006212 | Sharon | 2.1 | 2029 | Cap | 90 | 92 | 94 | 96 | 98 | 100 | 102 | 104 | 106 | 109 | 111 |
| 159 | FN006224 | Sharon | 2.0 | 2028 | Cap | 64 | 65 | 67 | 68 | 69 | 71 | 72 | 74 | 75 | 77 | 79 |
| 160 | FN013868 | Shawnee Rd St | 17.6 | 2030 | MVD | 39 | 40 | 41 | 42 | 42 | 43 | 44 | 45 | 46 | 47 | 48 |
| 161 | FN011715 | Smith Bridge S | 25.0 | 2029 | MVD | 66 | 68 | 69 | 71 | 72 | 74 | 75 | 77 | 78 | 80 | 82 |
| 162 | FN005814 | EDEN CENTER | 11.0 | 2029 | Cap | 242 | 247 | 252 | 258 | 263 | 268 | 274 | 280 | 286 | 292 | 298 |
| 163 | FN003350 | NORTH COLLIN | 5.6 | 2026 | MVD | 161 | 164 | 168 | 171 | 175 | 179 | 182 | 186 | 190 | 194 | 198 |
| 164 | FN011436 | South Street | 7.5 | 2035 | MVD | 221 | 226 | 230 | 235 | 240 | 245 | 250 | 256 | 261 | 267 | 272 |
| 165 | FN010876 | Station 140 | 10.0 | 2030 | MVD | 214 | 218 | 223 | 228 | 232 | 237 | 242 | 247 | 252 | 258 | 263 |
| 166 | FN006255 | Station 3012 | 9.0 | 2027 | Cap | 514 | 525 | 536 | 547 | 558 | 570 | 582 | 594 | 607 | 620 | 633 |
| 167 | FN005886 | Station 61 | 35.0 | 2032 | MVD | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 55 | 56 | 57 | 58 |
| 168 | FN011383 | Summit | 2.4 | 2035 | MVD | 629 | 642 | 656 | 669 | 683 | 698 | 712 | 727 | 743 | 758 | 774 |
| 169 | FN011069 | Swaggertown | 23.4 | 2033 | MVD | 143 | 146 | 150 | 153 | 156 | 159 | 163 | 166 | 169 | 173 | 177 |
| 170 | FN011562 | Swann Rd | 5.0 | 2035 | Cap | 72 | 73 | 75 | 77 | 78 | 80 | 81 | 83 | 85 | 87 | 89 |
| 171 | FN012826 | 78 FASSETT ST | 5.0 | 2036 | MVD | 273 | 279 | 285 | 291 | 297 | 303 | 309 | 316 | 322 | 329 | 336 |
| 172 | FN005852 | TULLER HILL | 6.0 | 2027 | MVD | 9 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 11 |
| 173 | FN011404 | UNIONVILLE | 2.0 | 2033 | MVD | 621 | 634 | 648 | 661 | 675 | 689 | 704 | 718 | 734 | 749 | 765 |
| 174 | FN011406 | UNIONVILLE | 7.5 | 2036 | MVD | 26 | 26 | 27 | 28 | 28 | 29 | 29 | 30 | 31 | 31 | 32 |
| 175 | FN011310 | 214 Station | 23.6 | 2036 | Cap | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 176 | FN012943 | Paloma | 20.0 | 2036 | Cap | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 |
| 177 | FN006357 | VAIL MILLS | 4.0 | 2026 | Cap | 74 | 76 | 77 | 79 | 81 | 82 | 84 | 86 | 88 | 89 | 91 |
| 178 | FN006234 | VAIL MILLS | 16.0 | 2028 | Cap | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 179 | FN011427 | VAIL MILLS | 15.0 | 2036 | MVD | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 |
| 180 | FN011996 | Valkin | 57.6 | 2029 | Cap | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 16 |
| 181 | FN013976 | Van Hoesen | 48.2 | 2035 | Cap | 100 | 102 | 104 | 106 | 108 | 111 | 113 | 115 | 118 | 120 | 123 |
| 182 | FN011400 | Voorheesville | 15.0 | 2035 | MVD | 141 | 144 | 147 | 150 | 153 | 156 | 159 | 163 | 166 | 170 | 173 |
| 183 | FN006517 | CHAUTAUQUA | 4.0 | 2028 | Cap | 19 | 20 | 20 | 21 | 21 | 22 | 22 | 23 | 23 | 23 | 24 |
| 184 | FN012599 | Walesville | 14.0 | 2036 | MVD | 167 | 171 | 174 | 178 | 182 | 185 | 189 | 193 | 197 | 202 | 206 |
| 185 | FN002225 | Warrensburg | 0.5 | 2027 | Cap | 332 | 339 | 346 | 353 | 361 | 368 | 376 | 384 | 392 | 400 | 409 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



| | | | | Capital Spending $000s | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line | Reference | Station | Capacity Added MW | Prior to 2026 CapEx | FY26 Capex | FY27 Capex | FY28 Capex | FY29 Capex | FY30 Capex | FY31 Capex | FY32 Capex | FY33 Capex | FY34 Capex | FY35 Capex | FY36 Capex | Sum |
| | (A) | (A1) | (B) | (C26X) | (C26) | (C27) | (C28) | (C29) | (C30) | (C31) | (C32) | (C33) | (C34) | (C35) | (C36) | (C-Sum) |
| 186 | FN011538 | Watt | 5.8 | - | - | - | - | - | - | - | - | - | - | 1,626 | 7,405 | 9,031 |
| 187 | FN011539 | WEAVER ST | 4.1 | - | - | - | - | 20 | 2,000 | 2,000 | 2,122 | 3,617 | 2,583 | 1,442 | 9,579 | 23,363 |
| 188 | FN011423 | Wells | 3.4 | - | - | - | - | 105 | 1,397 | 504 | 1,246 | 8,275 | 8,275 | 5,005 | - | 24,806 |
| 189 | FN012598 | Whitesboro | 12.0 | - | - | - | - | - | - | - | - | 2,628 | 10,108 | 15,320 | 322 | 28,378 |
| 190 | FN011388 | WOLF RD. | 3.0 | - | - | - | 137 | 525 | 4,100 | 1,755 | - | - | - | - | - | 6,516 |
| 191 | | | | | | | | | | | | | | | | |
| 192 | FN010073 | Transm Net | 14.0 | 6,286 | 13,101 | 13,979 | 21,791 | 11,093 | 487 | - | - | - | - | - | - | 66,738 |
| 193 | FN011214 | Transm Net | 105.0 | 22,074 | 19,765 | 26,032 | 17,789 | 7,973 | - | - | - | - | - | - | - | 93,633 |
| 194 | FN010083 | Transm Net | 100.0 | 12,446 | 1,645 | 1,428 | 7,499 | 22,071 | 56,418 | 28,145 | - | - | - | - | - | 129,651 |
| 195 | FN008736 | Transm Net | 20.0 | 788 | 959 | 1,479 | 260 | 480 | 1,116 | 7,855 | 3,585 | - | - | - | - | 16,523 |
| 196 | FN008276 | Transm Net | 1,650.0 | 790,120 | 335,213 | 584,478 | 587,301 | 517,455 | 271,502 | 2,911 | 540 | 3,877 | 35,120 | 35,120 | 38,867 | 3,202,505 |
| 197 | FN011526 | Transm Net | 52.1 | - | - | - | - | - | - | - | - | - | - | 104 | 2,397 | 2,501 |
| 198 | FN008017 | Transm Net | 28.0 | 143 | - | - | - | - | 110 | 330 | 480 | 7,121 | 7,859 | - | - | 16,043 |
| 199 | FN008359 | Transm Net | 800.0 | 80,083 | 29,940 | 64,455 | 70,183 | 44,340 | 12,571 | - | - | - | - | - | - | 301,571 |
| 200 | FN008347 | Transm Net | 380.0 | 34,496 | 19,424 | 14,915 | 4,187 | 17 | 18 | - | - | - | - | - | - | 73,057 |
| 201 | FN008061 | Transm Net | 33.0 | - | - | - | - | - | - | - | - | - | - | - | 450 | 450 |
| 202 | FN013189 | Transm Net | 20.0 | - | - | - | - | - | 98 | 1,960 | 6,860 | 882 | - | - | - | 9,800 |
| 203 | FN013188 | Transm Net | 34.0 | - | - | - | - | - | - | - | 98 | 882 | - | - | - | 980 |
| 204 | FN008471 | Transm Net | 16.0 | 20,102 | 1,446 | 1,038 | 142 | - | - | - | - | - | - | - | - | 22,728 |
| 205 | FN012042 | Transm Net | 40.0 | - | 120 | 220 | 830 | 4,570 | 4,650 | 500 | - | - | - | - | - | 10,890 |
| 206 | FN012047 | Transm Net | 40.0 | - | 120 | 220 | 890 | 5,380 | 1,470 | 500 | - | - | - | - | - | 8,580 |
| 207 | FN012044 | Transm Net | 40.0 | - | 120 | 220 | 1,070 | 3,750 | 4,500 | 750 | - | - | - | - | - | 10,410 |
| 208 | FN012050 | Transm Net | 40.0 | - | 120 | 220 | 740 | 3,580 | 1,020 | 500 | - | - | - | - | - | 6,180 |
| 209 | FN012039 | Transm Net | 40.0 | - | 120 | 175 | 950 | 2,850 | 2,100 | 500 | - | - | - | - | - | 6,695 |
| 210 | FN008333 | Transm Net | 18.0 | 127 | 231 | - | - | - | - | - | - | - | - | - | - | 359 |
| 211 | FN010064 | Transm Net | 75.0 | 26,931 | 13,205 | 11,212 | 928 | - | - | - | - | - | - | - | - | 52,276 |
| 212 | FN008052 | Transm Net | 160.0 | 1,296 | 250 | 500 | 500 | 5,000 | 20,000 | 4,295 | - | - | - | - | - | 31,841 |
| 213 | | | | | | | | | | | | | | | | |
| 214 | FN010080 | Transm Net | 20.0 | 128,202 | 36,501 | 13,284 | - | - | - | - | - | - | - | - | - | 177,987 |
| 215 | FN011215 | Transm Net | 10.0 | 7,471 | - | - | - | - | 250 | 3,506 | 5,634 | 4,900 | - | - | - | 21,761 |
| 216 | FN010078 | Transm Net | 25.0 | 11,533 | 6,066 | 2,241 | - | - | - | - | - | - | - | - | - | 19,840 |
| 217 | FN010094 | Transm Net | 130.0 | 10,974 | 5,685 | 4,350 | 4,500 | 24,226 | 39,461 | 41,666 | 53,386 | 53,761 | 49,056 | 27,946 | - | 315,010 |
| 218 | FN011642 | Transm Net | 550.0 | 214,519 | 71,737 | 185,671 | 138,394 | 85,282 | 27,854 | 481 | - | - | - | - | 105 | 724,043 |
| 219 | FN011630 | Transm Net | 40.0 | - | - | - | - | - | - | - | 110 | 1,466 | 529 | 1,479 | 10,739 | 14,323 |
| 220 | FN010084 | Transm Net | 5.0 | 6,009 | 1,375 | 775 | 645 | 3,170 | 15,508 | 20,514 | 31,069 | 27,052 | 450 | - | - | 106,567 |
| 221 | FN008253 | Transm Net | 312.0 | - | - | 50 | 470 | 680 | 6,250 | 15,000 | 39,250 | 39,250 | 37,950 | 34,140 | - | 173,040 |
| 222 | FN008254 | Transm Net | 312.0 | - | - | 50 | 470 | 680 | 6,810 | 15,000 | 40,000 | 40,000 | 40,000 | 41,540 | 18,355 | 202,905 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



*E*

| | | | | Capital Spending $000s | | | | | Capital $000s per Capacity Added MW | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line | Reference | Station | Capacity Added MW | T_Station | T_Line | D_Station | D_Line | Sum | T_Station | T_Line | D_Station | D_Line | Sum |
| | (A) | (A1) | (B) | (C-TS) | (C-TL) | (C-DS) | (C-DL) | (C) | (D-TS) (C-TS)/(B) | (D-TL) (C-TL)/(B) | (D-DS) (C-DS)/(B) | (D-DL) (C-DL)/((B) | (D) |
| 186 | FN011538 | Watt | 5.8 | - | - | 1,739 | 7,292 | 9,031 | - | - | 300 | 1,257 | 1,557 |
| 187 | FN011539 | WEAVER ST | 4.1 | - | - | 13,343 | 10,020 | 23,363 | - | - | 3,254 | 2,444 | 5,698 |
| 188 | FN011423 | Wells | 3.4 | - | - | 24,806 | - | 24,806 | - | - | 7,211 | - | 7,211 |
| 189 | FN012598 | Whitesboro | 12.0 | - | - | - | 28,378 | 28,378 | - | - | - | 2,365 | 2,365 |
| 190 | FN011388 | WOLF RD. | 3.0 | - | - | - | 6,516 | 6,516 | - | - | - | 2,172 | 2,172 |
| 191 | | | | | | | | | | | | | |
| 192 | FN010073 | Transm Net | 14.0 | 2,955 | 63,783 | - | - | 66,738 | 211 | 4,556 | - | - | 4,767 |
| 193 | FN011214 | Transm Net | 105.0 | 6,554 | 87,079 | - | - | 93,633 | 62 | 829 | - | - | 892 |
| 194 | FN010083 | Transm Net | 100.0 | 20,374 | 109,277 | - | - | 129,651 | 204 | 1,093 | - | - | 1,297 |
| 195 | FN008736 | Transm Net | 20.0 | 16,523 | - | - | - | 16,523 | 826 | - | - | - | 826 |
| 196 | FN008276 | Transm Net | 1,650.0 | 1,258,925 | 1,943,580 | - | - | 3,202,505 | 763 | 1,178 | - | - | 1,941 |
| 197 | FN011526 | Transm Net | 52.1 | - | 1,000 | 1,501 | - | 2,501 | - | 19 | 29 | - | 48 |
| 198 | FN008017 | Transm Net | 28.0 | - | 16,043 | - | - | 16,043 | - | 573 | - | - | 573 |
| 199 | FN008359 | Transm Net | 800.0 | 4,481 | 297,091 | - | - | 301,571 | 6 | 371 | - | - | 377 |
| 200 | FN008347 | Transm Net | 380.0 | 1,416 | 71,641 | - | - | 73,057 | 4 | 189 | - | - | 192 |
| 201 | FN008061 | Transm Net | 33.0 | - | 450 | - | - | 450 | - | 14 | - | - | 14 |
| 202 | FN013189 | Transm Net | 20.0 | 9,800 | - | - | - | 9,800 | 490 | - | - | - | 490 |
| 203 | FN013188 | Transm Net | 34.0 | - | 980 | - | - | 980 | - | 29 | - | - | 29 |
| 204 | FN008471 | Transm Net | 16.0 | 22,728 | - | - | - | 22,728 | 1,420 | - | - | - | 1,420 |
| 205 | FN012042 | Transm Net | 40.0 | - | 10,890 | - | - | 10,890 | - | 272 | - | - | 272 |
| 206 | FN012047 | Transm Net | 40.0 | - | 8,580 | - | - | 8,580 | - | 215 | - | - | 215 |
| 207 | FN012044 | Transm Net | 40.0 | - | 10,410 | - | - | 10,410 | - | 260 | - | - | 260 |
| 208 | FN012050 | Transm Net | 40.0 | - | 6,180 | - | - | 6,180 | - | 155 | - | - | 155 |
| 209 | FN012039 | Transm Net | 40.0 | - | 6,695 | - | - | 6,695 | - | 167 | - | - | 167 |
| 210 | FN008333 | Transm Net | 18.0 | - | 359 | - | - | 359 | - | 20 | - | - | 20 |
| 211 | FN010064 | Transm Net | 75.0 | 48,377 | 3,899 | - | - | 52,276 | 645 | 52 | - | - | 697 |
| 212 | FN008052 | Transm Net | 160.0 | - | 31,841 | - | - | 31,841 | - | 199 | - | - | 199 |
| 213 | | | | | | | | | | | | | |
| 214 | FN010080 | Transm Net | 20.0 | 149,826 | 13,733 | - | 14,428 | 177,987 | 7,491 | 687 | - | 721 | 8,899 |
| 215 | FN011215 | Transm Net | 10.0 | 21,761 | - | - | - | 21,761 | 2,176 | - | - | - | 2,176 |
| 216 | FN010078 | Transm Net | 25.0 | 19,840 | - | - | - | 19,840 | 794 | - | - | - | 794 |
| 217 | FN010094 | Transm Net | 130.0 | 125,706 | 24,660 | - | 164,644 | 315,010 | 967 | 190 | - | 1,266 | 2,423 |
| 218 | FN011642 | Transm Net | 550.0 | 274,761 | 449,282 | - | - | 724,043 | 500 | 817 | - | - | 1,316 |
| 219 | FN011630 | Transm Net | 40.0 | 14,323 | - | - | - | 14,323 | 358 | - | - | - | 358 |
| 220 | FN010084 | Transm Net | 5.0 | 64,916 | 41,651 | - | - | 106,567 | 12,983 | 8,330 | - | - | 21,313 |
| 221 | FN008253 | Transm Net | 312.0 | - | 173,040 | - | - | 173,040 | - | 555 | - | - | 555 |
| 222 | FN008254 | Transm Net | 312.0 | - | 202,905 | - | - | 202,905 | - | 650 | - | - | 650 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



| | | | | *CCR Rates=>* | 8.21% | 8.44% | 8.06% | 14.13% | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Annual Cost $000s Using ECCR per Capacity Added MW | | | | |
| Line | Reference | Station | Capacity Added MW | In-Service Year | T_Station | T_Line | D_Station | D_Line | Sum |
| | (A) | (A1) | (B) | (F) | (E-TS) | (E-TL) | (E-DS) | (E-DL) | (E) |
| | | | | | (D-TS)*ECCR | (D-TL)*ECCR | (D-DS)*ECCR | (D-DL)*ECCR | |
| 186 | FN011538 | Watt | 5.8 | 2036 | - | - | 24 | 178 | 202 |
| 187 | FN011539 | WEAVER ST | 4.1 | 2036 | - | - | 262 | 345 | 608 |
| 188 | FN011423 | Wells | 3.4 | 2035 | - | - | 581 | - | 581 |
| 189 | FN012598 | Whitesboro | 12.0 | 2036 | - | - | - | 334 | 334 |
| 190 | FN011388 | WOLF RD. | 3.0 | 2031 | - | - | - | 307 | 307 |
| 191 | | | | | | | | | |
| 192 | FN010073 | Transm Net | 14.0 | 2030 | 17 | 385 | - | - | 402 |
| 193 | FN011214 | Transm Net | 105.0 | 2029 | 5 | 70 | - | - | 75 |
| 194 | FN010083 | Transm Net | 100.0 | 2031 | 17 | 92 | - | - | 109 |
| 195 | FN008736 | Transm Net | 20.0 | 2032 | 68 | - | - | - | 68 |
| 196 | FN008276 | Transm Net | 1,650.0 | 2036 | 63 | 99 | - | - | 162 |
| 197 | FN011526 | Transm Net | 52.1 | 2036 | - | 2 | 2 | - | 4 |
| 198 | FN008017 | Transm Net | 28.0 | 2034 | - | 48 | - | - | 48 |
| 199 | FN008359 | Transm Net | 800.0 | 2030 | 0 | 31 | - | - | 32 |
| 200 | FN008347 | Transm Net | 380.0 | 2030 | 0 | 16 | - | - | 16 |
| 201 | FN008061 | Transm Net | 33.0 | 2036 | - | 1 | - | - | 1 |
| 202 | FN013189 | Transm Net | 20.0 | 2033 | 40 | - | - | - | 40 |
| 203 | FN013188 | Transm Net | 34.0 | 2033 | - | 2 | - | - | 2 |
| 204 | FN008471 | Transm Net | 16.0 | 2028 | 117 | - | - | - | 117 |
| 205 | FN012042 | Transm Net | 40.0 | 2031 | - | 23 | - | - | 23 |
| 206 | FN012047 | Transm Net | 40.0 | 2031 | - | 18 | - | - | 18 |
| 207 | FN012044 | Transm Net | 40.0 | 2031 | - | 22 | - | - | 22 |
| 208 | FN012050 | Transm Net | 40.0 | 2031 | - | 13 | - | - | 13 |
| 209 | FN012039 | Transm Net | 40.0 | 2031 | - | 14 | - | - | 14 |
| 210 | FN008333 | Transm Net | 18.0 | 2026 | - | 2 | - | - | 2 |
| 211 | FN010064 | Transm Net | 75.0 | 2028 | 53 | 4 | - | - | 57 |
| 212 | FN008052 | Transm Net | 160.0 | 2031 | - | 17 | - | - | 17 |
| 213 | | | | | | | | | |
| 214 | FN010080 | Transm Net | 20.0 | 2027 | 615 | 58 | - | 102 | 775 |
| 215 | FN011215 | Transm Net | 10.0 | 2033 | 179 | - | - | - | 179 |
| 216 | FN010078 | Transm Net | 25.0 | 2027 | 65 | - | - | - | 65 |
| 217 | FN010094 | Transm Net | 130.0 | 2035 | 79 | 16 | - | 179 | 274 |
| 218 | FN011642 | Transm Net | 550.0 | 2036 | 41 | 69 | - | - | 110 |
| 219 | FN011630 | Transm Net | 40.0 | 2036 | 29 | - | - | - | 29 |
| 220 | FN010084 | Transm Net | 5.0 | 2034 | 1,065 | 703 | - | - | 1,769 |
| 221 | FN008253 | Transm Net | 312.0 | 2035 | - | 47 | - | - | 47 |
| 222 | FN008254 | Transm Net | 312.0 | 2036 | - | 55 | - | - | 55 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



*Annual Inflation=>* 102.1%

| Line | Reference | Station | Capacity Added MW | In-Service Year | Rationale | Marginal Cost $000s in Each Year | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 |
| | (A) | (A1) | (B) | (F) | (F-1) | (F26) | (F27) | (F28) | (F29) | (F30) | (F31) | (F32) | (F33) | (F34) | (F35) | (F36) |
| 186 | FN011538 | Watt | 5.8 | 2036 | MVD | 164 | 167 | 171 | 174 | 178 | 182 | 186 | 190 | 194 | 198 | 202 |
| 187 | FN011539 | WEAVER ST | 4.1 | 2036 | MVD | 494 | 504 | 515 | 525 | 536 | 548 | 559 | 571 | 583 | 595 | 608 |
| 188 | FN011423 | Wells | 3.4 | 2035 | MVD | 482 | 492 | 502 | 513 | 524 | 535 | 546 | 557 | 569 | 581 | 593 |
| 189 | FN012598 | Whitesboro | 12.0 | 2036 | MVD | 271 | 277 | 283 | 289 | 295 | 301 | 307 | 314 | 321 | 327 | 334 |
| 190 | FN011388 | WOLF RD. | 3.0 | 2031 | MVD | 277 | 282 | 288 | 294 | 301 | 307 | 313 | 320 | 327 | 333 | 341 |
| 191 | | | | | | | | | | | | | | | | |
| 192 | FN010073 | Transm Net | 14.0 | 2030 | Cap | 370 | 378 | 386 | 394 | 402 | 410 | 419 | 428 | 437 | 446 | 455 |
| 193 | FN011214 | Transm Net | 105.0 | 2029 | MVT | 71 | 72 | 74 | 75 | 77 | 78 | 80 | 82 | 83 | 85 | 87 |
| 194 | FN010083 | Transm Net | 100.0 | 2031 | MVT | 98 | 100 | 102 | 105 | 107 | 109 | 111 | 114 | 116 | 118 | 121 |
| 195 | FN008736 | Transm Net | 20.0 | 2032 | MVT | 60 | 61 | 62 | 64 | 65 | 66 | 68 | 69 | 71 | 72 | 74 |
| 196 | FN008276 | Transm Net | 1,650.0 | 2036 | MVT | 132 | 134 | 137 | 140 | 143 | 146 | 149 | 152 | 155 | 159 | 162 |
| 197 | FN011526 | Transm Net | 52.1 | 2036 | Cap | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 |
| 198 | FN008017 | Transm Net | 28.0 | 2034 | MVT | 41 | 42 | 43 | 44 | 45 | 45 | 46 | 47 | 48 | 49 | 50 |
| 199 | FN008359 | Transm Net | 800.0 | 2030 | MVT | 29 | 30 | 31 | 31 | 32 | 32 | 33 | 34 | 35 | 35 | 36 |
| 200 | FN008347 | Transm Net | 380.0 | 2030 | MVT | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 18 | 18 | 18 |
| 201 | FN008061 | Transm Net | 33.0 | 2036 | Cap | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 202 | FN013189 | Transm Net | 20.0 | 2033 | Cap | 35 | 35 | 36 | 37 | 38 | 39 | 39 | 40 | 41 | 42 | 43 |
| 203 | FN013188 | Transm Net | 34.0 | 2033 | Cap | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 |
| 204 | FN008471 | Transm Net | 16.0 | 2028 | MVT | 112 | 114 | 117 | 119 | 122 | 124 | 127 | 129 | 132 | 135 | 138 |
| 205 | FN012042 | Transm Net | 40.0 | 2031 | Cap | 21 | 21 | 22 | 22 | 23 | 23 | 23 | 24 | 24 | 25 | 25 |
| 206 | FN012047 | Transm Net | 40.0 | 2031 | Cap | 16 | 17 | 17 | 17 | 18 | 18 | 18 | 19 | 19 | 20 | 20 |
| 207 | FN012044 | Transm Net | 40.0 | 2031 | Cap | 20 | 20 | 21 | 21 | 22 | 22 | 22 | 23 | 23 | 24 | 24 |
| 208 | FN012050 | Transm Net | 40.0 | 2031 | Cap | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 |
| 209 | FN012039 | Transm Net | 40.0 | 2031 | Cap | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 16 |
| 210 | FN008333 | Transm Net | 18.0 | 2026 | MVT | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 211 | FN010064 | Transm Net | 75.0 | 2028 | MVT | 55 | 56 | 57 | 59 | 60 | 61 | 62 | 64 | 65 | 66 | 68 |
| 212 | FN008052 | Transm Net | 160.0 | 2031 | Cap | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 18 | 18 | 18 | 19 |
| 213 | | | | | | | | | | | | | | | | |
| 214 | FN010080 | Transm Net | 20.0 | 2027 | MVT | 759 | 775 | 791 | 807 | 824 | 842 | 859 | 877 | 896 | 915 | 934 |
| 215 | FN011215 | Transm Net | 10.0 | 2033 | MVT | 154 | 158 | 161 | 164 | 168 | 171 | 175 | 179 | 182 | 186 | 190 |
| 216 | FN010078 | Transm Net | 25.0 | 2027 | MVT | 64 | 65 | 66 | 68 | 69 | 71 | 72 | 74 | 75 | 77 | 79 |
| 217 | FN010094 | Transm Net | 130.0 | 2035 | Cap | 228 | 232 | 237 | 242 | 247 | 252 | 258 | 263 | 269 | 274 | 280 |
| 218 | FN011642 | Transm Net | 550.0 | 2036 | MVT | 89 | 91 | 93 | 95 | 97 | 99 | 101 | 103 | 105 | 108 | 110 |
| 219 | FN011630 | Transm Net | 40.0 | 2036 | Cap | 24 | 24 | 25 | 25 | 26 | 26 | 27 | 28 | 28 | 29 | 29 |
| 220 | FN010084 | Transm Net | 5.0 | 2034 | MVT | 1,498 | 1,529 | 1,561 | 1,594 | 1,627 | 1,662 | 1,697 | 1,732 | 1,769 | 1,806 | 1,844 |
| 221 | FN008253 | Transm Net | 312.0 | 2035 | MVT | 39 | 40 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 |
| 222 | FN008254 | Transm Net | 312.0 | 2036 | MVT | 45 | 46 | 46 | 47 | 48 | 49 | 51 | 52 | 53 | 54 | 55 |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



| | | | | Capital Spending $000s | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line | Reference | Station | Capacity Added MW | Prior to 2026 CapEx | FY26 Capex | FY27 Capex | FY28 Capex | FY29 Capex | FY30 Capex | FY31 Capex | FY32 Capex | FY33 Capex | FY34 Capex | FY35 Capex | FY36 Capex | Sum |
| | (A) | (A1) | (B) | (C26X) | (C26) | (C27) | (C28) | (C29) | (C30) | (C31) | (C32) | (C33) | (C34) | (C35) | (C36) | (C-Sum) |
| 223 | FN008453 | Transm Net | 200.0 | 13,419 | 4,058 | 533 | 266 | - | - | - | - | - | - | - | - | 18,277 |
| 224 | FN013571 | Transm Net | 1,100.0 | - | - | - | - | - | - | 740 | 2,989 | 6,860 | 4,216 | 68,600 | 58,800 | 142,205 |
| 225 | FN013182 | Transm Net | 844.0 | - | - | - | - | - | 98 | 1,078 | 2,940 | 10,000 | 20,000 | 40,000 | 40,000 | 114,116 |
| 226 | FN013318 | Transm Net | 104.0 | - | - | - | - | - | - | - | - | - | 50 | 1,000 | 1,000 | 2,050 |
| 227 | FN008063 | Transm Net | 40.0 | 659 | 382 | 2,037 | - | - | - | - | - | - | - | - | - | 3,078 |
| 228 | FN010255 | Transm Net | 24.0 | - | - | - | - | - | - | - | 20 | 120 | 120 | 420 | 2,692 | 3,372 |
| 229 | FN008472 | Transm Net | 10.0 | 2,125 | 795 | - | 288 | 376 | - | - | - | - | - | - | - | 3,583 |
| 230 | FN008116 | Transm Net | 30.0 | - | - | - | - | 443 | 250 | 3,040 | 10,000 | 30,000 | 40,000 | 40,000 | 40,000 | 163,733 |
| 231 | FN008374 | Transm Net | 1,000.0 | 860,694 | 50,190 | 18,046 | - | - | - | - | - | - | - | - | - | 928,930 |
| 232 | FN008262 | Transm Net | 97.0 | - | - | - | - | - | - | 80 | 120 | 240 | 2,949 | 19,896 | 37,606 | 60,891 |
| 233 | FN008260 | Transm Net | 40.0 | - | - | - | - | - | - | - | - | - | 20 | 120 | 420 | 560 |
| 234 | FN008683 | Transm Net | 10.0 | - | - | 125 | 1,300 | 1,800 | 15,000 | 17,000 | 15,000 | 500 | - | - | - | 50,725 |
| 235 | FN013316 | Transm Net | 11.0 | - | - | - | - | - | 98 | 1,960 | 6,860 | 882 | - | - | - | 9,800 |
| 236 | FN011646 | Transm Net | 10.0 | - | - | - | - | - | - | - | 128 | 1,059 | 613 | 970 | 3,526 | 6,296 |
| 237 | FN013525 | Transm Net | 10.0 | 1,017 | 894 | 600 | 3,447 | 6,602 | 4,552 | 1,529 | - | - | - | - | - | 18,642 |
| 238 | FN011289 | Transm Net | 25.0 | - | - | - | - | - | - | - | - | - | - | 134 | 2,782 | 2,916 |
| 239 | FN011396 | Transm Net | 25.0 | - | - | - | - | - | 248 | 1,948 | 2,885 | 1,246 | 10,707 | 11,707 | 4,865 | 33,606 |
| 240 | FN013572 | Transm Net | 200.0 | - | 108 | 421 | 9,430 | 25,230 | 45,790 | 49,790 | 25,600 | - | - | - | - | 156,369 |
| 241 | FN010101 | Transm Net | 100.0 | 235,496 | 3,306 | - | - | - | - | - | - | - | - | - | - | 238,802 |
| 242 | | | | | | | | | | | | | | | | |
| 243 | | | | | | | | | | | | | | | | |
| 244 | | | | | | | | | | | | | | | | |
| 245 | Sum | | 11,532.5 | 2,769,396 | 707,340 | 1,069,397 | 1,033,241 | 985,525 | 790,431 | 425,123 | 498,458 | 583,649 | 626,986 | 702,861 | 510,493 | 10,702,901 |
| 246 | | | | | | | | | | | | | | | | |
| 247 | Capacity Added | | | | | | | | | | | | | | | |
| 248 | Discount Factor to 2026 | | | | | | | | | | | | | | | |
| 249 | Total Marginal cost of Capacity | | | | | | | | | | | | | | | |
| 250 | Capacity Weighted Discounted Marginal Cost | | | | | | | | | | | | | | | |
| 251 | All-Year Weighted Average Marginal Annual Cost per MW Added | | | | | | | | | | | | | | | |
| 252 | | | | | | | | | | | | | | | | |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | *E* |
| | | | | Capital Spending $000s | | | | | Capital $000s per Capacity Added MW | | | | |
| Line | Reference | Station | Capacity Added MW | T_Station | T_Line | D_Station | D_Line | Sum | T_Station | T_Line | D_Station | D_Line | Sum |
| | (A) | (A1) | (B) | (C-TS) | (C-TL) | (C-DS) | (C-DL) | (C) | (D-TS) (C-TS)/(B) | (D-TL) (C-TL)/(B) | (D-DS) (C-DS)/(B) | (D-DL) (C-DL)/((B) | (D) |
| 223 | FN008453 | Transm Net | 200.0 | 18,277 | - | - | - | 18,277 | 91 | - | - | - | 91 |
| 224 | FN013571 | Transm Net | 1,100.0 | 9,800 | 132,405 | - | - | 142,205 | 9 | 120 | - | - | 129 |
| 225 | FN013182 | Transm Net | 844.0 | - | 114,116 | - | - | 114,116 | - | 135 | - | - | 135 |
| 226 | FN013318 | Transm Net | 104.0 | - | 2,050 | - | - | 2,050 | - | 20 | - | - | 20 |
| 227 | FN008063 | Transm Net | 40.0 | - | 3,078 | - | - | 3,078 | - | 77 | - | - | 77 |
| 228 | FN010255 | Transm Net | 24.0 | - | 3,372 | - | - | 3,372 | - | 141 | - | - | 141 |
| 229 | FN008472 | Transm Net | 10.0 | 3,583 | - | - | - | 3,583 | 358 | - | - | - | 358 |
| 230 | FN008116 | Transm Net | 30.0 | - | 163,733 | - | - | 163,733 | - | 5,458 | - | - | 5,458 |
| 231 | FN008374 | Transm Net | 1,000.0 | - | 928,930 | - | - | 928,930 | - | 929 | - | - | 929 |
| 232 | FN008262 | Transm Net | 97.0 | - | 60,891 | - | - | 60,891 | - | 628 | - | - | 628 |
| 233 | FN008260 | Transm Net | 40.0 | - | 560 | - | - | 560 | - | 14 | - | - | 14 |
| 234 | FN008683 | Transm Net | 10.0 | 50,725 | - | - | - | 50,725 | 5,073 | - | - | - | 5,073 |
| 235 | FN013316 | Transm Net | 11.0 | - | 9,800 | - | - | 9,800 | - | 891 | - | - | 891 |
| 236 | FN011646 | Transm Net | 10.0 | 6,296 | - | - | - | 6,296 | 630 | - | - | - | 630 |
| 237 | FN013525 | Transm Net | 10.0 | 18,642 | - | - | - | 18,642 | 1,864 | - | - | - | 1,864 |
| 238 | FN011289 | Transm Net | 25.0 | - | 1,000 | 1,916 | - | 2,916 | - | 40 | 77 | - | 117 |
| 239 | FN011396 | Transm Net | 25.0 | - | 2,075 | 24,807 | 6,724 | 33,606 | - | 83 | 992 | 269 | 1,344 |
| 240 | FN013572 | Transm Net | 200.0 | 133,731 | 22,638 | - | - | 156,369 | 669 | 113 | - | - | 782 |
| 241 | FN010101 | Transm Net | 100.0 | - | 238,802 | - | - | 238,802 | - | 2,388 | - | - | 2,388 |
| 242 | | | | | | | | | | | | | |
| 243 | [redacted] | | | | | | | | | | | | |
| 244 | | | | | | | | | | | | | |
| 245 | Sum | | 11,532.5 | 2,315,507 | 5,259,499 | 1,894,932 | 1,232,963 | 10,702,901 | 201 | 456 | 164 | 107 | 928 |
| 246 | | | | | | | | | | | | | |
| 247 | Capacity Added | | | | | | | | | | | | |
| 248 | Discount Factor to 2026 | | | | | | | | | | | | |
| 249 | Total Marginal cost of Capacity | | | | | | | | | | | | |
| 250 | Capacity Weighted Discounted Marginal Cost | | | | | | | | | | | | |
| 251 | All-Year Weighted Average Marginal Annual Cost per MW Added | | | | | | | | | | | | |
| 252 | | | | | | | | | | | | | |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



| | | | | | *CCR Rates=>* | 8.21% | 8.44% | 8.06% | 14.13% | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Annual Cost $000s Using ECCR per Capacity Added MW | | | | |
| Line | Reference | Station | Capacity Added MW | In-Service Year | | T_Station | T_Line | D_Station | D_Line | Sum |
| | (A) | (A1) | (B) | (F) | | (E-TS) | (E-TL) | (E-DS) | (E-DL) | (E) |
| | | | | | | (D-TS)*ECCR | (D-TL)*ECCR | (D-DS)*ECCR | (D-DL)*ECCR | |
| 223 | FN008453 | Transm Net | 200.0 | 2028 | | 7 | - | - | - | 7 |
| 224 | FN013571 | Transm Net | 1,100.0 | 2036 | | 1 | 10 | - | - | 11 |
| 225 | FN013182 | Transm Net | 844.0 | 2036 | | - | 11 | - | - | 11 |
| 226 | FN013318 | Transm Net | 104.0 | 2036 | | - | 2 | - | - | 2 |
| 227 | FN008063 | Transm Net | 40.0 | 2027 | | - | 6 | - | - | 6 |
| 228 | FN010255 | Transm Net | 24.0 | 2036 | | - | 12 | - | - | 12 |
| 229 | FN008472 | Transm Net | 10.0 | 2029 | | 29 | - | - | - | 29 |
| 230 | FN008116 | Transm Net | 30.0 | 2036 | | - | 461 | - | - | 461 |
| 231 | FN008374 | Transm Net | 1,000.0 | 2027 | | - | 78 | - | - | 78 |
| 232 | FN008262 | Transm Net | 97.0 | 2036 | | - | 53 | - | - | 53 |
| 233 | FN008260 | Transm Net | 40.0 | 2036 | | - | 1 | - | - | 1 |
| 234 | FN008683 | Transm Net | 10.0 | 2033 | | 416 | - | - | - | 416 |
| 235 | FN013316 | Transm Net | 11.0 | 2033 | | - | 75 | - | - | 75 |
| 236 | FN011646 | Transm Net | 10.0 | 2036 | | 52 | - | - | - | 52 |
| 237 | FN013525 | Transm Net | 10.0 | 2031 | | 153 | - | - | - | 153 |
| 238 | FN011289 | Transm Net | 25.0 | 2036 | | - | 3 | 6 | - | 10 |
| 239 | FN011396 | Transm Net | 25.0 | 2036 | | - | 7 | 80 | 38 | 125 |
| 240 | FN013572 | Transm Net | 200.0 | 2032 | | 55 | 10 | - | - | 64 |
| 241 | FN010101 | Transm Net | 100.0 | 2026 | | - | 202 | - | - | 202 |
| 242 | | | | | | | | | | |
| 243 | [redacted] | | | | | | | | | |
| 244 | | | | | | | | | | |
| 245 | Sum | | 11,532.5 | | | 16 | 38 | 13 | 15 | 83 |
| 246 | | | | | | | | | | |
| 247 | Capacity Added | | | | | | | | | |
| 248 | Discount Factor to 2026 | | | | | | | | | |
| 249 | Total Marginal cost of Capacity | | | | | | | | | |
| 250 | Capacity Weighted Discounted Marginal Cost | | | | | | | | | |
| 251 | All-Year Weighted Average Marginal Annual Cost per MW Added | | | | | | | | | |
| 252 | | | | | | | | | | |

Exhibit 1

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Capital Spending, Capital Cost per MW and Marginal Cost BY SUBSTATION**



*Annual Inflation=>* 102.1%

| Line | Reference | Station | Capacity Added MW | In-Service Year | Rationale | Marginal Cost $000s in Each Year | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 |
| | (A) | (A1) | (B) | (F) | (F-1) | (F26) | (F27) | (F28) | (F29) | (F30) | (F31) | (F32) | (F33) | (F34) | (F35) | (F36) |
| 223 | FN008453 | Transm Net | 200.0 | 2028 | MVT | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 |
| 224 | FN013571 | Transm Net | 1,100.0 | 2036 | Cap | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 |
| 225 | FN013182 | Transm Net | 844.0 | 2036 | Cap | 9 | 9 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 |
| 226 | FN013318 | Transm Net | 104.0 | 2036 | MVT | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| 227 | FN008063 | Transm Net | 40.0 | 2027 | Cap | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 |
| 228 | FN010255 | Transm Net | 24.0 | 2036 | MVT | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 12 | 12 |
| 229 | FN008472 | Transm Net | 10.0 | 2029 | MVT | 28 | 28 | 29 | 29 | 30 | 31 | 31 | 32 | 33 | 33 | 34 |
| 230 | FN008116 | Transm Net | 30.0 | 2036 | MVT | 374 | 382 | 390 | 398 | 407 | 415 | 424 | 433 | 442 | 451 | 461 |
| 231 | FN008374 | Transm Net | 1,000.0 | 2027 | MVT | 77 | 78 | 80 | 82 | 83 | 85 | 87 | 89 | 91 | 93 | 95 |
| 232 | FN008262 | Transm Net | 97.0 | 2036 | MVT | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 |
| 233 | FN008260 | Transm Net | 40.0 | 2036 | MVT | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 234 | FN008683 | Transm Net | 10.0 | 2033 | MVT | 360 | 367 | 375 | 383 | 391 | 399 | 408 | 416 | 425 | 434 | 443 |
| 235 | FN013316 | Transm Net | 11.0 | 2033 | Cap | 65 | 66 | 68 | 69 | 71 | 72 | 74 | 75 | 77 | 78 | 80 |
| 236 | FN011646 | Transm Net | 10.0 | 2036 | MVT | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 |
| 237 | FN013525 | Transm Net | 10.0 | 2031 | MVT | 138 | 141 | 144 | 147 | 150 | 153 | 156 | 159 | 163 | 166 | 170 |
| 238 | FN011289 | Transm Net | 25.0 | 2036 | Cap | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 |
| 239 | FN011396 | Transm Net | 25.0 | 2036 | Cap | 102 | 104 | 106 | 108 | 110 | 113 | 115 | 117 | 120 | 122 | 125 |
| 240 | FN013572 | Transm Net | 200.0 | 2032 | Cap | 57 | 58 | 59 | 61 | 62 | 63 | 64 | 66 | 67 | 69 | 70 |
| 241 | FN010101 | Transm Net | 100.0 | 2026 | MVT | 202 | 206 | 210 | 215 | 219 | 224 | 228 | 233 | 238 | 243 | 248 |
| 242 | | | | | | | | | | | | | | | | |
| 243 | [redacted] | | | | | | | | | | | | | | | |
| 244 | | | | | | | | | | | | | | | | |
| 245 | Sum | | 11,532.5 | | | 71.524 | 73.026 | 74.559 | 76.125 | 77.724 | 79.356 | 81.022 | 82.724 | 84.461 | 86.235 | 88.046 |
| 246 | | | | | | | | | | | | | | | | |
| 247 | Capacity Added | | | | 11,533 | 142 | 1,178 | 370 | 242 | 1,258 | 891 | 391 | 195 | 265 | 816 | 5,787 |
| 248 | Discount Factor to 2026 | | | | | 1.0000 | 1.0210 | 1.0424 | 1.0643 | 1.0867 | 1.1095 | 1.1328 | 1.1566 | 1.1809 | 1.2057 | 1.2310 |
| 249 | Total Marginal cost of Capacity | | | | | 10,150 | 85,995 | 27,577 | 18,396 | 97,743 | 70,686 | 31,657 | 16,115 | 22,348 | 70,391 | 509,500 |
| 250 | Capacity Weighted Discounted Marginal Cost | | | | | 10,150 | 84,226 | 26,454 | 17,285 | 89,946 | 63,710 | 27,946 | 13,933 | 18,925 | 58,383 | 413,892 |
| 251 | All-Year Weighted Average Marginal Annual Cost per MW Added | | | | 71.524 | | | | | | | | | | | |
| 252 | | | | | | | | | | | | | | | | |

**Exhibit 2**

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Economic Carrying Charge Rates**

| Line | | |
|---|---|---|
| 1 | **ECCR Exhibits** | **Exhibit Reference** |
| 2 | Economic Carrying Charge Rates | Exhibit 2 |
| 3 | Transmission Stations Economic Carrying Charge Rate | Exhibit 2-TS |
| 4 | Transmission Lines Economic Carrying Charge Rate | Exhibit 2-TL |
| 5 | Distribution Stations Economic Carrying Charge Rate | Exhibit 2-DS |
| 6 | Distribution Lines Economic Carrying Charge Rate | Exhibit 2-DL |
| 7 | O&M Costs | Exhibit 2-OM |
| 8 | Other Taxes Applicable to Plant | Exhibit 2-Tax |
| 9 | | |
| 10 | **ECCR Inputs** | |

| 11 | Account Title | Account | Weighting (from Sch 5A) | Book Life | Salvage Value | Economic Carrying Charge Rate | |
|---|---|---|---|---|---|---|---|
| 12 | Transmission Stations | | | 47.6 | (7%) | **8.21%** | T_Station |
| 13 | Tranmsission Lines | | | 65.8 | (39%) | **8.44%** | T_Line |
| 14 | | | | | | | |
| 15 | Distribution Stations | 362 | | 61.55 | (15%) | **8.06%** | D_Station |
| 16 | Distribution Lines | 362-367 | | 56.7 | (24%) | **14.13%** | D_Line |
| 17 | (includes Transformers) | | | | | | |
| 18 | | | | | | | |
| 19 | **Annual Economic Carrying Charge Rate Parameters** | | | | | | |

| 20 | | Cost of Capital | O&M Expense | Insurance | Property Tax | | |
|---|---|---|---|---|---|---|---|
| 21 | Applied to==> | Rate Base | Gross plant / Inflated | Gross plant / Inflated | Net Plant | | Inflation Annual Rate |
| 22 | Transmission Stations | 6.87% | 1.33% | 0.10% | 2.02% | 2.09% | 1.0210 |
| 23 | Tranmsission Lines | 6.87% | 2.09% | 0.10% | 2.02% | 2.09% | 1.0210 |
| 24 | | | | | | | |
| 25 | Distribution Stations | 6.87% | 1.59% | 0.10% | 2.02% | #DIV/0! | 1.0210 |
| 26 | Distribution Lines | 6.87% | 7.49% | 0.10% | 2.02% | 7.49% | 1.0210 |
| 27 | | | | | | | |
| 28 | **Other Factors** | | | | | | |
| 29 | General Inflation (from 12/31/22 to 3/31/25) | | | | | | |
| 30 | Annual Rate | | 2.1000% | | | | |
| 31 | Annual Inflator | | 102.1000% | | | | |
| 32 | WACC | | 6.87% | | | | |
| 33 | Wtd Equity | | 4.56% | | | | |

**Exhibit 2-TS**

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Transmission Stations Economic Carrying Charge Rate**



**Transmission Stations**

| Original Cost | | |
|---|---|---|
| Original Cost $ | *Cost* | $100.00 |
| Depreciable life years | *Depr_Life* | 47.60 |
| Salvage % | *Salvage* | (6.77%) |
| Depreciable basis | *DeprBasis* | $106.77 |
| Annual depreciation | *AnnualDepr* | $2.24 |
| Year in service | *Start_Yr* | 2025 |
| Depr Year 1 | *D_Yr1* | 100% |

| Annual Costs | | | Applied to |
|---|---|---|---|
| O&M | *OM_pct* | 1.33% | Gross plant / inflated |
| Property tax | *Prop_pct* | 2.02% | Net plant |
| Insurance | *Insur_pct* | 0.10% | Gross plant / inflated |
| Inflation rate | *Inflation* | 2.10% | 102.10% |

| Cost of Capital | | |
|---|---|---|
| Wtd Avg Cost of Capital | *WACC* | 6.87% |
| Wtd Return on Equity | *WEqu* | 4.56% |

| Federal Tax | | |
|---|---|---|
| FIT Basis $ | *FIT_Basis* | $100.00 |
| FIT depreciation yrs | *FIT_Life* | 20 |
| FIT rate | *FIT_Rate* | 21.00% |
| FIT Gross-up | *FIT_Mult* | 26.58% |
| FIT DDB Rate | *FDB_Rate* | 150% |
| FIT DDB % | FDBpct | 7.50% |
| FIT Method | *FIT_DDB* | TRUE |
| FIT Year 1 | *F_Yr1* | 50% |

| State Tax | | |
|---|---|---|
| SIT Basis $ | *SIT_Basis* | $100.00 |
| SIT depreciation yrs | *SIT_Life* | 20 |
| SIT rate | *SIT_Rate* | 7.25% |
| SIT Gross-up | *SIT_Mult* | 7.82% |
| SIT DDB Rate | *SDB_Rate* | 200% |
| SIT DDB % | SDBpct | 10.00% |
| SIT Method | *SIT_DDB* | FALSE |
| SIT Year 1 | *S_Yr1* | 50% |

| | | | |
|---|---|---|---|
| NPV- Revenue Req | $152.44 | NPV- Levelized Charge | $174.89 |
| NPV- Plant | $1,430.32 | Inflation Adjustment | 5.38% |
| Economic Carrying Charge Rate | 8.21% (ECCR) | | 0.021 |

**Exhibit 2-TS**

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Transmission Stations Economic Carrying Charge Rate**



| Line | **Transmission Stations** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | Year | *rYear* | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 |
| 28 | Year Number | *rYearNum* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 29 | | | | | | | | | | | ***ECCR Model continues through 2085=>*** | | | | |
| 30 | Original Cost | *rCost* | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 31 | Depreciation expense | *rDepExp* | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 |
| 32 | Accum. depreciation | *rAccumDep* | 2.24 | 4.49 | 6.73 | 8.97 | 11.22 | 13.46 | 15.70 | 17.95 | 20.19 | 22.43 | 24.68 | 26.92 | 29.16 |
| 33 | Net plant | *rNetPlant* | 97.76 | 95.51 | 93.27 | 91.03 | 88.78 | 86.54 | 84.30 | 82.05 | 79.81 | 77.57 | 75.32 | 73.08 | 70.84 |
| 34 | Inflation Factor | *rInflation* | 1.0000 | 1.0210 | 1.0424 | 1.0643 | 1.0867 | 1.1095 | 1.1328 | 1.1566 | 1.1809 | 1.2057 | 1.2310 | 1.2568 | 1.2832 |
| 35 | Levelized Charge | *rLevel* | 8.21 | 8.38 | 8.55 | 8.73 | 8.92 | 9.10 | 9.30 | 9.49 | 9.69 | 9.89 | 10.10 | 10.31 | 10.53 |
| 36 | | | | | | | | | | | | | | | |
| 37 | Rate Base | | | | | | | | | | | | | | |
| 38 | Original Cost | | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 39 | Accum. depreciation | | (2.24) | (4.49) | (6.73) | (8.97) | (11.22) | (13.46) | (15.70) | (17.95) | (20.19) | (22.43) | (24.68) | (26.92) | (29.16) |
| 40 | ADIT- Federal | | (0.32) | (1.36) | (2.29) | (3.12) | (3.85) | (4.49) | (5.04) | (5.52) | (5.99) | (6.45) | (6.92) | (7.38) | (7.85) |
| 41 | ADIT- State | | (0.02) | (0.22) | (0.42) | (0.62) | (0.82) | (1.02) | (1.22) | (1.42) | (1.62) | (1.82) | (2.02) | (2.22) | (2.42) |
| 42 | Rate Base | *rRateBase* | 97.42 | 93.93 | 90.56 | 87.29 | 84.12 | 81.04 | 78.04 | 75.12 | 72.21 | 69.30 | 66.39 | 63.48 | 60.57 |
| 43 | | | | | | | | | | | | | | | |
| 44 | Return on Rate Base | *rReturn* | 6.69 | 6.45 | 6.22 | 6.00 | 5.78 | 5.57 | 5.36 | 5.16 | 4.96 | 4.76 | 4.56 | 4.36 | 4.16 |
| 45 | Return on Equity | *rROE* | 4.44 | 4.28 | 4.13 | 3.98 | 3.84 | 3.70 | 3.56 | 3.43 | 3.29 | 3.16 | 3.03 | 2.89 | 2.76 |
| 46 | | | | | | | | | | | | | | | |
| 47 | Revenue Requirement | | | | | | | | | | | | | | |
| 48 | Return on Rate Base | | 6.69 | 6.45 | 6.22 | 6.00 | 5.78 | 5.57 | 5.36 | 5.16 | 4.96 | 4.76 | 4.56 | 4.36 | 4.16 |
| 49 | Depreciation expense | | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 |
| 50 | FIT- Total | | 1.18 | 1.14 | 1.10 | 1.06 | 1.02 | 0.98 | 0.95 | 0.91 | 0.88 | 0.84 | 0.80 | 0.77 | 0.73 |
| 51 | SIT- Total | | 0.35 | 0.33 | 0.32 | 0.31 | 0.30 | 0.29 | 0.28 | 0.27 | 0.26 | 0.25 | 0.24 | 0.23 | 0.22 |
| 52 | O&M | | 1.33 | 1.36 | 1.39 | 1.42 | 1.44 | 1.48 | 1.51 | 1.54 | 1.57 | 1.60 | 1.64 | 1.67 | 1.71 |
| 53 | Property tax | | 1.97 | 1.93 | 1.88 | 1.84 | 1.79 | 1.74 | 1.70 | 1.65 | 1.61 | 1.56 | 1.52 | 1.47 | 1.43 |
| 54 | Insurance | | 0.10 | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.11 | 0.12 | 0.12 | 0.12 | 0.12 | 0.13 | 0.13 |
| 55 | Revenue Requirement | *rRevReq* | 13.86 | 13.56 | 13.26 | 12.97 | 12.69 | 12.41 | 12.15 | 11.89 | 11.63 | 11.38 | 11.12 | 10.87 | 10.62 |
| 56 | | | | | | | | | | | | | | | |

**Exhibit 2-TS**

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Transmission Stations Economic Carrying Charge Rate**



| Line | **Transmission Stations** | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 57 | Year | *rYear* | | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 |
| 58 | Year Number | *rYearNum* | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 59 | FIT | | | | | | | | | | | ***ECCR Model continues through 2085=>*** | | | | |
| 60 | Return on Equity | | | 4.44 | 4.28 | 4.13 | 3.98 | 3.84 | 3.70 | 3.56 | 3.43 | 3.29 | 3.16 | 3.03 | 2.89 | 2.76 |
| 61 | Depreciation expense | | | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 |
| 62 | SIT Current | | | 0.33 | 0.12 | 0.11 | 0.10 | 0.08 | 0.07 | 0.06 | 0.05 | 0.04 | 0.03 | 0.02 | 0.01 | 0.00 |
| 63 | FIT Depr Allowance | | | (3.75) | (7.22) | (6.68) | (6.18) | (5.71) | (5.28) | (4.89) | (4.52) | (4.46) | (4.46) | (4.46) | (4.46) | (4.46) |
| 64 | FIT Taxable Income | *rFIT_Income* | | 3.26 | (0.57) | (0.20) | 0.14 | 0.45 | 0.73 | 0.98 | 1.20 | 1.12 | 0.97 | 0.83 | 0.69 | 0.54 |
| 65 | | | | | | | | | | | | | | | | |
| 66 | FIT Current | *rFIT_Curr* | | 0.87 | (0.15) | (0.05) | 0.04 | 0.12 | 0.19 | 0.26 | 0.32 | 0.30 | 0.26 | 0.22 | 0.18 | 0.14 |
| 67 | FIT Total | *rFIT_Total* | | 1.18 | 1.14 | 1.10 | 1.06 | 1.02 | 0.98 | 0.95 | 0.91 | 0.88 | 0.84 | 0.80 | 0.77 | 0.73 |
| 68 | | | | | | | | | | | | | | | | |
| 69 | FIT Depreciation Allowance | | | | | | | | | | | | | | | |
| 70 | FIT Deprec SL | *rFIT_SL* | | 2.50 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| 71 | FIT Deprec DDB | *rFIT_DDB* | | 3.75 | 7.22 | 6.68 | 6.18 | 5.71 | 5.28 | 4.89 | 4.52 | 4.46 | 4.46 | 4.46 | 4.46 | 4.46 |
| 72 | FIT Deprec Allow | *rFITDep* | | 3.75 | 7.22 | 6.68 | 6.18 | 5.71 | 5.28 | 4.89 | 4.52 | 4.46 | 4.46 | 4.46 | 4.46 | 4.46 |
| 73 | | | | | | | | | | | | | | | | |
| 74 | FIT Basis | *rFITBasis* | 100.00 | 96.25 | 89.03 | 82.35 | 76.18 | 70.46 | 65.18 | 60.29 | 55.77 | 51.31 | 46.85 | 42.38 | 37.92 | 33.46 |
| 75 | | | | | | | | | | | | | | | | |
| 76 | FIT Deprec DDB Bal | *rFIT_DDB_Bal* | 100.00 | 96.25 | 89.03 | 82.35 | 76.18 | 70.46 | 65.18 | 60.29 | 55.77 | 51.31 | 46.85 | 42.38 | 37.92 | 33.46 |
| 77 | FIT Remaining Years | *rFIT_RemY* | 20.50 | 19.50 | 18.50 | 17.50 | 16.50 | 15.50 | 14.50 | 13.50 | 12.50 | 11.50 | 10.50 | 9.50 | 8.50 | 7.50 |
| 78 | | | | | | | | | | | | | | | | |
| 79 | FIT Deferred | *rFIT_Defd* | | 0.32 | 1.04 | 0.93 | 0.83 | 0.73 | 0.64 | 0.56 | 0.48 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 |
| 80 | FIT ADIT | *rFIT_ADIT* | | 0.32 | 1.36 | 2.29 | 3.12 | 3.85 | 4.49 | 5.04 | 5.52 | 5.99 | 6.45 | 6.92 | 7.38 | 7.85 |
| 81 | | | | | | | | | | | | | | | | |
| 82 | SIT | | | | | | | | | | | | | | | |
| 83 | Return on Equity | | | 4.44 | 4.28 | 4.13 | 3.98 | 3.84 | 3.70 | 3.56 | 3.43 | 3.29 | 3.16 | 3.03 | 2.89 | 2.76 |
| 84 | Depreciation expense | | | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 | 2.24 |
| 85 | SIT Depr Allowance | | | (2.50) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) |
| 86 | SIT Taxable Income | *rSIT_Income* | | 4.19 | 1.53 | 1.37 | 1.22 | 1.08 | 0.94 | 0.80 | 0.67 | 0.54 | 0.40 | 0.27 | 0.14 | 0.01 |
| 87 | | | | | | | | | | | | | | | | |
| 88 | SIT Current | *rSIT_Curr* | | 0.33 | 0.12 | 0.11 | 0.10 | 0.08 | 0.07 | 0.06 | 0.05 | 0.04 | 0.03 | 0.02 | 0.01 | 0.00 |
| 89 | SIT Total | *rSIT_Total* | | 0.35 | 0.33 | 0.32 | 0.31 | 0.30 | 0.29 | 0.28 | 0.27 | 0.26 | 0.25 | 0.24 | 0.23 | 0.22 |
| 90 | | | | | | | | | | | | | | | | |
| 91 | SIT Depreciation Allowance | | | | | | | | | | | | | | | |
| 92 | SIT Deprec SL | *rSIT_SL* | | 2.50 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| 93 | SIT Deprec DDB | *rSIT_DDB* | | 5.00 | 9.50 | 8.55 | 7.70 | 6.93 | 6.23 | 5.61 | 5.05 | 4.54 | 4.09 | 3.68 | 3.49 | 3.49 |
| 94 | SIT Deprec Allow | *rSITDep* | | 2.50 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| 95 | | | | | | | | | | | | | | | | |
| 96 | SIT Basis | *rSITBasis* | 100.00 | 97.50 | 92.50 | 87.50 | 82.50 | 77.50 | 72.50 | 67.50 | 62.50 | 57.50 | 52.50 | 47.50 | 42.50 | 37.50 |
| 97 | | | | | | | | | | | | | | | | |
| 98 | SIT Deprec DDB Bal | *rSIT_DDB_Bal* | 100.00 | 95.00 | 85.50 | 76.95 | 69.26 | 62.33 | 56.10 | 50.49 | 45.44 | 40.89 | 36.80 | 33.12 | 29.64 | 26.15 |
| 99 | SIT Remaining Years | *rSIT_RemY* | 20.50 | 19.50 | 18.50 | 17.50 | 16.50 | 15.50 | 14.50 | 13.50 | 12.50 | 11.50 | 10.50 | 9.50 | 8.50 | 7.50 |
| 100 | | | | | | | | | | | | | | | | |
| 101 | SIT Deferred | *rSIT_Defd* | | 0.02 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| 102 | SIT ADIT | *rSIT_ADIT* | | 0.02 | 0.22 | 0.42 | 0.62 | 0.82 | 1.02 | 1.22 | 1.42 | 1.62 | 1.82 | 2.02 | 2.22 | 2.42 |
| 103 | | | | | | | | | | | | | | | | |

**Exhibit 2-TL**



**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Transmission Lines Economic Carrying Charge Rate**

**Transmission Lines**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Original Cost | | | | | Federal Tax | | |
| Original Cost $ | *Cost* | $100.00 | | | FIT Basis $ | *FIT_Basis* | $100.00 |
| Depreciable life years | *Depr_Life* | 65.75 | | | FIT depreciation yrs | *FIT_Life* | 20 |
| Salvage % | *Salvage* | (38.85%) | | | FIT rate | *FIT_Rate* | 21.00% |
| Depreciable basis | *DeprBasis* | $138.85 | | | FIT Gross-up | *FIT_Mult* | 26.58% |
| Annual depreciation | *AnnualDepr* | $2.11 | | | FIT DDB Rate | *FDB_Rate* | 150% |
| Year in service | *Start_Yr* | 2025 | | | FIT DDB % | FDBpct | 7.50% |
| Depr Year 1 | *D_Yr1* | 100% | | | FIT Method | *FIT_DDB* | TRUE |
| | | | | | FIT Year 1 | *F_Yr1* | 50% |
| Annual Costs | | | Applied to | | State Tax | | |
| O&M | *OM_pct* | 2.09% | Gross plant / inflated | | SIT Basis $ | *SIT_Basis* | $100.00 |
| Property tax | *Prop_pct* | 2.02% | Net plant | | SIT depreciation yrs | *SIT_Life* | 20 |
| Insurance | *Insur_pct* | 0.10% | Gross plant / inflated | | SIT rate | *SIT_Rate* | 7.25% |
| Inflation rate | *Inflation* | 2.10% | 102.10% | | SIT Gross-up | *SIT_Mult* | 7.82% |
| | | | | | SIT DDB Rate | *SDB_Rate* | 200% |
| Cost of Capital | | | | | SIT DDB % | SDBpct | 10.00% |
| Wtd Avg Cost of Capital | *WACC* | 6.87% | | | SIT Method | *SIT_DDB* | FALSE |
| Wtd Return on Equity | *WEqu* | 4.56% | | | SIT Year 1 | *S_Yr1* | 50% |

| | | | |
|---|---|---|---|
| NPV- Revenue Req | $168.19 | NPV- Levelized Charge | $188.13 |
| NPV- Plant | $1,430.32 | Inflation Adjustment | 5.02% |
| Economic Carrying Charge Rate | 8.44% (ECCR) | | |

**Exhibit 2-TL**

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Transmission Lines Economic Carrying Charge Rate**



| Line | **Transmission Lines** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | Year | *rYear* | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 |
| 28 | Year Number | *rYearNum* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 29 | | | | | | | | | | | ***ECCR Model continues through 2085=>*** | | | | |
| 30 | Original Cost | *rCost* | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 31 | Depreciation expense | *rDepExp* | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 |
| 32 | Accum. depreciation | *rAccumDep* | 2.11 | 4.22 | 6.34 | 8.45 | 10.56 | 12.67 | 14.78 | 16.89 | 19.01 | 21.12 | 23.23 | 25.34 | 27.45 |
| 33 | Net plant | *rNetPlant* | 97.89 | 95.78 | 93.66 | 91.55 | 89.44 | 87.33 | 85.22 | 83.11 | 80.99 | 78.88 | 76.77 | 74.66 | 72.55 |
| 34 | Inflation Factor | *rInflation* | 1.0000 | 1.0210 | 1.0424 | 1.0643 | 1.0867 | 1.1095 | 1.1328 | 1.1566 | 1.1809 | 1.2057 | 1.2310 | 1.2568 | 1.2832 |
| 35 | Levelized Charge | *rLevel* | 8.44 | 8.62 | 8.80 | 8.98 | 9.17 | 9.37 | 9.56 | 9.76 | 9.97 | 10.18 | 10.39 | 10.61 | 10.83 |
| 36 | | | | | | | | | | | | | | | |
| 37 | Rate Base | | | | | | | | | | | | | | |
| 38 | Original Cost | | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 39 | Accum. depreciation | | (2.11) | (4.22) | (6.34) | (8.45) | (10.56) | (12.67) | (14.78) | (16.89) | (19.01) | (21.12) | (23.23) | (25.34) | (27.45) |
| 40 | ADIT- Federal | | (0.34) | (1.42) | (2.38) | (3.23) | (3.99) | (4.65) | (5.23) | (5.74) | (6.23) | (6.73) | (7.22) | (7.71) | (8.21) |
| 41 | ADIT- State | | (0.03) | (0.24) | (0.45) | (0.66) | (0.87) | (1.08) | (1.28) | (1.49) | (1.70) | (1.91) | (2.12) | (2.33) | (2.54) |
| 42 | Rate Base | *rRateBase* | 97.52 | 94.12 | 90.84 | 87.67 | 84.59 | 81.60 | 78.70 | 75.87 | 73.06 | 70.24 | 67.43 | 64.61 | 61.80 |
| 43 | | | | | | | | | | | | | | | |
| 44 | Return on Rate Base | *rReturn* | 6.70 | 6.47 | 6.24 | 6.02 | 5.81 | 5.61 | 5.41 | 5.21 | 5.02 | 4.83 | 4.63 | 4.44 | 4.25 |
| 45 | Return on Equity | *rROE* | 4.45 | 4.29 | 4.14 | 4.00 | 3.86 | 3.72 | 3.59 | 3.46 | 3.33 | 3.20 | 3.07 | 2.95 | 2.82 |
| 46 | | | | | | | | | | | | | | | |
| 47 | Revenue Requirement | | | | | | | | | | | | | | |
| 48 | Return on Rate Base | | 6.70 | 6.47 | 6.24 | 6.02 | 5.81 | 5.61 | 5.41 | 5.21 | 5.02 | 4.83 | 4.63 | 4.44 | 4.25 |
| 49 | Depreciation expense | | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 |
| 50 | FIT- Total | | 1.18 | 1.14 | 1.10 | 1.06 | 1.03 | 0.99 | 0.95 | 0.92 | 0.89 | 0.85 | 0.82 | 0.78 | 0.75 |
| 51 | SIT- Total | | 0.35 | 0.34 | 0.32 | 0.31 | 0.30 | 0.29 | 0.28 | 0.27 | 0.26 | 0.25 | 0.24 | 0.23 | 0.22 |
| 52 | O&M | | 2.09 | 2.14 | 2.18 | 2.23 | 2.27 | 2.32 | 2.37 | 2.42 | 2.47 | 2.52 | 2.58 | 2.63 | 2.69 |
| 53 | Property tax | | 1.97 | 1.93 | 1.89 | 1.85 | 1.80 | 1.76 | 1.72 | 1.68 | 1.63 | 1.59 | 1.55 | 1.51 | 1.46 |
| 54 | Insurance | | 0.10 | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.11 | 0.12 | 0.12 | 0.12 | 0.12 | 0.13 | 0.13 |
| 55 | Revenue Requirement | *rRevReq* | 14.51 | 14.22 | 13.95 | 13.69 | 13.44 | 13.19 | 12.96 | 12.73 | 12.50 | 12.27 | 12.05 | 11.83 | 11.60 |
| 56 | | | | | | | | | | | | | | | |

**Exhibit 2-TL**

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Transmission Lines Economic Carrying Charge Rate**



| Line | **Transmission Lines** | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 57 | Year | *rYear* | | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 |
| 58 | Year Number | *rYearNum* | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 59 | FIT | | | | | | | | | | | ***ECCR Model continues through 2085=>*** | | | | |
| 60 | Return on Equity | | | 4.45 | 4.29 | 4.14 | 4.00 | 3.86 | 3.72 | 3.59 | 3.46 | 3.33 | 3.20 | 3.07 | 2.95 | 2.82 |
| 61 | Depreciation expense | | | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 |
| 62 | SIT Current | | | 0.32 | 0.11 | 0.10 | 0.09 | 0.08 | 0.07 | 0.05 | 0.04 | 0.03 | 0.02 | 0.01 | 0.00 | (0.01) |
| 63 | FIT Depr Allowance | | | (3.75) | (7.22) | (6.68) | (6.18) | (5.71) | (5.28) | (4.89) | (4.52) | (4.46) | (4.46) | (4.46) | (4.46) | (4.46) |
| 64 | FIT Taxable Income | *rFIT_Income* | | 3.13 | (0.71) | (0.33) | 0.02 | 0.33 | 0.61 | 0.87 | 1.09 | 1.02 | 0.88 | 0.74 | 0.60 | 0.46 |
| 65 | | | | | | | | | | | | | | | | |
| 66 | FIT Current | *rFIT_Curr* | | 0.83 | (0.19) | (0.09) | 0.01 | 0.09 | 0.16 | 0.23 | 0.29 | 0.27 | 0.23 | 0.20 | 0.16 | 0.12 |
| 67 | FIT Total | *rFIT_Total* | | 1.18 | 1.14 | 1.10 | 1.06 | 1.03 | 0.99 | 0.95 | 0.92 | 0.89 | 0.85 | 0.82 | 0.78 | 0.75 |
| 68 | | | | | | | | | | | | | | | | |
| 69 | FIT Depreciation Allowance | | | | | | | | | | | | | | | |
| 70 | FIT Deprec SL | *rFIT_SL* | | 2.50 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| 71 | FIT Deprec DDB | *rFIT_DDB* | | 3.75 | 7.22 | 6.68 | 6.18 | 5.71 | 5.28 | 4.89 | 4.52 | 4.46 | 4.46 | 4.46 | 4.46 | 4.46 |
| 72 | FIT Deprec Allow | *rFITDep* | | 3.75 | 7.22 | 6.68 | 6.18 | 5.71 | 5.28 | 4.89 | 4.52 | 4.46 | 4.46 | 4.46 | 4.46 | 4.46 |
| 73 | | | | | | | | | | | | | | | | |
| 74 | FIT Basis | *rFITBasis* | 100.00 | 96.25 | 89.03 | 82.35 | 76.18 | 70.46 | 65.18 | 60.29 | 55.77 | 51.31 | 46.85 | 42.38 | 37.92 | 33.46 |
| 75 | | | | | | | | | | | | | | | | |
| 76 | FIT Deprec DDB Bal | *rFIT_DDB_Bal* | 100.00 | 96.25 | 89.03 | 82.35 | 76.18 | 70.46 | 65.18 | 60.29 | 55.77 | 51.31 | 46.85 | 42.38 | 37.92 | 33.46 |
| 77 | FIT Remaining Years | *rFIT_RemY* | 20.50 | 19.50 | 18.50 | 17.50 | 16.50 | 15.50 | 14.50 | 13.50 | 12.50 | 11.50 | 10.50 | 9.50 | 8.50 | 7.50 |
| 78 | | | | | | | | | | | | | | | | |
| 79 | FIT Deferred | *rFIT_Defd* | | 0.34 | 1.07 | 0.96 | 0.85 | 0.76 | 0.67 | 0.58 | 0.51 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 |
| 80 | FIT ADIT | *rFIT_ADIT* | | 0.34 | 1.42 | 2.38 | 3.23 | 3.99 | 4.65 | 5.23 | 5.74 | 6.23 | 6.73 | 7.22 | 7.71 | 8.21 |
| 81 | | | | | | | | | | | | | | | | |
| 82 | SIT | | | | | | | | | | | | | | | |
| 83 | Return on Equity | | | 4.45 | 4.29 | 4.14 | 4.00 | 3.86 | 3.72 | 3.59 | 3.46 | 3.33 | 3.20 | 3.07 | 2.95 | 2.82 |
| 84 | Depreciation expense | | | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 |
| 85 | SIT Depr Allowance | | | (2.50) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) |
| 86 | SIT Taxable Income | *rSIT_Income* | | 4.06 | 1.40 | 1.25 | 1.11 | 0.97 | 0.83 | 0.70 | 0.57 | 0.44 | 0.31 | 0.19 | 0.06 | (0.07) |
| 87 | | | | | | | | | | | | | | | | |
| 88 | SIT Current | *rSIT_Curr* | | 0.32 | 0.11 | 0.10 | 0.09 | 0.08 | 0.07 | 0.05 | 0.04 | 0.03 | 0.02 | 0.01 | 0.00 | (0.01) |
| 89 | SIT Total | *rSIT_Total* | | 0.35 | 0.34 | 0.32 | 0.31 | 0.30 | 0.29 | 0.28 | 0.27 | 0.26 | 0.25 | 0.24 | 0.23 | 0.22 |
| 90 | | | | | | | | | | | | | | | | |
| 91 | SIT Depreciation Allowance | | | | | | | | | | | | | | | |
| 92 | SIT Deprec SL | *rSIT_SL* | | 2.50 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| 93 | SIT Deprec DDB | *rSIT_DDB* | | 5.00 | 9.50 | 8.55 | 7.70 | 6.93 | 6.23 | 5.61 | 5.05 | 4.54 | 4.09 | 3.68 | 3.49 | 3.49 |
| 94 | SIT Deprec Allow | *rSITDep* | | 2.50 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| 95 | | | | | | | | | | | | | | | | |
| 96 | SIT Basis | *rSITBasis* | 100.00 | 97.50 | 92.50 | 87.50 | 82.50 | 77.50 | 72.50 | 67.50 | 62.50 | 57.50 | 52.50 | 47.50 | 42.50 | 37.50 |
| 97 | | | | | | | | | | | | | | | | |
| 98 | SIT Deprec DDB Bal | *rSIT_DDB_Bal* | 100.00 | 95.00 | 85.50 | 76.95 | 69.26 | 62.33 | 56.10 | 50.49 | 45.44 | 40.89 | 36.80 | 33.12 | 29.64 | 26.15 |
| 99 | SIT Remaining Years | *rSIT_RemY* | 20.50 | 19.50 | 18.50 | 17.50 | 16.50 | 15.50 | 14.50 | 13.50 | 12.50 | 11.50 | 10.50 | 9.50 | 8.50 | 7.50 |
| 100 | | | | | | | | | | | | | | | | |
| 101 | SIT Deferred | *rSIT_Defd* | | 0.03 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
| 102 | SIT ADIT | *rSIT_ADIT* | | 0.03 | 0.24 | 0.45 | 0.66 | 0.87 | 1.08 | 1.28 | 1.49 | 1.70 | 1.91 | 2.12 | 2.33 | 2.54 |
| 103 | | | | | | | | | | | | | | | | |

**Exhibit 2-DS**

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Distribution Stations Economic Carrying Charge Rate**

| Line | **Distribution Stations** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | |
| 2 | Original Cost | | | | | Federal Tax | | |
| 3 | Original Cost $ | *Cost* | $100.00 | | | FIT Basis $ | *FIT_Basis* | $100.00 |
| 4 | Depreciable life years | *Depr_Life* | 61.55 | | | FIT depreciation yrs | *FIT_Life* | 20 |
| 5 | Salvage % | *Salvage* | (15.03%) | | | FIT rate | *FIT_Rate* | 21.00% |
| 6 | Depreciable basis | *DeprBasis* | $115.03 | | | FIT Gross-up | *FIT_Mult* | 26.58% |
| 7 | Annual depreciation | *AnnualDepr* | $1.87 | | | FIT DDB Rate | *FDB_Rate* | 150% |
| 8 | Year in service | *Start_Yr* | 2025 | | | FIT DDB % | FDBpct | 7.50% |
| 9 | Depr Year 1 | *D_Yr1* | 100% | | | FIT Method | *FIT_DDB* | TRUE |
| 10 | | | | | | FIT Year 1 | *F_Yr1* | 50% |
| 11 | | | | | | | | |
| 12 | Annual Costs | | | Applied to | | State Tax | | |
| 13 | O&M | *OM_pct* | 1.59% | Gross plant / inflated | | SIT Basis $ | *SIT_Basis* | $100.00 |
| 14 | Property tax | *Prop_pct* | 2.02% | Net plant | | SIT depreciation yrs | *SIT_Life* | 20 |
| 15 | Insurance | *Insur_pct* | 0.10% | Gross plant / inflated | | SIT rate | *SIT_Rate* | 7.25% |
| 16 | Inflation rate | *Inflation* | 2.10% | 102.10% | | SIT Gross-up | *SIT_Mult* | 7.82% |
| 17 | | | | | | SIT DDB Rate | *SDB_Rate* | 200% |
| 18 | Cost of Capital | | | | | SIT DDB % | SDBpct | 10.00% |
| 19 | Wtd Avg Cost of Capital | *WACC* | 6.87% | | | SIT Method | *SIT_DDB* | FALSE |
| 20 | Wtd Return on Equity | *WEqu* | 4.56% | | | SIT Year 1 | *S_Yr1* | 50% |
| 21 | | | | | | | | |
| 22 | | | | | | | | |
| 23 | NPV- Revenue Req | | $158.79 | NPV- Levelized Charge | $181.09 | | | |
| 24 | NPV- Plant | | $1,430.32 | Inflation Adjustment | 5.08% | | | |
| 25 | Economic Carrying Charge Rate | | 8.06% (ECCR) | | | | | |
| 26 | | | | | | | | |

**Exhibit 2-DS**

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Distribution Stations Economic Carrying Charge Rate**



| Line | **Distribution Stations** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | Year | *rYear* | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 |
| 28 | Year Number | *rYearNum* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 29 | | | | | | | | | | | ***ECCR Model continues through 2085=>*** | | | | |
| 30 | Original Cost | *rCost* | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 31 | Depreciation expense | *rDepExp* | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 |
| 32 | Accum. depreciation | *rAccumDep* | 1.87 | 3.74 | 5.61 | 7.48 | 9.34 | 11.21 | 13.08 | 14.95 | 16.82 | 18.69 | 20.56 | 22.43 | 24.30 |
| 33 | Net plant | *rNetPlant* | 98.13 | 96.26 | 94.39 | 92.52 | 90.66 | 88.79 | 86.92 | 85.05 | 83.18 | 81.31 | 79.44 | 77.57 | 75.70 |
| 34 | Inflation Factor | *rInflation* | 1.0000 | 1.0210 | 1.0424 | 1.0643 | 1.0867 | 1.1095 | 1.1328 | 1.1566 | 1.1809 | 1.2057 | 1.2310 | 1.2568 | 1.2832 |
| 35 | Levelized Charge | *rLevel* | 8.06 | 8.23 | 8.40 | 8.58 | 8.76 | 8.94 | 9.13 | 9.32 | 9.52 | 9.72 | 9.92 | 10.13 | 10.34 |
| 36 | | | | | | | | | | | | | | | |
| 37 | Rate Base | | | | | | | | | | | | | | |
| 38 | Original Cost | | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 39 | Accum. depreciation | | (1.87) | (3.74) | (5.61) | (7.48) | (9.34) | (11.21) | (13.08) | (14.95) | (16.82) | (18.69) | (20.56) | (22.43) | (24.30) |
| 40 | ADIT- Federal | | (0.40) | (1.52) | (2.53) | (3.43) | (4.24) | (4.96) | (5.59) | (6.15) | (6.69) | (7.24) | (7.78) | (8.33) | (8.87) |
| 41 | ADIT- State | | (0.05) | (0.27) | (0.50) | (0.73) | (0.95) | (1.18) | (1.41) | (1.63) | (1.86) | (2.09) | (2.32) | (2.54) | (2.77) |
| 42 | Rate Base | *rRateBase* | 97.69 | 94.47 | 91.37 | 88.36 | 85.46 | 82.65 | 79.92 | 77.27 | 74.62 | 71.98 | 69.34 | 66.70 | 64.06 |
| 43 | | | | | | | | | | | | | | | |
| 44 | Return on Rate Base | *rReturn* | 6.71 | 6.49 | 6.28 | 6.07 | 5.87 | 5.68 | 5.49 | 5.31 | 5.13 | 4.95 | 4.76 | 4.58 | 4.40 |
| 45 | Return on Equity | *rROE* | 4.45 | 4.31 | 4.17 | 4.03 | 3.90 | 3.77 | 3.64 | 3.52 | 3.40 | 3.28 | 3.16 | 3.04 | 2.92 |
| 46 | | | | | | | | | | | | | | | |
| 47 | Revenue Requirement | | | | | | | | | | | | | | |
| 48 | Return on Rate Base | | 6.71 | 6.49 | 6.28 | 6.07 | 5.87 | 5.68 | 5.49 | 5.31 | 5.13 | 4.95 | 4.76 | 4.58 | 4.40 |
| 49 | Depreciation expense | | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 |
| 50 | FIT- Total | | 1.18 | 1.15 | 1.11 | 1.07 | 1.04 | 1.00 | 0.97 | 0.94 | 0.90 | 0.87 | 0.84 | 0.81 | 0.78 |
| 51 | SIT- Total | | 0.35 | 0.34 | 0.33 | 0.31 | 0.30 | 0.29 | 0.28 | 0.28 | 0.27 | 0.26 | 0.25 | 0.24 | 0.23 |
| 52 | O&M | | 1.59 | 1.62 | 1.65 | 1.69 | 1.72 | 1.76 | 1.80 | 1.83 | 1.87 | 1.91 | 1.95 | 1.99 | 2.03 |
| 53 | Property tax | | 1.98 | 1.94 | 1.90 | 1.87 | 1.83 | 1.79 | 1.75 | 1.71 | 1.68 | 1.64 | 1.60 | 1.56 | 1.53 |
| 54 | Insurance | | 0.10 | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.11 | 0.12 | 0.12 | 0.12 | 0.12 | 0.13 | 0.13 |
| 55 | Revenue Requirement | *rRevReq* | 13.78 | 13.50 | 13.24 | 12.99 | 12.74 | 12.50 | 12.27 | 12.05 | 11.83 | 11.62 | 11.40 | 11.18 | 10.96 |
| 56 | | | | | | | | | | | | | | | |

**Exhibit 2-DS**

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Distribution Stations Economic Carrying Charge Rate**



| Line | **Distribution Stations** | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 57 | Year | *rYear* | | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 |
| 58 | Year Number | *rYearNum* | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 59 | FIT | | | | | | | | | | | ***ECCR Model continues through 2085=>*** | | | | |
| 60 | Return on Equity | | | 4.45 | 4.31 | 4.17 | 4.03 | 3.90 | 3.77 | 3.64 | 3.52 | 3.40 | 3.28 | 3.16 | 3.04 | 2.92 |
| 61 | Depreciation expense | | | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 |
| 62 | SIT Current | | | 0.30 | 0.09 | 0.08 | 0.07 | 0.06 | 0.05 | 0.04 | 0.03 | 0.02 | 0.01 | 0.00 | (0.01) | (0.02) |
| 63 | FIT Depr Allowance | | | (3.75) | (7.22) | (6.68) | (6.18) | (5.71) | (5.28) | (4.89) | (4.52) | (4.46) | (4.46) | (4.46) | (4.46) | (4.46) |
| 64 | FIT Taxable Income | *rFIT_Income* | | 2.87 | (0.95) | (0.56) | (0.21) | 0.11 | 0.40 | 0.66 | 0.90 | 0.83 | 0.70 | 0.57 | 0.44 | 0.31 |
| 65 | | | | | | | | | | | | | | | | |
| 66 | FIT Current | *rFIT_Curr* | | 0.76 | (0.25) | (0.15) | (0.06) | 0.03 | 0.11 | 0.18 | 0.24 | 0.22 | 0.19 | 0.15 | 0.12 | 0.08 |
| 67 | FIT Total | *rFIT_Total* | | 1.18 | 1.15 | 1.11 | 1.07 | 1.04 | 1.00 | 0.97 | 0.94 | 0.90 | 0.87 | 0.84 | 0.81 | 0.78 |
| 68 | | | | | | | | | | | | | | | | |
| 69 | FIT Depreciation Allowance | | | | | | | | | | | | | | | |
| 70 | FIT Deprec SL | *rFIT_SL* | | 2.50 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| 71 | FIT Deprec DDB | *rFIT_DDB* | | 3.75 | 7.22 | 6.68 | 6.18 | 5.71 | 5.28 | 4.89 | 4.52 | 4.46 | 4.46 | 4.46 | 4.46 | 4.46 |
| 72 | FIT Deprec Allow | *rFITDep* | | 3.75 | 7.22 | 6.68 | 6.18 | 5.71 | 5.28 | 4.89 | 4.52 | 4.46 | 4.46 | 4.46 | 4.46 | 4.46 |
| 73 | | | | | | | | | | | | | | | | |
| 74 | FIT Basis | *rFITBasis* | 100.00 | 96.25 | 89.03 | 82.35 | 76.18 | 70.46 | 65.18 | 60.29 | 55.77 | 51.31 | 46.85 | 42.38 | 37.92 | 33.46 |
| 75 | | | | | | | | | | | | | | | | |
| 76 | FIT Deprec DDB Bal | *rFIT_DDB_Bal* | 100.00 | 96.25 | 89.03 | 82.35 | 76.18 | 70.46 | 65.18 | 60.29 | 55.77 | 51.31 | 46.85 | 42.38 | 37.92 | 33.46 |
| 77 | FIT Remaining Years | *rFIT_RemY* | 20.50 | 19.50 | 18.50 | 17.50 | 16.50 | 15.50 | 14.50 | 13.50 | 12.50 | 11.50 | 10.50 | 9.50 | 8.50 | 7.50 |
| 78 | | | | | | | | | | | | | | | | |
| 79 | FIT Deferred | *rFIT_Defd* | | 0.40 | 1.12 | 1.01 | 0.90 | 0.81 | 0.72 | 0.63 | 0.56 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 |
| 80 | FIT ADIT | *rFIT_ADIT* | | 0.40 | 1.52 | 2.53 | 3.43 | 4.24 | 4.96 | 5.59 | 6.15 | 6.69 | 7.24 | 7.78 | 8.33 | 8.87 |
| 81 | | | | | | | | | | | | | | | | |
| 82 | SIT | | | | | | | | | | | | | | | |
| 83 | Return on Equity | | | 4.45 | 4.31 | 4.17 | 4.03 | 3.90 | 3.77 | 3.64 | 3.52 | 3.40 | 3.28 | 3.16 | 3.04 | 2.92 |
| 84 | Depreciation expense | | | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 |
| 85 | SIT Depr Allowance | | | (2.50) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) |
| 86 | SIT Taxable Income | *rSIT_Income* | | 3.82 | 1.18 | 1.04 | 0.90 | 0.77 | 0.64 | 0.51 | 0.39 | 0.27 | 0.15 | 0.03 | (0.09) | (0.21) |
| 87 | | | | | | | | | | | | | | | | |
| 88 | SIT Current | *rSIT_Curr* | | 0.30 | 0.09 | 0.08 | 0.07 | 0.06 | 0.05 | 0.04 | 0.03 | 0.02 | 0.01 | 0.00 | (0.01) | (0.02) |
| 89 | SIT Total | *rSIT_Total* | | 0.35 | 0.34 | 0.33 | 0.31 | 0.30 | 0.29 | 0.28 | 0.28 | 0.27 | 0.26 | 0.25 | 0.24 | 0.23 |
| 90 | | | | | | | | | | | | | | | | |
| 91 | SIT Depreciation Allowance | | | | | | | | | | | | | | | |
| 92 | SIT Deprec SL | *rSIT_SL* | | 2.50 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| 93 | SIT Deprec DDB | *rSIT_DDB* | | 5.00 | 9.50 | 8.55 | 7.70 | 6.93 | 6.23 | 5.61 | 5.05 | 4.54 | 4.09 | 3.68 | 3.49 | 3.49 |
| 94 | SIT Deprec Allow | *rSITDep* | | 2.50 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| 95 | | | | | | | | | | | | | | | | |
| 96 | SIT Basis | *rSITBasis* | 100.00 | 97.50 | 92.50 | 87.50 | 82.50 | 77.50 | 72.50 | 67.50 | 62.50 | 57.50 | 52.50 | 47.50 | 42.50 | 37.50 |
| 97 | | | | | | | | | | | | | | | | |
| 98 | SIT Deprec DDB Bal | *rSIT_DDB_Bal* | 100.00 | 95.00 | 85.50 | 76.95 | 69.26 | 62.33 | 56.10 | 50.49 | 45.44 | 40.89 | 36.80 | 33.12 | 29.64 | 26.15 |
| 99 | SIT Remaining Years | *rSIT_RemY* | 20.50 | 19.50 | 18.50 | 17.50 | 16.50 | 15.50 | 14.50 | 13.50 | 12.50 | 11.50 | 10.50 | 9.50 | 8.50 | 7.50 |
| 100 | | | | | | | | | | | | | | | | |
| 101 | SIT Deferred | *rSIT_Defd* | | 0.05 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 |
| 102 | SIT ADIT | *rSIT_ADIT* | | 0.05 | 0.27 | 0.50 | 0.73 | 0.95 | 1.18 | 1.41 | 1.63 | 1.86 | 2.09 | 2.32 | 2.54 | 2.77 |
| 103 | | | | | | | | | | | | | | | | |

**Exhibit 2-DL**

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Distribution Lines Economic Carrying Charge Rate**

**Distribution Lines**

| Line | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | Original Cost | | | | Federal Tax | | |
| 3 | Original Cost $ | *Cost* | $100.00 | | FIT Basis $ | *FIT_Basis* | $100.00 |
| 4 | Depreciable life years | *Depr_Life* | 56.69 | | FIT depreciation yrs | *FIT_Life* | 20 |
| 5 | Salvage % | *Salvage* | (24.46%) | | FIT rate | *FIT_Rate* | 21.00% |
| 6 | Depreciable basis | *DeprBasis* | $124.46 | | FIT Gross-up | *FIT_Mult* | 26.58% |
| 7 | Annual depreciation | *AnnualDepr* | $2.20 | | FIT DDB Rate | *FDB_Rate* | 150% |
| 8 | Year in service | *Start_Yr* | 2025 | | FIT DDB % | FDBpct | 7.50% |
| 9 | Depr Year 1 | *D_Yr1* | 100% | | FIT Method | *FIT_DDB* | TRUE |
| 10 | | | | | FIT Year 1 | *F_Yr1* | 50% |
| 11 | | | | | | | |
| 12 | Annual Costs | | | Applied to | State Tax | | |
| 13 | O&M | *OM_pct* | 7.49% | Gross plant / inflated | SIT Basis $ | *SIT_Basis* | $100.00 |
| 14 | Property tax | *Prop_pct* | 2.02% | Net plant | SIT depreciation yrs | *SIT_Life* | 20 |
| 15 | Insurance | *Insur_pct* | 0.10% | Gross plant / inflated | SIT rate | *SIT_Rate* | 7.25% |
| 16 | Inflation rate | *Inflation* | 2.10% | 102.10% | SIT Gross-up | *SIT_Mult* | 7.82% |
| 17 | | | | | SIT DDB Rate | *SDB_Rate* | 200% |
| 18 | Cost of Capital | | | | SIT DDB % | SDBpct | 10.00% |
| 19 | Wtd Avg Cost of Capital | *WACC* | 6.87% | | SIT Method | *SIT_DDB* | FALSE |
| 20 | Wtd Return on Equity | *WEqu* | 4.56% | | SIT Year 1 | *S_Yr1* | 50% |
| 21 | | | | | | | |
| 22 | | | | | | | |
| 23 | NPV- Revenue Req | | $273.96 | | NPV- Levelized Charge | | $288.43 |
| 24 | NPV- Plant | | $1,430.32 | | Inflation Adjustment | | 5.16% |
| 25 | Economic Carrying Charge Rate | | 14.13% (ECCR) | | | | |
| 26 | | | | | | | |

**Exhibit 2-DL**

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Distribution Lines Economic Carrying Charge Rate**



| Line | **Distribution Lines** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | Year | *rYear* | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 |
| 28 | Year Number | *rYearNum* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 29 | | | | | | | | | | | ***ECCR Model continues through 2085=>*** | | | | |
| 30 | Original Cost | *rCost* | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 31 | Depreciation expense | *rDepExp* | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 |
| 32 | Accum. depreciation | *rAccumDep* | 2.20 | 4.39 | 6.59 | 8.78 | 10.98 | 13.17 | 15.37 | 17.56 | 19.76 | 21.95 | 24.15 | 26.35 | 28.54 |
| 33 | Net plant | *rNetPlant* | 97.80 | 95.61 | 93.41 | 91.22 | 89.02 | 86.83 | 84.63 | 82.44 | 80.24 | 78.05 | 75.85 | 73.65 | 71.46 |
| 34 | Inflation Factor | *rInflation* | 1.0000 | 1.0210 | 1.0424 | 1.0643 | 1.0867 | 1.1095 | 1.1328 | 1.1566 | 1.1809 | 1.2057 | 1.2310 | 1.2568 | 1.2832 |
| 35 | Levelized Charge | *rLevel* | 14.13 | 14.43 | 14.73 | 15.04 | 15.35 | 15.68 | 16.01 | 16.34 | 16.68 | 17.04 | 17.39 | 17.76 | 18.13 |
| 36 | | | | | | | | | | | | | | | |
| 37 | Rate Base | | | | | | | | | | | | | | |
| 38 | Original Cost | | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 39 | Accum. depreciation | | (2.20) | (4.39) | (6.59) | (8.78) | (10.98) | (13.17) | (15.37) | (17.56) | (19.76) | (21.95) | (24.15) | (26.35) | (28.54) |
| 40 | ADIT- Federal | | (0.33) | (1.38) | (2.32) | (3.16) | (3.90) | (4.55) | (5.11) | (5.60) | (6.08) | (6.55) | (7.03) | (7.50) | (7.98) |
| 41 | ADIT- State | | (0.02) | (0.23) | (0.43) | (0.63) | (0.84) | (1.04) | (1.24) | (1.45) | (1.65) | (1.85) | (2.06) | (2.26) | (2.46) |
| 42 | Rate Base | *rRateBase* | 97.46 | 94.00 | 90.66 | 87.43 | 84.29 | 81.24 | 78.28 | 75.39 | 72.52 | 69.64 | 66.77 | 63.89 | 61.02 |
| 43 | | | | | | | | | | | | | | | |
| 44 | Return on Rate Base | *rReturn* | 6.70 | 6.46 | 6.23 | 6.01 | 5.79 | 5.58 | 5.38 | 5.18 | 4.98 | 4.78 | 4.59 | 4.39 | 4.19 |
| 45 | Return on Equity | *rROE* | 4.44 | 4.29 | 4.13 | 3.99 | 3.84 | 3.70 | 3.57 | 3.44 | 3.31 | 3.18 | 3.04 | 2.91 | 2.78 |
| 46 | | | | | | | | | | | | | | | |
| 47 | Revenue Requirement | | | | | | | | | | | | | | |
| 48 | Return on Rate Base | | 6.70 | 6.46 | 6.23 | 6.01 | 5.79 | 5.58 | 5.38 | 5.18 | 4.98 | 4.78 | 4.59 | 4.39 | 4.19 |
| 49 | Depreciation expense | | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 |
| 50 | FIT- Total | | 1.18 | 1.14 | 1.10 | 1.06 | 1.02 | 0.98 | 0.95 | 0.91 | 0.88 | 0.84 | 0.81 | 0.77 | 0.74 |
| 51 | SIT- Total | | 0.35 | 0.34 | 0.32 | 0.31 | 0.30 | 0.29 | 0.28 | 0.27 | 0.26 | 0.25 | 0.24 | 0.23 | 0.22 |
| 52 | O&M | | 7.49 | 7.65 | 7.81 | 7.97 | 8.14 | 8.31 | 8.48 | 8.66 | 8.84 | 9.03 | 9.22 | 9.41 | 9.61 |
| 53 | Property tax | | 1.97 | 1.93 | 1.88 | 1.84 | 1.79 | 1.75 | 1.71 | 1.66 | 1.62 | 1.57 | 1.53 | 1.48 | 1.44 |
| 54 | Insurance | | 0.10 | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.11 | 0.12 | 0.12 | 0.12 | 0.12 | 0.13 | 0.13 |
| 55 | Revenue Requirement | *rRevReq* | 19.98 | 19.80 | 19.64 | 19.49 | 19.35 | 19.22 | 19.10 | 19.00 | 18.89 | 18.79 | 18.70 | 18.61 | 18.52 |
| 56 | | | | | | | | | | | | | | | |

**Exhibit 2-DL**

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**Distribution Lines Economic Carrying Charge Rate**



| Line | **Distribution Lines** | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 57 | Year | *rYear* | | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 |
| 58 | Year Number | *rYearNum* | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 59 | FIT | | | | | | | | | | | ***ECCR Model continues through 2085=>*** | | | | |
| 60 | Return on Equity | | | 4.44 | 4.29 | 4.13 | 3.99 | 3.84 | 3.70 | 3.57 | 3.44 | 3.31 | 3.18 | 3.04 | 2.91 | 2.78 |
| 61 | Depreciation expense | | | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 |
| 62 | SIT Current | | | 0.32 | 0.12 | 0.10 | 0.09 | 0.08 | 0.07 | 0.06 | 0.05 | 0.04 | 0.03 | 0.02 | 0.01 | (0.00) |
| 63 | FIT Depr Allowance | | | (3.75) | (7.22) | (6.68) | (6.18) | (5.71) | (5.28) | (4.89) | (4.52) | (4.46) | (4.46) | (4.46) | (4.46) | (4.46) |
| 64 | FIT Taxable Income | *rFIT_Income* | | 3.21 | (0.62) | (0.24) | 0.10 | 0.41 | 0.69 | 0.94 | 1.16 | 1.08 | 0.94 | 0.80 | 0.66 | 0.51 |
| 65 | | | | | | | | | | | | | | | | |
| 66 | FIT Current | *rFIT_Curr* | | 0.85 | (0.17) | (0.06) | 0.03 | 0.11 | 0.18 | 0.25 | 0.31 | 0.29 | 0.25 | 0.21 | 0.17 | 0.14 |
| 67 | FIT Total | *rFIT_Total* | | 1.18 | 1.14 | 1.10 | 1.06 | 1.02 | 0.98 | 0.95 | 0.91 | 0.88 | 0.84 | 0.81 | 0.77 | 0.74 |
| 68 | | | | | | | | | | | | | | | | |
| 69 | FIT Depreciation Allowance | | | | | | | | | | | | | | | |
| 70 | FIT Deprec SL | *rFIT_SL* | | 2.50 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| 71 | FIT Deprec DDB | *rFIT_DDB* | | 3.75 | 7.22 | 6.68 | 6.18 | 5.71 | 5.28 | 4.89 | 4.52 | 4.46 | 4.46 | 4.46 | 4.46 | 4.46 |
| 72 | FIT Deprec Allow | *rFITDep* | | 3.75 | 7.22 | 6.68 | 6.18 | 5.71 | 5.28 | 4.89 | 4.52 | 4.46 | 4.46 | 4.46 | 4.46 | 4.46 |
| 73 | | | | | | | | | | | | | | | | |
| 74 | FIT Basis | *rFITBasis* | 100.00 | 96.25 | 89.03 | 82.35 | 76.18 | 70.46 | 65.18 | 60.29 | 55.77 | 51.31 | 46.85 | 42.38 | 37.92 | 33.46 |
| 75 | | | | | | | | | | | | | | | | |
| 76 | FIT Deprec DDB Bal | *rFIT_DDB_Bal* | 100.00 | 96.25 | 89.03 | 82.35 | 76.18 | 70.46 | 65.18 | 60.29 | 55.77 | 51.31 | 46.85 | 42.38 | 37.92 | 33.46 |
| 77 | FIT Remaining Years | *rFIT_RemY* | 20.50 | 19.50 | 18.50 | 17.50 | 16.50 | 15.50 | 14.50 | 13.50 | 12.50 | 11.50 | 10.50 | 9.50 | 8.50 | 7.50 |
| 78 | | | | | | | | | | | | | | | | |
| 79 | FIT Deferred | *rFIT_Defd* | | 0.33 | 1.05 | 0.94 | 0.84 | 0.74 | 0.65 | 0.57 | 0.49 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 |
| 80 | FIT ADIT | *rFIT_ADIT* | | 0.33 | 1.38 | 2.32 | 3.16 | 3.90 | 4.55 | 5.11 | 5.60 | 6.08 | 6.55 | 7.03 | 7.50 | 7.98 |
| 81 | | | | | | | | | | | | | | | | |
| 82 | SIT | | | | | | | | | | | | | | | |
| 83 | Return on Equity | | | 4.44 | 4.29 | 4.13 | 3.99 | 3.84 | 3.70 | 3.57 | 3.44 | 3.31 | 3.18 | 3.04 | 2.91 | 2.78 |
| 84 | Depreciation expense | | | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 |
| 85 | SIT Depr Allowance | | | (2.50) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) | (5.00) |
| 86 | SIT Taxable Income | *rSIT_Income* | | 4.14 | 1.48 | 1.33 | 1.18 | 1.04 | 0.90 | 0.76 | 0.63 | 0.50 | 0.37 | 0.24 | 0.11 | (0.02) |
| 87 | | | | | | | | | | | | | | | | |
| 88 | SIT Current | *rSIT_Curr* | | 0.32 | 0.12 | 0.10 | 0.09 | 0.08 | 0.07 | 0.06 | 0.05 | 0.04 | 0.03 | 0.02 | 0.01 | (0.00) |
| 89 | SIT Total | *rSIT_Total* | | 0.35 | 0.34 | 0.32 | 0.31 | 0.30 | 0.29 | 0.28 | 0.27 | 0.26 | 0.25 | 0.24 | 0.23 | 0.22 |
| 90 | | | | | | | | | | | | | | | | |
| 91 | SIT Depreciation Allowance | | | | | | | | | | | | | | | |
| 92 | SIT Deprec SL | *rSIT_SL* | | 2.50 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| 93 | SIT Deprec DDB | *rSIT_DDB* | | 5.00 | 9.50 | 8.55 | 7.70 | 6.93 | 6.23 | 5.61 | 5.05 | 4.54 | 4.09 | 3.68 | 3.49 | 3.49 |
| 94 | SIT Deprec Allow | *rSITDep* | | 2.50 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| 95 | | | | | | | | | | | | | | | | |
| 96 | SIT Basis | *rSITBasis* | 100.00 | 97.50 | 92.50 | 87.50 | 82.50 | 77.50 | 72.50 | 67.50 | 62.50 | 57.50 | 52.50 | 47.50 | 42.50 | 37.50 |
| 97 | | | | | | | | | | | | | | | | |
| 98 | SIT Deprec DDB Bal | *rSIT_DDB_Bal* | 100.00 | 95.00 | 85.50 | 76.95 | 69.26 | 62.33 | 56.10 | 50.49 | 45.44 | 40.89 | 36.80 | 33.12 | 29.64 | 26.15 |
| 99 | SIT Remaining Years | *rSIT_RemY* | 20.50 | 19.50 | 18.50 | 17.50 | 16.50 | 15.50 | 14.50 | 13.50 | 12.50 | 11.50 | 10.50 | 9.50 | 8.50 | 7.50 |
| 100 | | | | | | | | | | | | | | | | |
| 101 | SIT Deferred | *rSIT_Defd* | | 0.02 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| 102 | SIT ADIT | *rSIT_ADIT* | | 0.02 | 0.23 | 0.43 | 0.63 | 0.84 | 1.04 | 1.24 | 1.45 | 1.65 | 1.85 | 2.06 | 2.26 | 2.46 |
| 103 | | | | | | | | | | | | | | | | |

**Exhibit 2-OM**

**Niagara Mohawk Power Corporation d/b/a National Grid**
**Marginal Cost Study Case 19-E-0283 and Case 15-E-0751**
**O&M Costs**

| Line | Account Description | Account No. | Total | Transmission Stations | Transmission Lines | Distribution Lines | Distribution Stations | Labor |
|---|---|---|---|---|---|---|---|---|
| 1 | COST VALUES | | | 2,092,351,836 | 2,830,523,772 | 4,888,595,116 | 0 | |
| 2 | *Source* | | | *Historical* | *Historical* | *Historical* | *Historical* | |
| 3 | | | | | | | | |
| 4 | Transmission O&M | 580 | 88,154,657 | 37,468,052 | 50,686,605 | | | 35.58% |
| 5 | Station Expenses | 582 | 6,397,001 | | | | 6,397,001 | 48.68% |
| 6 | Overhead Line Expenses | 583 | 13,904,973 | | | 13,904,973 | | 64.57% |
| 7 | Underground Line Expenses | 584 | 10,172,080 | | | 10,172,080 | | 7.63% |
| 8 | Maint of Structures | 591 | 1,488,279 | | | | 1,488,279 | 50.46% |
| 9 | Maintenance of Station Equipment | 592 | 7,748,302 | | | | 7,748,302 | 63.89% |
| 10 | Maintenance of Overhead Lines | 593 | 325,349,104 | | | 276,106,568 | | 36.41% |
| 11 | Maintenance of Underground Lines | 594 | 11,550,806 | | | 11,550,806 | | 35.99% |
| 12 | | | | | | | | |
| 13 | Total - OPER. AND MAINT. EXP. | 500-599 | 1,971,747 | 37,468,052 | 50,686,605 | 311,734,428 | 15,633,582 | |
| 14 | | | | | | | | |
| 15 | Labor Content | 172,546,444 | 154,618,669 | 13,332,439 | 18,036,061 | 114,434,891 | 8,815,279 | |
| 16 | Total Labor costs | | 370,439,970 | 370,439,970 | 370,439,970 | 370,439,970 | 370,439,970 | |
| 17 | % of Total Labor in items above | | | 3.60% | 4.87% | 30.89% | 2.38% | |
| 18 | Total Labor-related costs | 300,077 | 175,826,752 | 175,826,752 | 175,826,752 | 175,826,752 | 175,826,752 | |
| 19 | Applicable Labor-related costs | | | 6,328,149 | 8,560,691 | 54,315,724 | 4,184,111 | |
| 20 | | | | | | | | |
| 21 | Total Costs | | | 43,796,201 | 59,247,296 | 366,050,152 | 19,817,693 | |
| 22 | | | | | | | | |
| 23 | O&M Rates as % of cost | | | 2.09% | 2.09% | 7.49% | #DIV/0! | |
| 24 | | | | | | | | |
| 25 | Allocation of O&M to Plant Components | | | | | | | |
| 26 | Poles, Towers and Fixtures | 364 | 1,674,539,922 | | | | | |
| 27 | Overhead Conductors and Devices | 365 | 1,900,659,887 | 85% | | | | |
| 28 | Services | 369 | 637,623,017 | 15% | | | | |
| 29 | Total | | 4,212,822,826 | | | | | |

Exhibit 2-Tax

Niagara Mohawk Power Company (Electric) dba National Grid
Marginal Class Study ($000s) Pursuant to Order in Cases 15-E-0751, 19-E-0283
**Other Taxes Applicable to Plant**



| Line | Account Description | Account No. | Balance ($000s) |
|---|---|---|---|
| 1 | C. TRANSMISSION PLANT | | |
| 2 | Transmission Plant | 350 | 4,922,875,608 |
| 3 | Subtotal - TRANSMISSION PLANT | 350-359 | 4,922,875,608 |
| 4 | | | |
| 5 | D. DISTRIBUTION PLANT | | |
| 6 | Land and Land Rights | 360 | 77,051,653 |
| 7 | Structures and Improvements | 361 | 66,104,088 |
| 8 | Station Equipment | 362 | 1,249,810,809 |
| 9 | | | |
| 10 | Poles, Towers and Fixtures | 364 | 1,674,539,922 |
| 11 | Overhead Conductors and Devices | 365 | 1,900,659,887 |
| 12 | Underground Conduit | 366 | 338,352,972 |
| 13 | Underground Conductors & Devices | 367 | 975,042,335 |
| 14 | Line Transformers | 368 | 1,340,938,405 |
| 15 | Services | 369 | 637,623,017 |
| 16 | Meters | 370 | 409,302,497 |
| 17 | Street Lighting & Signal Systems | 373 | 198,865,681 |
| 18 | All Other | 374 | |
| 19 | Total Distribution Plant | 360-373 | 8,868,291,266 |
| 20 | | | |
| 21 | TOTAL TRANSMISSION & DISTRIBUTION PLANT | | 13,791,166,874 |
| 22 | | | |
| 23 | II. DEPRECIATION RESERVE | | |
| 24 | Transmission Plant | 108.5 | 793,858,929 |
| 25 | Distribution- Land, Land Rights, Substations, | 108.5 | 283,874,602 |
| 26 | Distribution- PTF / OH / UG | 108.5 | 1,483,657,135 |
| 27 | Distribution- Line Transformers | 108.5 | 354,984,116 |
| 28 | Distribution- Services | 108.5 | 303,908,930 |
| 29 | Distribution- Meters | 108.5 | 68,876,436 |
| 30 | Distribution- Lighting | 108.5 | 66,409,075 |
| 31 | Total Depreciation Reserve | 108 | 3,355,569,224 |
| 32 | Net Plant | | 10,435,597,650 |
| 33 | | | |
| 34 | Net Plant Summary | | |
| 35 | Net Services Plant | | 333,714,087 |
| 36 | Net Meter Plant | | 340,426,061 |
| 37 | Net All Other Plant | | 9,761,457,502 |
| 38 | Net Plant for Tax Bases | | 10,435,597,650 |
| 39 | | | |
| 40 | General Taxes | | |
| 41 | Municipal taxes | 408.3 | 194,316,532 |
| 42 | Other taxes | 408 | 2,485,723 |
| 43 | Subtotal - General Taxes | | **196,802,255** |
| 44 | Net All Other Plant | | 9,761,457,502 |
| 45 | | | |
| 46 | **Other Taxes Applicable to Plant** | | **2.016%** |
| 47 | | | |