



Janet M. Audunson, P.E., Esq.  
Senior Counsel II

VIA ELECTRONIC DELIVERY

March 29, 2018

Honorable Kathleen H. Burgess  
Secretary  
New York State Public Service Commission  
Three Empire State Plaza, 19<sup>th</sup> Floor  
Albany, New York 12223-1350

**RE: Matter 17-01276 – In the Matter of the Value of Distributed Energy Resources  
Working Group Regarding the Value Stack**

**Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources  
Working Group Regarding Rate Design**

**NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID  
RESPONSES TO INFORMAL INFORMATION REQUESTS**

Dear Secretary Burgess:

Niagara Mohawk Power Corporation d/b/a National Grid (“National Grid”) hereby submits for filing responses to the informal Information Requests from the Utility Intervention Unit of the New York State Department of State (“UIU”), Pace Energy and Climate Center (“PECC”), and the Solar Energy Industries Association (“SEIA”) in the subject matter.

Please direct any questions to the undersigned. Thank you.

Respectfully submitted,

/s/ Janet M. Audunson

Janet M. Audunson, P.E., Esq.  
Senior Counsel II

Enc.

cc: Marco Padula, DPS Staff, w/enclosure (via electronic mail)  
Warren Myers, DPS Staff, w/enclosure (via electronic mail)  
Ted Kelly, DPS Staff, w/enclosure (via electronic mail)  
Denise Gerbsch, DPS Staff, w/enclosure (via electronic mail)  
Michael Summa, DPS Staff, w/enclosure (via electronic mail)  
Cathy Hughto-Delzer, w/enclosure (via electronic mail)  
Stephen Caldwell, w/enclosure (via electronic mail)  
Pamela Echenique, w/enclosure (via electronic mail)  
Carol Teixeira, w/enclosure (via electronic mail)  
Lauri Mancinelli, w/enclosure (via electronic mail)  
Patricia Rivers, w/enclosure (via electronic mail)  
Michael Duschen, w/enclosure (via electronic mail)  
Toby Hyde, w/enclosure (via electronic mail)

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request for Information

FROM: Utility Intervention Unit, Kathleen O'Hare

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request:

1. Since 2002 to present (which for most utilities will be approximately 5 rate cases), please indicate if the Company uses a historic embedded costs of service (ECOS), pro-forma (forecasted) ECOS, marginal cost of service (MCOS), or any other combination as a guide to allocate costs to service classes during an electric rate case. In addition, please describe how each study or multiple studies are used to develop customer charges and costs in each electric rate case.

Case	Type of Cost of Service Used	Explanation
18-E-xxxx	Combination of Pro-Forma ECOS, Historic ECOS, MCOS	

Response:

1. The provision of the historical data prior to the most recent case is unduly burdensome and not directly related to the goal of establishing a net energy metering ("NEM") successor for mass market customers by December 31, 2018. As such the Company will provide only the latest available information based on UIU's request.

In its most recent case, Case 17-E-0238 *et al.*, *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*, the Company used a pro-forma embedded cost of service study to allocate costs to service classes. The methodology is described in the Testimony of the Electric Rate Design Panel. The costs to be considered for inclusion in the customer charge are presented in Exhibit\_\_\_(E-RDP-3), Schedule 4; however the customer charges are set below these levels.

The Company notes that it has used this approach in its rate cases since at least 2002.

Name of Respondent:

Howard Gorman

Date of Reply:

March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request for Information

FROM: Utility Intervention Unit, Kathleen O'Hare

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request:

2. Please explain in detail any changes in methodology used in each of the Company's electric ECOS studies conducted since 2002. If methodology and/or allocators have changed throughout the various steps of each rate case, please indicate the change in methodology:

- as filed in Direct Testimony
- as per MOU, Stipulation Agreement, etc.
- as modified per Joint Proposal
- as modified per Commission Order

The table below can be used as a template for a response.

Case	Methodology Change [as proposed in Utility Direct Testimony]	Methodology Change [as per Joint Proposal]	Methodology Change [as per Commission Order]	Methodology Change [as per MOU, Stipulation Agreement, etc.]
18-E-xxxx				

Response:

2. The provision of the historical data requested by UIU is unduly burdensome and not directly related to the goal of establishing a net energy metering ("NEM") successor for mass market customers by December 31, 2018.

However the Company notes that it has used the same methodology in its rate cases since at least 2002.

Name of Respondent:  
Howard Gorman

Date of Reply:  
March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

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FROM: Utility Intervention Unit, Kathleen O'Hare

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request:

3. Please identify, in table format as illustrated below, the degree to which the Company classified costs associated with the specified FERC accounts as “demand-related” or “customer-related” or “other-related” (at both primary and secondary voltage facilities) in each electric embedded cost of service (ECOS) study it filed from 2002 to present. For example, a cell might read, “100% demand/0% customer.” If any electric ECOS study employed a different demand/customer/other (please specify “other” in your answer) classification between primary and secondary voltage facilities within the same FERC account, please include such separate demand/customer classifications for each voltage facility.

PRIMARY FERC ACCOUNTS – Demand/Customer/Other Breakdown

Case	FERC Account 364	FERC Account 365	FERC Account 366	FERC Account 367	FERC Account 368
18-E-xxxx	50% demand 50% customer				

SECONDARY FERC ACCOUNTS – Demand/Customer/Other Breakdown

Case	FERC Account 364	FERC Account 365	FERC Account 366	FERC Account 367	FERC Account 368
18-E-xxxx	100% demand				

Response:

3. The provision of the historical data requested by UIU is unduly burdensome and not directly related to the goal of establishing a net energy metering (“NEM”) successor for mass market customers by December 31, 2018.

Date of Request: March 12, 2018

Informal Request No. UIU-1-3

Due Date: March 28, 2018

Page 2 of 2

Please refer to the March 6, 2018 presentation by the Joint Utilities, entitled “VDER Rate Design Working Group Joint Utilities Presentations: ECOS Analysis,” Slide 16. This information has also been provided in Excel spreadsheets in response to Pace Request No. JRP-1.2.

Name of Respondent:

Howard Gorman

Date of Reply:

March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request for Information

FROM: Utility Intervention Unit, Kathleen O'Hare

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request:

4. In each of the Company's electric ECOS models filed from 2002 to present, please explain how the demand/customer/other split was derived for primary and secondary distribution FERC accounts 364-368. Was there a special study performed by the Company to obtain the demand/customer/other split for primary and secondary distribution accounts 364-368? If yes, please provide a copy of the special study and the workpapers with formulas unlocked. If no special study was performed to derive the split, indicate how the answer was derived (i.e., previous rate case Joint Proposal, Rate Design Stipulation Agreement, MOU). Please explain in detail and provide all documents to support your answer.

Response:

4. The provision of the historical data requested by UIU is unduly burdensome and not directly related to the goal of establishing a net energy metering ("NEM") successor for mass market customers by December 31, 2018. As such the Company will provide only the latest available information based on UIU's request.

For the Company's recent rate case, Cases 17-E-0238 *et al.*, *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*, please refer to the presentation on March 6, 2018 by the Joint Utilities, entitled "VDER Rate Design Working Group Joint Utilities Presentations: ECOS Analysis."

Name of Respondent:  
Howard Gorman

Date of Reply:  
March 28, 2018

Date of Request: March 12, 2018

Due Date: March 28, 2018

Informal Request No. UIU-1-5

Page 1 of 1

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request for Information

FROM: Utility Intervention Unit, Kathleen O'Hare

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request:

5. Compared to the electric ECOS study the Company filed in the most recent rate case, did any electric ECOS study the Company filed in previous rate cases since 2002 employ a different cost classification (customer, demand, energy, etc.) for any electric FERC account other than accounts 364, 365, 366, 367, and 368? If so, please illustrate such demand/customer classifications for each such FERC account in table format as illustrated below.

Proceeding	FERC Account [X]	FERC Account [Y]	Etc.
18-E-xxxx			

Response:

5. The provision of the historical data requested by UIU is unduly burdensome and not directly related to the goal of establishing a net energy metering ("NEM") successor for mass market customers by December 31, 2018.

Name of Respondent:

Howard Gorman

Date of Reply:

March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request for InformationFROM: Utility Intervention Unit, Kathleen O'HareTO: Niagara Mohawk Power Corporation d/b/a National GridSUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate DesignRequest:

6. As a follow-up to the Joint Utilities presentation on March 6, 2018, please provide the following detailed information for each utility from the Company's latest ECOS model:

## Functionalization Step:

During the Functionalization step in the Company's most recent electric ECOS model, please list ALL FERC Accounts and respective costs. If the FERC Accounts are further broken down by primary and secondary accounts, please indicate the costs for each. See below for a template example.

FERC Accounts	Costs [\$M]
364 – Primary	\$8,000
364 – Secondary	\$10,000
365 – Primary	
365 – Secondary	
Etc.	

## Classification Step:

During the Classification step in the Company's most recent electric ECOS model, please provide the percent classification of costs for each FERC Account (i.e., customer related, demand related, energy related, labor related, etc.). See below for a template example.

FERC Account	% of Customer Related Costs	% of Demand Related Costs	% of Energy Related Costs	Etc.	Total Costs [%]
364 - Primary	50%	50%	0%	0%	100%
364 -	20%	80%	0%	0%	100%



Secondary					
Etc.					

**Allocation Step:**

During the Allocation step in the Company's most recent electric ECOS model, please provide the allocation of costs for each FERC Account broken down by each Service Class and subclass defined in the Company's ECOS model. Please also list the type of allocator used (i.e., customer allocator, primary demand allocator, secondary demand allocator ...). See below for a template example.

FERC Account	Type of Costs	Type of Allocator	SC-1 Non-heating Cost Allocation [%]	SC-1 Heating Cost Allocation [%]	SC-2 Cost Allocation [%]	SC-3 Cost Allocation [%]	Etc.	Total Cost Allocation [%]
364 - Primary	Demand	NCP-Primary	10%	30%	20%	35%		100%
	Customer	Customer-Primary	3%	85%	5%	2%		100%
364 - Secondary	Demand	NCP-Secondary						
	Customer	Customer-Primary						

Please provide the resulting customer charges for each service class from the Company's ECOS model. If the Company used multiple ECOS models, please provide the answer from each model.

**Resulting Customer Charge Costs from the ECOS model**

	SC-1 Cost	SC-2 Cost	SC-3 Cost	Etc.
Customer Charge				
Number of Customers				

**Response:**

6. The provision of this information is irrelevant and does not relate to the goal of establishing a net energy metering ("NEM") successor for mass market customers by December 31, 2018.

**Name of Respondent:**

Howard Gorman

**Date of Reply:**

March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request for Information

FROM: Utility Intervention Unit, Kathleen O'Hare

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request:

7. Please list all the components that constitute the monthly residential electric customer charges (i.e., administrative costs, postage, building rent costs, etc.). If the utility has multiple residential service classes (or subclasses), please provide the customer component breakdown for each service class or subclass.

Response:

7. The Company's monthly residential electric customer charge is not "constituted" of components of the Company's customer-related costs. Slide 25 of the Joint Utilities' March 6, 2018 presentation demonstrates that current SC-1 customer charges do not fully recover all customer-related costs that are allocated to the Residential SC-1 service class.

In the Company's most recent rate case, Cases 17-E-0238 *et al.*, *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*, the costs to be considered for inclusion in the customer charge are presented in Exhibit\_\_\_(E-RDP-3), Schedule 4. These costs include return on rate base for: 1) services, meters and transformers, including cost less accumulated depreciation and accumulated deferred income taxes ("ADIT"), plus income tax expense; 2) costs related to these assets including operations and maintenance ("O&M"), depreciation expense, and property taxes; and 3) costs for customer records and collections, customer assistance, and uncollectibles.

It should be noted that the customer charges are set at levels below the total of the above considered costs.

Name of Respondent:  
Howard Gorman

Date of Reply:  
March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request for Information

FROM: Utility Intervention Unit, Kathleen O'Hare

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request:

8. Are there service classes (or subclasses) that are analyzed separately (i.e., in the allocation step) in the utility's ECOS study and then combined with another service class prior to the revenue allocation step? If so, please identify the service classes this applies to, the variation in the rate of returns before and after combining service classes or subclasses, and explain why the Company follows this practice.

Response:

8. The provision of this information is unduly burdensome and not directly related to the goal of establishing a net energy metering ("NEM") successor for mass market customers by December 31, 2018.

Name of Respondent:

Howard Gorman

Date of Reply:

March 28, 2018

Date of Request: March 12, 2018  
Due Date: March 28, 2018

Informal Request No. UIU-1-9  
Page 1 of 1

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request for Information

FROM: Utility Intervention Unit, Kathleen O'Hare

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request:

9. Please explain if each utility tracks the load profiles for net metered residential customers? If the answer is no, when does the utility plan on obtaining this information?

Response:

9. The Company currently does not track load profiles for net metered residential customers and has no plans to do so prior to any rollout of advanced metering infrastructure ("AMI").

Name of Respondent:  
Carol Teixeira

Date of Reply:  
March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter: 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request for InformationFROM: Utility Intervention Unit, Kathleen O'HareTO: Niagara Mohawk Power Corporation d/b/a National GridSUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate DesignRequest:

10. Please explain how many residential customers are currently and historically enrolled in Time of Use (TOU) rates? What percentage does this represent out of the entire electric residential customer population? How many of these customers have Plug-In Electric Vehicles? Please breakdown the number of customers by service class and/or sub classes.

Response:

10. The provision of historical data requested by UIU is unduly burdensome and not directly related to the goal of establishing a net energy metering ("NEM") successor for mass market customers by December 31, 2018. As such, the Company is providing only the latest available information based on UIU's request.

Please see information below on residential customers that are currently and historically on TOU rates (SC-1C Optional TOU, SC-1 Voluntary TOU) and the percentage this class represents out of the Company's entire electric residential customer population.

<u>Calendar Year</u>	<u>SC-1C Optional TOU Customers</u>	<u>SC-1 Voluntary TOU Customers</u>	<u>Total Residential Population</u>	<u>Percentage of Total Residential Population</u>
2016	5,754	0	1,480,539	0.4%
2017	5,587	10	1,489,453	0.4%
2018	5,471	22	1,495,789	0.4%

Note: 2018 data is for the months of January and February only.

The Company has a record of only certain customers who have a plug-in electric vehicle ("PEV") which results from a customer requesting to be put on the SC1-VTOU rate which became effective and available to customers on December 1, 2016. In accordance with this rate,

Date of Request: March 12, 2018

Informal Request No. UIU-1-10

Due Date: March 28, 2018

Page 2 of 2

if a customer on the SC1-VTOU rate owns a PEV and receives supply service from the Company, the customer has the option of receiving a one-time comparison from the Company of one year of charges on the SC-1 VTOU rate versus the SC-1 standard tariff rate. In order to receive this comparison, customers must provide verification of a PEV by sending the Company a copy of the vehicle registration at their residence. As such, the Company can only say with certainty that out of the 22 customers who have requested to be put on the SC1-VTOU rate, 19 of these customers have a PEV based on their request for the one-time comparison of charges. Absent a customer on the SC-1 VTOU rate requesting a one-time comparison of charges, the Company would not know if a customer owns a PEV.

Name of Respondent:

Patricia Rivers

Date of Reply:

March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request for Information

FROM: Utility Intervention Unit, Kathleen O'Hare

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request:

11. Please explain if current and historical TOU rates are a) derived revenue neutral to the entire electric residential service class (generally known as SC1 in a utility ECOS model) or b) based on a separate service class from the electric ECOS cost profile. Please explain your answer in detail and include data such as the resulting rate of returns of the residential TOU class vs. SC1 class if applicable.

Response:

11. The Company has two (2) residential time-of-use rates, Service Classification No. 1-C Residential and Farm Service – Optional Large Time of Use Rate ("SC-1C") and Special Provision L to Service Classification No. 1 Residential and Farm Service ("SC-1").

The SC-1C rate is a separate service class from the SC-1 residential service class. This class has its own revenue requirement in the Company's embedded cost of service ("ECOS") study. The current returns on rate base for SC-1C and SC-1 are 7.34 percent and 3.11 percent, respectively, and were provided in the Company's Corrections & Updates Testimony filed July 10, 2017 in Cases No. 17-E-0238 *et al.*, *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*, Electric Rate Design Panel, Exhibit E-RDP-3CU, Schedule 1, p. 1.

Special Provision L is the Residential Optional Time of Use Delivery and Commodity Rate ("SC-1 VTOU") which rates are derived on a revenue neutral basis to the SC-1 class.

Name of Respondent:  
Carol Teixeira

Date of Reply:  
March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request for Information

FROM: Utility Intervention Unit, Kathleen O'Hare

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request:

12. Please explain the different usage profile and cost profile of residential customers under (a) the standard residential service class (generally known as SC1) and (b) residential customers under Time of Use Service Classes (i.e., Niagara Mohawk's SC-1C, Central Hudson's SC-6, etc.).

Response:

12. It is not clear what is meant by "usage profile" and "cost profile".

The respective costs as determined by the Company's embedded cost of service ("ECOS") study are shown in the Company's Corrections & Updates Testimony filed July 10, 2017 in Cases 17-E-0238 *et al.*, *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*, Electric Rate Design Panel, Exhibit E-RDP-3CU, Schedule 1, page 1.

Name of Respondent:

Howard Gorman

Date of Reply:

March 28, 2018



NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request for Information

FROM: Utility Intervention Unit, Kathleen O'Hare

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request:

13. Please explain how many residential customers are currently net metered residential customers in the utility service territory from 2006 to present? What percentage does the present number of net metering residential customers represent out of the entire electric residential population? Please breakdown the number of customers by service class and/or sub classes.

Response:

13. The provision of historical data requested by UIU is unduly burdensome and not directly related to the goal of establishing a net energy metering ("NEM") successor for mass market customers by December 31, 2018. As such, the Company is providing only the latest available information based on UIU's request.

The chart below shows total residential customers who are currently net metered from 2016 to present (*i.e.*, through March 2018) and the percentage this represents out of the total population of electric residential customers by year.

<u>Total Percentage of Residential Net Metered Customers to Date by Year</u>			
	<u>Net Metered Residential Customer SC1/SC1C</u>	<u>Total Population of Residential Customers (SC1/SC1C)</u>	<u>Percentage of Net Metered Customers to Total Population of Residential Customers</u>
2016	8,599	1,480,539	0.6%
2017	10,822	1,489,453	0.7%
2018	11,133	1,495,789	0.7%

Date of Request: March 12, 2018  
Due Date: March 28, 2018

Informal Request No. UIU-1-13  
Page **2** of **2**

Name of Respondent:  
Patricia Rivers

Date of Reply:  
March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request for Information

FROM: Utility Intervention Unit, Kathleen O'Hare

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request:

14. How many customers does the Company forecast to:
- a. Install solar on customer premise in the next 3 years?
  - b. Install geothermal unit on customer premise in the next 3 years?
  - c. Buy an electric vehicle in the next 3 years?

Response:

14. The Company does not have an official forecast for solar, geothermal, or electric vehicles ("EVs") but offers the following estimates:
- a. The Company expects that close to 14,000 incremental mass-market customers could install solar distributed generation on their premises in the Company's service territory between 2018 and 2020.
  - b. The Company estimates that it will facilitate between 12 and 68 incremental geothermal heat pump installations through its rebate program between 2018 and 2020.
  - c. The Company has evaluated a wide range of EV estimates, ranging from 3,000 new EVs (based on historic growth) to over 19,000 new EVs (based on zero emission vehicle ("ZEV") policy goals) between 2018 and 2020 in its service territory.

Name of Respondent:  
Lauri Mancinelli

Date of Reply:  
March 28, 2018

Date of Request: March 12, 2018  
Due Date: March 28, 2018

Informal Request No. UIU-1-15  
Page 1 of 1

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request for Information

FROM: Utility Intervention Unit, Kathleen O'Hare

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request:

15. Please explain if the Company has billing indicators that distinguish between electric heating and non-heating residential customers.

Response:

15. The Company's billing system has separate tariff codes that indicate if a residential customer is a heat or non-heat customer. The rate description shown on a customer's retail bill also indicates if they are a heat or non-heat customer.

Name of Respondent:  
Carol Teixeira

Date of Reply:  
March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

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Request for Information

FROM: Utility Intervention Unit, Kathleen O'Hare

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request:

16. Please explain if the Company has load profiles of various electric residential customers (i.e., heating, non-heating, low income, customer with solar, customers with electric vehicles, customers with geothermal technology, etc.). If the Company currently has this information, please provide the range of current and historic load factor values for the various types of residential customers.

Response:

16. The Company develops load profiles from customer load research data based on Service Classification No. 1 Residential and Farm Service ("SC-1") and Service Classification No. 1-C Residential and Farm Service – Optional Large Time of Use Rate ("SC-1C"). The Company does not have such load profiles for residential customers for the other demographic variables.

For billing purposes, load profiles for customers billed in accordance with Special Provision L to SC-1: Residential Optional Time of Use Delivery and Commodity Rate ("SC-1 VTOU") are estimated as being the same as the SC-1 rate class due to the limited number of customers on the SC-1 VTOU rate.

Current and historic load factors for the SC1 and SC-1C classes are as follows:

Service Class	2017	2016	2015	2014	2013
SC-1	54.7%	45.6%	55.1%	52.1%	42.8%
SC-1C	64.2%	59.7%	64.9%	60.8%	62.1%

Date of Request: March 12, 2018

Due Date: March 28, 2018

Informal Request No. UIU-1-16

Page **2** of **2**

In addition, please refer to the Company's September 20, 2017, presentation on Data Availability for the Rate Design Working Group.

Name of Respondent:

Carol Teixeira

Date of Reply:

March 28, 2018

Date of Request: March 12, 2018  
Due Date: March 28, 2018

Informal Request No. UIU-1-17  
Page 1 of 1

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request for Information

FROM: Utility Intervention Unit, Kathleen O'Hare

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request:

17. Please provide the monthly bill usages ranging from 0 to the maximum usage experience in each residential and small commercial (non-demand) service class and subclass for January and July 2017. Please also provide the number of customers and number of low-income customers (residential only) in each billing usage range. If this information is not available during the requested time period, provide the latest year that the data is available. Please note, most utilities have provided this information in utility rate cases and it did not seem to be an issue for them to obtain the information.

Response:

17. Please see Attachment 1 containing detailed number of customer accounts and usage by billing usage range for Service Classifications SC-1, SC-1C, and SC2-ND for the months of January and July 2017. Each Service Classification's data is summarized by low-income, non-low-income, and total customers by billing usage range.

Name of Respondent:  
Michael Duschen

Date of Reply:  
March 28, 2018

Service Class 1 (SC1)  
Customer Accounts and Usage by Block  
January 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 1 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Non-Low Income Customers by Block				Low Income Customers by Block				Total Customers	
			LOW INCOME IDENTIFIER	CONSUMPTIO N BLOCK	NUMBER OF ACCTS	TOTAL KWH	LOW INCOME IDENTIFIER	NUMBER OF ACCTS	TOTAL KWH		NUMBER OF ACCTS	TOTAL KWH
2017	1	SC1	N	0-99	116423	3,481,876	Y	0-99	2352	114,623	118,775	3,596,499
2017	1	SC1	N	100-199	88950	13,464,964	Y	100-199	5578	866,192	94,528	14,331,156
2017	1	SC1	N	200-299	106890	26,837,885	Y	200-299	8661	2,181,564	115,551	29,019,449
2017	1	SC1	N	300-399	124060	43,460,564	Y	300-399	10460	3,658,812	134,520	47,119,376
2017	1	SC1	N	400-499	130530	58,675,668	Y	400-499	10185	4,571,406	140,715	63,247,074
2017	1	SC1	N	500-599	125693	69,001,182	Y	500-599	9225	5,059,894	134,918	74,061,076
2017	1	SC1	N	600-699	112870	73,195,195	Y	600-699	8046	5,214,093	120,916	78,409,288
2017	1	SC1	N	700-799	98220	73,489,414	Y	700-799	6534	4,886,876	104,754	78,376,290
2017	1	SC1	N	800-899	81889	69,442,226	Y	800-899	5457	4,627,087	87,346	74,069,313
2017	1	SC1	N	900-999	67971	64,426,884	Y	900-999	4574	4,333,909	72,545	68,760,793
2017	1	SC1	N	1000-1099	55290	57,935,733	Y	1000-1099	3715	3,892,702	59,005	61,828,435
2017	1	SC1	N	1100-1199	44721	51,331,314	Y	1100-1199	3078	3,533,970	47,799	54,865,284
2017	1	SC1	N	1200-1299	36377	45,390,070	Y	1200-1299	2678	3,341,146	39,055	48,731,216
2017	1	SC1	N	1300-1399	29491	39,749,802	Y	1300-1399	2198	2,962,758	31,689	42,712,560
2017	1	SC1	N	1400-1499	24406	35,338,112	Y	1400-1499	1848	2,675,412	26,254	38,013,524
2017	1	SC1	N	1500-1599	19950	30,875,238	Y	1500-1599	1472	2,280,364	21,422	33,155,602
2017	1	SC1	N	1600-1699	16518	27,223,023	Y	1600-1699	1279	2,106,696	17,797	29,329,719
2017	1	SC1	N	1700-1799	13778	24,076,350	Y	1700-1799	1067	1,864,862	14,845	25,941,212
2017	1	SC1	N	1800-1899	11326	20,935,068	Y	1800-1899	894	1,652,329	12,220	22,587,397
2017	1	SC1	N	1900-1999	9457	18,423,716	Y	1900-1999	742	1,445,497	10,199	19,869,213
2017	1	SC1	N	2000-2099	7909	16,194,663	Y	2000-2099	654	1,338,468	8,563	17,533,131
2017	1	SC1	N	2100-2199	6903	14,832,746	Y	2100-2199	578	1,242,304	7,481	16,075,050
2017	1	SC1	N	2200-2299	5871	13,197,692	Y	2200-2299	500	1,125,002	6,371	14,322,694
2017	1	SC1	N	2300-2399	4949	11,619,189	Y	2300-2399	411	964,920	5,360	12,584,109
2017	1	SC1	N	2400-2499	4415	10,807,170	Y	2400-2499	384	940,129	4,799	11,747,299
2017	1	SC1	N	2500-2599	3745	9,543,175	Y	2500-2599	325	828,504	4,070	10,371,679
2017	1	SC1	N	2600-2699	3290	8,711,428	Y	2600-2699	254	672,992	3,544	9,384,420
2017	1	SC1	N	2700-2799	2811	7,727,198	Y	2700-2799	256	703,010	3,067	8,430,208
2017	1	SC1	N	2800-2899	2554	7,275,066	Y	2800-2899	234	667,477	2,788	7,942,543
2017	1	SC1	N	2900-2999	2217	6,533,507	Y	2900-2999	201	591,948	2,418	7,125,455
2017	1	SC1	N	3000-3099	1898	5,785,926	Y	3000-3099	152	463,402	2,050	6,249,328
2017	1	SC1	N	3100-3199	1665	5,241,648	Y	3100-3199	139	437,386	1,804	5,679,034
2017	1	SC1	N	3200-3299	1426	4,631,457	Y	3200-3299	138	447,935	1,564	5,079,392
2017	1	SC1	N	3300-3399	1307	4,375,502	Y	3300-3399	104	348,483	1,411	4,723,985
2017	1	SC1	N	3400-3499	1179	4,065,639	Y	3400-3499	101	348,367	1,280	4,414,006
2017	1	SC1	N	3500-3599	1023	3,629,319	Y	3500-3599	70	248,385	1,093	3,877,704
2017	1	SC1	N	3600-3699	897	3,272,485	Y	3600-3699	69	251,961	966	3,524,446
2017	1	SC1	N	3700-3799	815	3,055,062	Y	3700-3799	63	235,931	878	3,290,993
2017	1	SC1	N	3800-3899	745	2,866,365	Y	3800-3899	69	264,925	814	3,131,290
2017	1	SC1	N	3900-3999	649	2,562,676	Y	3900-3999	56	220,986	705	2,783,662
2017	1	SC1	N	4000-4099	570	2,306,873	Y	4000-4099	41	165,740	611	2,472,613
2017	1	SC1	N	4100-4199	496	2,058,246	Y	4100-4199	43	178,196	539	2,236,442
2017	1	SC1	N	4200-4299	415	1,763,130	Y	4200-4299	28	119,204	443	1,882,334
2017	1	SC1	N	4300-4399	405	1,761,311	Y	4300-4399	42	182,681	447	1,943,992
2017	1	SC1	N	4400-4499	379	1,685,598	Y	4400-4499	30	133,617	409	1,819,215
2017	1	SC1	N	4500-4599	315	1,432,458	Y	4500-4599	31	141,164	346	1,573,622
2017	1	SC1	N	4600-4699	288	1,339,291	Y	4600-4699	20	92,860	308	1,432,151



Service Class 1 (SC1)  
Customer Accounts and Usage by Block  
January 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 2 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Non-Low Income Customers by Block				Low Income Customers by Block				Total Customers	
			LOW INCOME IDENTIFIER	CONSUMPTIO N BLOCK	NUMBER OF ACCTS	TOTAL KWH	LOW INCOME IDENTIFIER	NUMBER OF ACCTS	TOTAL KWH		NUMBER OF ACCTS	TOTAL KWH
2017	1	SC1	N	4700-4799	235	1,115,830	Y	4700-4799	30	142,423	265	1,258,253
2017	1	SC1	N	4800-4899	250	1,212,375	Y	4800-4899	13	63,064	263	1,275,439
2017	1	SC1	N	4900-4999	211	1,044,501	Y	4900-4999	18	89,038	229	1,133,539
2017	1	SC1	N	5000-5099	187	944,076	Y	5000-5099	13	65,556	200	1,009,632
2017	1	SC1	N	5100-5199	171	880,584	Y	5100-5199	8	41,215	179	921,799
2017	1	SC1	N	5200-5299	144	756,174	Y	5200-5299	9	47,157	153	803,331
2017	1	SC1	N	5300-5399	139	742,994	Y	5300-5399	5	26,720	144	769,714
2017	1	SC1	N	5400-5499	148	805,938	Y	5400-5499	8	43,575	156	849,513
2017	1	SC1	N	5500-5599	100	554,530	Y	5500-5599	9	49,806	109	604,336
2017	1	SC1	N	5600-6599	679	4,086,887	Y	5600-6599	51	308,533	730	4,395,420
2017	1	SC1	N	6600-7599	378	2,658,228	Y	6600-7599	24	170,013	402	2,828,241
2017	1	SC1	N	7600-8599	168	1,353,840	Y	7600-8599	11	90,622	179	1,444,462
2017	1	SC1	N	8600-9599	91	824,306	Y	8600-9599	2	17,950	93	842,256
2017	1	SC1	N	9600-10599	56	566,599					56	566,599
2017	1	SC1	N	10600-11599	50	551,912	Y	10600-11599	1	11,403	51	563,315
2017	1	SC1	N	11600-12599	29	351,104	Y	11600-12599	1	12,034	30	363,138
2017	1	SC1	N	12600-13599	26	342,189	Y	12600-13599	2	25,992	28	368,181
2017	1	SC1	N	13600-14599	24	336,446	Y	13600-14599	1	13,793	25	350,239
2017	1	SC1	N	14600-15599	16	242,225	Y	14600-15599	1	15,217	17	257,442
2017	1	SC1	N	15600-16599	10	161,723					10	161,723
2017	1	SC1	N	16600-17599	15	256,781					15	256,781
2017	1	SC1	N	17600-18599	7	126,150					7	126,150
2017	1	SC1	N	18600-19599	6	114,482					6	114,482
2017	1	SC1	N	19600-20599	6	120,515					6	120,515
2017	1	SC1	N	20600-21599	6	126,604					6	126,604
2017	1	SC1	N	21600-22599	8	175,692					8	175,692
2017	1	SC1	N	22600-23599	1	22,677					1	22,677
2017	1	SC1	N	23600-24599	5	119,873					5	119,873
2017	1	SC1	N	24600-25599	1	25,556					1	25,556
2017	1	SC1	N	25600-26599	4	104,000					4	104,000
2017	1	SC1	N	26600-27599	1	26,720					1	26,720
2017	1	SC1	N	27600-28599	5	140,720					5	140,720
2017	1	SC1	N	28600-29599	2	57,440					2	57,440
2017	1	SC1	N	29600-30599	2	60,085					2	60,085
2017	1	SC1	N	31600-32599	3	96,320					3	96,320
2017	1	SC1	N	32600-33599	5	164,660					5	164,660
2017	1	SC1	N	35600-36599	2	71,460					2	71,460
2017	1	SC1	N	36600-37599	2	74,160					2	74,160
2017	1	SC1	N	37600-38599	1	38,560					1	38,560
2017	1	SC1	N	38600-39599	2	78,080					2	78,080
2017	1	SC1	N	39600-40599	1	39,680					1	39,680
2017	1	SC1	N	41600-42599	3	125,417					3	125,417
2017	1	SC1	N	42600-43599	1	43,383					1	43,383
2017	1	SC1	N	43600-44599	2	87,440					2	87,440
2017	1	SC1	N	45600-46599	1	45,967					1	45,967
2017	1	SC1	N	46600-47599	1	47,440					1	47,440
2017	1	SC1	N	47600-48599	1	48,480					1	48,480

Service Class 1 (SC1)  
Customer Accounts and Usage by Block  
January 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 3 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Non-Low Income Customers by Block				Low Income Customers by Block			Total Customers	
			LOW INCOME IDENTIFIER	CONSUMPTIO N BLOCK	NUMBER OF ACCTS	TOTAL KWH	LOW INCOME IDENTIFIER	NUMBER OF ACCTS	TOTAL KWH	NUMBER OF ACCTS	TOTAL KWH
2017	1	SC1	N	48600-49599	1	48,640				1	48,640
2017	1	SC1	N	49600-50599	2	99,880				2	99,880
2017	1	SC1	N	50600-51599	3	152,720				3	152,720
2017	1	SC1	N	52600-53599	1	53,160				1	53,160
2017	1	SC1	N	53600-54599	1	54,240				1	54,240
2017	1	SC1	N	59600-60599	1	60,353				1	60,353
2017	1	SC1	N	66600-67599	1	67,520				1	67,520
2017	1	SC1	N	67600-68599	1	68,320				1	68,320
2017	1	SC1	N	68600-69599	1	68,800				1	68,800
2017	1	SC1	N	75600-76599	1	76,080				1	76,080
2017	1	SC1	N	99600-100599	2	199,759				2	199,759
2017	1	SC1	N	102600-103599	1	103,313				1	103,313
2017	1	SC1	N	>= 115600	1	178,720				1	178,720
					1,377,169	1,028,231,412				95,243	75,860,280
										1,472,412	1,104,091,692

Service Class 1 (SC1)  
Customer Accounts and Usage by Block  
July 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 4 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Non-Low Income Customers by Block				Low Income Customers by Block				Total Customers	
			LOW INCOME IDENTIFIER	CONSUMPTI ON BLOCK	NUMBER OF ACCTS	TOTAL KWH	LOW INCOME IDENTIFIER	NUMBER OF ACCTS	TOTAL KWH		NUMBER OF ACCTS	TOTAL KWH
2017	7	SC1	N	0-99	118333	4,585,714	Y	0-99	4192	216,232	122,525	4,801,946
2017	7	SC1	N	100-199	116959	17,735,654	Y	100-199	11172	1,733,488	128,131	19,469,142
2017	7	SC1	N	200-299	134758	33,683,913	Y	200-299	14299	3,572,440	149,057	37,256,353
2017	7	SC1	N	300-399	136413	47,647,791	Y	300-399	13089	4,564,156	149,502	52,211,947
2017	7	SC1	N	400-499	131522	59,065,398	Y	400-499	11321	5,072,021	142,843	64,137,419
2017	7	SC1	N	500-599	122142	66,997,119	Y	500-599	9296	5,090,894	131,438	72,088,013
2017	7	SC1	N	600-699	109551	71,037,281	Y	600-699	7745	5,014,219	117,296	76,051,500
2017	7	SC1	N	700-799	95271	71,288,867	Y	700-799	6090	4,551,834	101,361	75,840,701
2017	7	SC1	N	800-899	80432	68,202,938	Y	800-899	4757	4,031,315	85,189	72,234,253
2017	7	SC1	N	900-999	66660	63,198,333	Y	900-999	3686	3,488,753	70,346	66,687,086
2017	7	SC1	N	1000-1099	54309	56,900,006	Y	1000-1099	2922	3,059,554	57,231	59,959,560
2017	7	SC1	N	1100-1199	43543	49,961,372	Y	1100-1199	2189	2,510,143	45,732	52,471,515
2017	7	SC1	N	1200-1299	35195	43,916,587	Y	1200-1299	1670	2,083,838	36,865	46,000,425
2017	7	SC1	N	1300-1399	28019	37,756,849	Y	1300-1399	1275	1,716,201	29,294	39,473,050
2017	7	SC1	N	1400-1499	22342	32,340,459	Y	1400-1499	990	1,434,104	23,332	33,774,563
2017	7	SC1	N	1500-1599	17791	27,533,365	Y	1500-1599	730	1,130,614	18,521	28,663,979
2017	7	SC1	N	1600-1699	14304	23,565,715	Y	1600-1699	551	908,440	14,855	24,474,155
2017	7	SC1	N	1700-1799	11329	19,800,840	Y	1700-1799	421	735,224	11,750	20,536,064
2017	7	SC1	N	1800-1899	9283	17,150,881	Y	1800-1899	326	602,755	9,609	17,753,636
2017	7	SC1	N	1900-1999	7189	14,002,795	Y	1900-1999	253	491,637	7,442	14,494,432
2017	7	SC1	N	2000-2099	5820	11,916,907	Y	2000-2099	220	450,146	6,040	12,367,053
2017	7	SC1	N	2100-2199	4731	10,154,014	Y	2100-2199	134	287,437	4,865	10,441,451
2017	7	SC1	N	2200-2299	3799	8,539,185	Y	2200-2299	120	269,789	3,919	8,808,974
2017	7	SC1	N	2300-2399	3112	7,305,119	Y	2300-2399	97	227,879	3,209	7,532,998
2017	7	SC1	N	2400-2499	2559	6,265,391	Y	2400-2499	56	137,076	2,615	6,402,467
2017	7	SC1	N	2500-2599	2115	5,385,604	Y	2500-2599	52	132,182	2,167	5,517,786
2017	7	SC1	N	2600-2699	1717	4,547,470	Y	2600-2699	35	92,563	1,752	4,640,033
2017	7	SC1	N	2700-2799	1418	3,898,925	Y	2700-2799	32	87,922	1,450	3,986,847
2017	7	SC1	N	2800-2899	1166	3,319,438	Y	2800-2899	41	117,008	1,207	3,436,446
2017	7	SC1	N	2900-2999	1007	2,969,683	Y	2900-2999	12	35,395	1,019	3,005,078
2017	7	SC1	N	3000-3099	870	2,652,269	Y	3000-3099	14	42,689	884	2,694,958
2017	7	SC1	N	3100-3199	701	2,206,536	Y	3100-3199	11	34,632	712	2,241,168
2017	7	SC1	N	3200-3299	604	1,961,689	Y	3200-3299	12	38,747	616	2,000,436
2017	7	SC1	N	3300-3399	511	1,710,954	Y	3300-3399	10	33,590	521	1,744,544
2017	7	SC1	N	3400-3499	418	1,441,372	Y	3400-3499	9	31,043	427	1,472,415
2017	7	SC1	N	3500-3599	367	1,302,481	Y	3500-3599	15	53,097	382	1,355,578
2017	7	SC1	N	3600-3699	344	1,254,723	Y	3600-3699	8	29,240	352	1,283,963
2017	7	SC1	N	3700-3799	295	1,105,946	Y	3700-3799	5	18,773	300	1,124,719
2017	7	SC1	N	3800-3899	244	939,108	Y	3800-3899	3	11,569	247	950,677
2017	7	SC1	N	3900-3999	264	1,042,223	Y	3900-3999	5	19,650	269	1,061,873
2017	7	SC1	N	4000-4099	212	858,411	Y	4000-4099	7	28,486	219	886,897
2017	7	SC1	N	4100-4199	170	705,520	Y	4100-4199	2	8,232	172	713,752
2017	7	SC1	N	4200-4299	150	636,984	Y	4200-4299	5	21,101	155	658,085
2017	7	SC1	N	4300-4399	150	652,816	Y	4300-4399	2	8,669	152	661,485

Service Class 1 (SC1)  
Customer Accounts and Usage by Block  
July 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 5 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Non-Low Income Customers by Block				Low Income Customers by Block				Total Customers	
			LOW INCOME IDENTIFIER	CONSUMPTI ON BLOCK	NUMBER OF ACCTS	TOTAL KWH	LOW INCOME IDENTIFIER	NUMBER OF ACCTS	TOTAL KWH		NUMBER OF ACCTS	TOTAL KWH
2017	7	SC1	N	4400-4499	145	645,251	Y	4400-4499	3	13,330	148	658,581
2017	7	SC1	N	4500-4599	109	496,040	Y	4500-4599	3	13,677	112	509,717
2017	7	SC1	N	4600-4699	89	413,498	Y	4600-4699	4	18,634	93	432,132
2017	7	SC1	N	4700-4799	72	341,758	Y	4700-4799	2	9,543	74	351,301
2017	7	SC1	N	4800-4899	86	417,177	Y	4800-4899	4	19,388	90	436,565
2017	7	SC1	N	4900-4999	105	519,036	Y	4900-4999	1	4,964	106	524,000
2017	7	SC1	N	5000-5099	75	378,439	Y	5000-5099	1	5,098	76	383,537
2017	7	SC1	N	5100-5199	66	339,981	Y	5100-5199	1	5,145	67	345,126
2017	7	SC1	N	5200-5299	74	388,292	Y	5200-5299	3	15,676	77	403,968
2017	7	SC1	N	5300-5399	47	251,376	Y	5300-5399	2	10,665	49	262,041
2017	7	SC1	N	5400-5499	57	310,601	Y	5400-5499	1	5,497	58	316,098
2017	7	SC1	N	5500-5599	47	260,911	Y	5500-5599	1	5,507	48	266,418
2017	7	SC1	N	5600-6599	329	1,989,648	Y	5600-6599	8	47,818	337	2,037,466
2017	7	SC1	N	6600-7599	187	1,316,415	Y	6600-7599	5	34,312	192	1,350,727
2017	7	SC1	N	7600-8599	122	983,881	Y	7600-8599	1	7,729	123	991,610
2017	7	SC1	N	8600-9599	72	652,439	Y	8600-9599	1	9,476	73	661,915
2017	7	SC1	N	9600-10599	52	521,108	Y	9600-10599	3	29,845	55	550,953
2017	7	SC1	N	10600-11599	32	353,524	Y	10600-11599	3	33,441	35	386,965
2017	7	SC1	N	11600-12599	28	338,404					28	338,404
2017	7	SC1	N	12600-13599	19	248,064					19	248,064
2017	7	SC1	N	13600-14599	13	182,990					13	182,990
2017	7	SC1	N	14600-15599	10	150,042					10	150,042
2017	7	SC1	N	15600-16599	9	144,212					9	144,212
2017	7	SC1	N	16600-17599	14	239,836					14	239,836
2017	7	SC1	N	17600-18599	14	255,972					14	255,972
2017	7	SC1	N	18600-19599	5	95,625					5	95,625
2017	7	SC1	N	19600-20599	7	140,682					7	140,682
2017	7	SC1	N	20600-21599	5	105,725					5	105,725
2017	7	SC1	N	21600-22599	7	154,999					7	154,999
2017	7	SC1	N	22600-23599	6	138,033					6	138,033
2017	7	SC1	N	23600-24599	4	96,086					4	96,086
2017	7	SC1	N	25600-26599	4	105,323					4	105,323
2017	7	SC1	N	26600-27599	4	107,760					4	107,760
2017	7	SC1	N	27600-28599	4	111,868					4	111,868
2017	7	SC1	N	28600-29599	4	116,452					4	116,452
2017	7	SC1	N	29600-30599	3	90,440					3	90,440
2017	7	SC1	N	30600-31599	2	61,760					2	61,760
2017	7	SC1	N	31600-32599	4	128,580					4	128,580
2017	7	SC1	N	32600-33599	4	131,760					4	131,760
2017	7	SC1	N	33600-34599	2	68,800					2	68,800
2017	7	SC1	N	34600-35599	2	69,840					2	69,840
2017	7	SC1	N	35600-36599	2	72,955					2	72,955
2017	7	SC1	N	36600-37599	2	74,240					2	74,240
2017	7	SC1	N	37600-38599	3	114,177					3	114,177

Service Class 1 (SC1)  
Customer Accounts and Usage by Block  
July 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 6 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Non-Low Income Customers by Block				Low Income Customers by Block			Total Customers	
			LOW INCOME IDENTIFIER	CONSUMPTI ON BLOCK	NUMBER OF ACCTS	TOTAL KWH	LOW INCOME IDENTIFIER	NUMBER OF ACCTS	TOTAL KWH	NUMBER OF ACCTS	TOTAL KWH
2017	7	SC1	N	38600-39599	3	116,600				3	116,600
2017	7	SC1	N	39600-40599	2	80,807				2	80,807
2017	7	SC1	N	40600-41599	2	81,760				2	81,760
2017	7	SC1	N	41600-42599	1	42,080				1	42,080
2017	7	SC1	N	42600-43599	3	129,297				3	129,297
2017	7	SC1	N	44600-45599	2	89,520				2	89,520
2017	7	SC1	N	45600-46599	2	92,583				2	92,583
2017	7	SC1	N	46600-47599	2	93,480				2	93,480
2017	7	SC1	N	47600-48599	2	95,760				2	95,760
2017	7	SC1	N	49600-50599	1	50,560				1	50,560
2017	7	SC1	N	50600-51599	1	51,360				1	51,360
2017	7	SC1	N	51600-52599	1	52,160				1	52,160
2017	7	SC1	N	54600-55599	2	110,480				2	110,480
2017	7	SC1	N	57600-58599	1	58,320				1	58,320
2017	7	SC1	N	59600-60599	1	59,760				1	59,760
2017	7	SC1	N	65600-66599	1	66,080				1	66,080
2017	7	SC1	N	74600-75599	1	74,720				1	74,720
2017	7	SC1	N	79600-80599	2	159,873				2	159,873
2017	7	SC1	N	85600-86599	1	86,240				1	86,240
2017	7	SC1	N	88600-89599	1	89,040				1	89,040
2017	7	SC1	N	99600-100599	1	99,927				1	99,927
2017	7	SC1	N	108600-109599	1	109,511				1	109,511
2017	7	SC1	N	>= 115600	2	417,120				2	417,120
					1,390,072	925,575,683				1,488,000	980,090,205
							97,928	54,514,522			

Service Class 1C (SC1C)  
Customer Accounts and Usage by Block  
January 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 7 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Non-Low Income Customers by Block				Low Income Customers by Block				Total Customers	
			LOW INCOME IDENTIFIER	CONSUMPTIO N BLOCK	NUMBER OF ACCTS	TOTAL KWH	LOW INCOME IDENTIFIER		NUMBER OF ACCTS	TOTAL KWH	NUMBER OF ACCTS	TOTAL KWH
2017		1 SC1C	N	0-99	52	792					52	792
2017		1 SC1C	N	100-199	20	2,812					20	2,812
2017		1 SC1C	N	200-299	25	6,161					25	6,161
2017		1 SC1C	N	300-399	44	15,488					44	15,488
2017		1 SC1C	N	400-499	50	22,494					50	22,494
2017		1 SC1C	N	500-599	46	25,535					46	25,535
2017		1 SC1C	N	600-699	77	50,168					77	50,168
2017		1 SC1C	N	700-799	83	61,980	Y	700-799	2	1,463	85	63,443
2017		1 SC1C	N	800-899	81	68,656					81	68,656
2017		1 SC1C	N	900-999	102	97,008					102	97,008
2017		1 SC1C	N	1000-1099	97	102,046	Y	1100-1199	1	1,192	98	103,238
2017		1 SC1C	N	1100-1199	98	112,330					98	112,330
2017		1 SC1C	N	1200-1299	108	134,805					108	134,805
2017		1 SC1C	N	1300-1399	102	137,594					102	137,594
2017		1 SC1C	N	1400-1499	86	124,699					86	124,699
2017		1 SC1C	N	1500-1599	97	150,510	Y	1500-1599	1	1,513	98	152,023
2017		1 SC1C	N	1600-1699	100	165,008	Y	1600-1699	2	3,335	102	168,343
2017		1 SC1C	N	1700-1799	85	148,569	Y	1700-1799	1	1,752	86	150,321
2017		1 SC1C	N	1800-1899	89	164,568	Y	1800-1899	1	1,877	90	166,445
2017		1 SC1C	N	1900-1999	88	171,699	Y	1900-1999	1	1,980	89	173,679
2017		1 SC1C	N	2000-2099	93	189,885					93	189,885
2017		1 SC1C	N	2100-2199	82	176,409	Y	2100-2199	1	2,165	83	178,574
2017		1 SC1C	N	2200-2299	85	190,708					85	190,708
2017		1 SC1C	N	2300-2399	89	208,762	Y	2300-2399	1	2,331	90	211,093
2017		1 SC1C	N	2400-2499	90	220,316	Y	2400-2499	2	4,945	92	225,261
2017		1 SC1C	N	2500-2599	92	234,630	Y	2500-2599	1	2,557	93	237,187
2017		1 SC1C	N	2600-2699	94	248,857					94	248,857
2017		1 SC1C	N	2700-2799	101	277,224	Y	2700-2799	2	5,483	103	282,707
2017		1 SC1C	N	2800-2899	104	296,521	Y	2800-2899	2	5,673	106	302,194
2017		1 SC1C	N	2900-2999	101	297,805					101	297,805
2017		1 SC1C	N	3000-3099	90	273,900					90	273,900
2017		1 SC1C	N	3100-3199	93	292,367					93	292,367
2017		1 SC1C	N	3200-3299	86	279,141					86	279,141
2017		1 SC1C	N	3300-3399	82	274,574					82	274,574
2017		1 SC1C	N	3400-3499	85	292,707	Y	3400-3499	1	3,494	86	296,201
2017		1 SC1C	N	3500-3599	88	312,276					88	312,276
2017		1 SC1C	N	3600-3699	74	269,713	Y	3600-3699	1	3,681	75	273,394

Service Class 1C (SC1C)  
Customer Accounts and Usage by Block  
January 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 8 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Non-Low Income Customers by Block				Low Income Customers by Block				Total Customers	
			LOW INCOME IDENTIFIER	CONSUMPTIO N BLOCK	NUMBER OF ACCTS	TOTAL KWH	LOW INCOME IDENTIFIER		NUMBER OF ACCTS	TOTAL KWH	NUMBER OF ACCTS	TOTAL KWH
2017		1 SC1C	N	3700-3799	52	194,878	Y	3700-3799	1	3,735	53	198,613
2017		1 SC1C	N	3800-3899	83	319,380	Y	3800-3899	1	3,887	84	323,267
2017		1 SC1C	N	3900-3999	83	327,582	Y	3900-3999	2	7,888	85	335,470
2017		1 SC1C	N	4000-4099	73	295,475					73	295,475
2017		1 SC1C	N	4100-4199	71	294,849	Y	4100-4199	1	4,162	72	299,011
2017		1 SC1C	N	4200-4299	73	310,077	Y	4200-4299	1	4,248	74	314,325
2017		1 SC1C	N	4300-4399	54	234,788					54	234,788
2017		1 SC1C	N	4400-4499	85	378,125					85	378,125
2017		1 SC1C	N	4500-4599	82	373,847	Y	4500-4599	1	4,542	83	378,389
2017		1 SC1C	N	4600-4699	66	306,628					66	306,628
2017		1 SC1C	N	4700-4799	50	237,430					50	237,430
2017		1 SC1C	N	4800-4899	51	247,274	Y	4800-4899	1	4,801	52	252,075
2017		1 SC1C	N	4900-4999	55	272,340	Y	4900-4999	1	4,911	56	277,251
2017		1 SC1C	N	5000-5099	54	272,691	Y	5000-5099	2	10,115	56	282,806
2017		1 SC1C	N	5100-5199	64	328,886					64	328,886
2017		1 SC1C	N	5200-5299	44	230,699	Y	5200-5299	1	5,253	45	235,952
2017		1 SC1C	N	5300-5399	36	192,850					36	192,850
2017		1 SC1C	N	5400-5499	39	212,435					39	212,435
2017		1 SC1C	N	5500-5599	34	188,544					34	188,544
2017		1 SC1C	N	5600-6599	341	2,060,914	Y	5600-6599	1	5,643	342	2,066,557
2017		1 SC1C	N	6600-7599	216	1,525,383	Y	6600-7599	1	7,376	217	1,532,759
2017		1 SC1C	N	7600-8599	172	1,388,050	Y	7600-8599	1	7,764	173	1,395,814
2017		1 SC1C	N	8600-9599	108	983,006					108	983,006
2017		1 SC1C	N	9600-10599	78	780,062					78	780,062
2017		1 SC1C	N	10600-11599	59	652,384					59	652,384
2017		1 SC1C	N	11600-12599	44	531,751					44	531,751
2017		1 SC1C	N	12600-13599	46	600,271					46	600,271
2017		1 SC1C	N	13600-14599	33	467,239					33	467,239
2017		1 SC1C	N	14600-15599	20	301,667					20	301,667
2017		1 SC1C	N	15600-16599	22	351,857					22	351,857
2017		1 SC1C	N	16600-17599	18	306,254					18	306,254
2017		1 SC1C	N	17600-18599	12	216,857					12	216,857
2017		1 SC1C	N	18600-19599	15	286,500					15	286,500
2017		1 SC1C	N	19600-20599	8	160,271					8	160,271
2017		1 SC1C	N	20600-21599	7	148,640					7	148,640
2017		1 SC1C	N	21600-22599	4	88,784					4	88,784
2017		1 SC1C	N	22600-23599	5	114,760					5	114,760

Service Class 1C (SC1C)  
Customer Accounts and Usage by Block  
January 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 9 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Non-Low Income Customers by Block				Low Income Customers by Block			Total Customers	
			LOW INCOME IDENTIFIER	CONSUMPTIO N BLOCK	NUMBER OF ACCTS	TOTAL KWH	LOW INCOME IDENTIFIER	NUMBER OF ACCTS	TOTAL KWH	NUMBER OF ACCTS	TOTAL KWH
2017		1 SC1C	N	23600-24599	7	169,204				7	169,204
2017		1 SC1C	N	24600-25599	9	226,958				9	226,958
2017		1 SC1C	N	25600-26599	5	131,086				5	131,086
2017		1 SC1C	N	26600-27599	7	190,957				7	190,957
2017		1 SC1C	N	27600-28599	3	84,301				3	84,301
2017		1 SC1C	N	28600-29599	8	232,020				8	232,020
2017		1 SC1C	N	29600-30599	7	209,815				7	209,815
2017		1 SC1C	N	30600-31599	6	184,980				6	184,980
2017		1 SC1C	N	31600-32599	3	95,960				3	95,960
2017		1 SC1C	N	32600-33599	4	133,261				4	133,261
2017		1 SC1C	N	33600-34599	4	137,153				4	137,153
2017		1 SC1C	N	34600-35599	6	211,120				6	211,120
2017		1 SC1C	N	35600-36599	5	181,508				5	181,508
2017		1 SC1C	N	36600-37599	4	148,160				4	148,160
2017		1 SC1C	N	37600-38599	5	190,040				5	190,040
2017		1 SC1C	N	38600-39599	5	195,400				5	195,400
2017		1 SC1C	N	39600-40599	2	80,701				2	80,701
2017		1 SC1C	N	40600-41599	8	329,532				8	329,532
2017		1 SC1C	N	41600-42599	3	126,015				3	126,015
2017		1 SC1C	N	42600-43599	4	172,880				4	172,880
2017		1 SC1C	N	43600-44599	4	176,640				4	176,640
2017		1 SC1C	N	44600-45599	3	135,480				3	135,480
2017		1 SC1C	N	45600-46599	1	46,080				1	46,080
2017		1 SC1C	N	47600-48599	3	144,640				3	144,640
2017		1 SC1C	N	48600-49599	2	97,560				2	97,560
2017		1 SC1C	N	51600-52599	1	52,400				1	52,400
2017		1 SC1C	N	52600-53599	2	107,000				2	107,000
2017		1 SC1C	N	54600-55599	2	110,400				2	110,400
2017		1 SC1C	N	55600-56599	3	167,680				3	167,680
2017		1 SC1C	N	56600-57599	1	57,440				1	57,440
2017		1 SC1C	N	57600-58599	1	58,560				1	58,560
2017		1 SC1C	N	58600-59599	1	58,833				1	58,833
2017		1 SC1C	N	59600-60599	1	60,560				1	60,560
2017		1 SC1C	N	62600-63599	1	62,700				1	62,700
2017		1 SC1C	N	63600-64599	1	64,200				1	64,200
2017		1 SC1C	N	65600-66599	1	65,979				1	65,979
2017		1 SC1C	N	67600-68599	1	68,320				1	68,320



Service Class 1C (SC1C)  
Customer Accounts and Usage by Block  
January 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 10 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Non-Low Income Customers by Block				Low Income Customers by Block			Total Customers	
			LOW INCOME IDENTIFIER	CONSUMPTIO N BLOCK	NUMBER OF ACCTS	TOTAL KWH	LOW INCOME IDENTIFIER	NUMBER OF ACCTS	TOTAL KWH	NUMBER OF ACCTS	TOTAL KWH
2017	1	SC1C	N	68600-69599	1	68,600				1	68,600
2017	1	SC1C	N	69600-70599	2	140,320				2	140,320
2017	1	SC1C	N	72600-73599	1	73,200				1	73,200
2017	1	SC1C	N	73600-74599	1	73,821				1	73,821
2017	1	SC1C	N	74600-75599	1	75,000				1	75,000
2017	1	SC1C	N	76600-77599	1	77,280				1	77,280
2017	1	SC1C	N	79600-80599	1	80,320				1	80,320
2017	1	SC1C	N	80600-81599	1	80,800				1	80,800
2017	1	SC1C	N	82600-83599	1	83,360				1	83,360
2017	1	SC1C	N	85600-86599	1	85,840				1	85,840
2017	1	SC1C	N	86600-87599	1	87,150				1	87,150
2017	1	SC1C	N	88600-89599	1	89,440				1	89,440
2017	1	SC1C	N	89600-90599	1	89,600				1	89,600
2017	1	SC1C	N	108600-109599	1	108,640				1	108,640
2017	1	SC1C	N	>= 115600	9	1,423,340				9	1,423,340
					5,574	29,884,379		35	117,766	5,609	30,002,145

Service Class 1C (SC1C)  
Customer Accounts and Usage by Block  
July 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 11 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Non-Low Income Customers by Block				Low Income Customers by Block				Total Customers	
			LOW INCOME IDENTIFIER	CONSUMPTION BLOCK	NUMBER OF ACCTS	TOTAL KWH	LOW INCOME IDENTIFIER	NUMBER OF ACCTS	TOTAL KWH		NUMBER OF ACCTS	TOTAL KWH
2017	7	SC1C	N	0-99	95	2,032					95	2,032
2017	7	SC1C	N	100-199	35	5,836	Y	100-199	1	119	36	5,955
2017	7	SC1C	N	200-299	61	15,160	Y	200-299	2	569	63	15,729
2017	7	SC1C	N	300-399	85	30,334	Y	300-399	4	1,370	89	31,704
2017	7	SC1C	N	400-499	127	57,488	Y	400-499	3	1,375	130	58,863
2017	7	SC1C	N	500-599	171	93,977	Y	500-599	7	3,775	178	97,752
2017	7	SC1C	N	600-699	175	113,466	Y	600-699	1	680	176	114,146
2017	7	SC1C	N	700-799	183	137,380	Y	700-799	4	2,998	187	140,378
2017	7	SC1C	N	800-899	174	147,463	Y	800-899	1	864	175	148,327
2017	7	SC1C	N	900-999	183	173,400	Y	900-999	3	2,772	186	176,172
2017	7	SC1C	N	1000-1099	181	190,598	Y	1000-1099	1	1,016	182	191,614
2017	7	SC1C	N	1100-1199	164	188,224					164	188,224
2017	7	SC1C	N	1200-1299	158	197,006	Y	1200-1299	2	2,507	160	199,513
2017	7	SC1C	N	1300-1399	154	207,760	Y	1300-1399	4	5,388	158	213,148
2017	7	SC1C	N	1400-1499	139	201,024					139	201,024
2017	7	SC1C	N	1500-1599	131	202,995	Y	1500-1599	2	3,128	133	206,123
2017	7	SC1C	N	1600-1699	109	179,628					109	179,628
2017	7	SC1C	N	1700-1799	111	194,135					111	194,135
2017	7	SC1C	N	1800-1899	92	169,766	Y	1800-1899	1	1,875	93	171,641
2017	7	SC1C	N	1900-1999	86	167,169					86	167,169
2017	7	SC1C	N	2000-2099	95	194,456	Y	2000-2099	1	2,020	96	196,476
2017	7	SC1C	N	2100-2199	97	207,989					97	207,989
2017	7	SC1C	N	2200-2299	87	196,021					87	196,021
2017	7	SC1C	N	2300-2399	81	190,564					81	190,564
2017	7	SC1C	N	2400-2499	78	190,546					78	190,546
2017	7	SC1C	N	2500-2599	72	183,393					72	183,393
2017	7	SC1C	N	2600-2699	66	174,897					66	174,897
2017	7	SC1C	N	2700-2799	55	151,258					55	151,258
2017	7	SC1C	N	2800-2899	82	233,232					82	233,232
2017	7	SC1C	N	2900-2999	73	214,729					73	214,729
2017	7	SC1C	N	3000-3099	60	183,001					60	183,001
2017	7	SC1C	N	3100-3199	49	154,332					49	154,332
2017	7	SC1C	N	3200-3299	46	149,197	Y	3200-3299	1	3,223	47	152,420
2017	7	SC1C	N	3300-3399	54	180,899					54	180,899
2017	7	SC1C	N	3400-3499	56	193,158					56	193,158
2017	7	SC1C	N	3500-3599	47	166,469					47	166,469
2017	7	SC1C	N	3600-3699	52	189,660					52	189,660

Service Class 1C (SC1C)  
Customer Accounts and Usage by Block  
July 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 12 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Non-Low Income Customers by Block				Low Income Customers by Block				Total Customers	
			LOW INCOME IDENTIFIER	CONSUMPTION BLOCK	NUMBER OF ACCTS	TOTAL KWH	LOW INCOME IDENTIFIER	NUMBER OF ACCTS	TOTAL KWH		NUMBER OF ACCTS	TOTAL KWH
2017	7	SC1C	N	3700-3799	53	198,596					53	198,596
2017	7	SC1C	N	3800-3899	53	203,865					53	203,865
2017	7	SC1C	N	3900-3999	44	173,968					44	173,968
2017	7	SC1C	N	4000-4099	55	222,291					55	222,291
2017	7	SC1C	N	4100-4199	41	170,017					41	170,017
2017	7	SC1C	N	4200-4299	37	157,271					37	157,271
2017	7	SC1C	N	4300-4399	38	165,055					38	165,055
2017	7	SC1C	N	4400-4499	34	151,052					34	151,052
2017	7	SC1C	N	4500-4599	34	154,698					34	154,698
2017	7	SC1C	N	4600-4699	31	143,631					31	143,631
2017	7	SC1C	N	4700-4799	30	142,468					30	142,468
2017	7	SC1C	N	4800-4899	30	145,293					30	145,293
2017	7	SC1C	N	4900-4999	28	138,167					28	138,167
2017	7	SC1C	N	5000-5099	36	181,697					36	181,697
2017	7	SC1C	N	5100-5199	34	175,130					34	175,130
2017	7	SC1C	N	5200-5299	20	104,929	Y	5200-5299	1 5,292		21	110,221
2017	7	SC1C	N	5300-5399	19	101,493					19	101,493
2017	7	SC1C	N	5400-5499	21	114,476					21	114,476
2017	7	SC1C	N	5500-5599	26	144,262					26	144,262
2017	7	SC1C	N	5600-6599	223	1,348,812					223	1,348,812
2017	7	SC1C	N	6600-7599	147	1,038,401					147	1,038,401
2017	7	SC1C	N	7600-8599	112	902,231					112	902,231
2017	7	SC1C	N	8600-9599	69	625,087					69	625,087
2017	7	SC1C	N	9600-10599	54	544,537					54	544,537
2017	7	SC1C	N	10600-11599	49	543,247					49	543,247
2017	7	SC1C	N	11600-12599	44	526,805					44	526,805
2017	7	SC1C	N	12600-13599	29	378,802					29	378,802
2017	7	SC1C	N	13600-14599	26	366,007					26	366,007
2017	7	SC1C	N	14600-15599	14	211,395					14	211,395
2017	7	SC1C	N	15600-16599	19	305,256					19	305,256
2017	7	SC1C	N	16600-17599	12	204,324					12	204,324
2017	7	SC1C	N	17600-18599	12	215,616					12	215,616
2017	7	SC1C	N	18600-19599	10	191,275					10	191,275
2017	7	SC1C	N	19600-20599	6	120,573					6	120,573
2017	7	SC1C	N	20600-21599	6	126,346					6	126,346
2017	7	SC1C	N	21600-22599	10	220,166					10	220,166
2017	7	SC1C	N	22600-23599	12	275,640					12	275,640

Service Class 1C (SC1C)  
Customer Accounts and Usage by Block  
July 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 13 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Non-Low Income Customers by Block				Low Income Customers by Block			Total Customers	
			LOW INCOME IDENTIFIER	CONSUMPTION BLOCK	NUMBER OF ACCTS	TOTAL KWH	LOW INCOME IDENTIFIER	NUMBER OF ACCTS	TOTAL KWH	NUMBER OF ACCTS	TOTAL KWH
2017	7	SC1C	N	23600-24599	8	192,110				8	192,110
2017	7	SC1C	N	24600-25599	6	150,366				6	150,366
2017	7	SC1C	N	25600-26599	10	259,495				10	259,495
2017	7	SC1C	N	26600-27599	9	242,713				9	242,713
2017	7	SC1C	N	27600-28599	7	198,195				7	198,195
2017	7	SC1C	N	28600-29599	2	58,400				2	58,400
2017	7	SC1C	N	29600-30599	4	121,172				4	121,172
2017	7	SC1C	N	30600-31599	6	185,255				6	185,255
2017	7	SC1C	N	31600-32599	3	96,040				3	96,040
2017	7	SC1C	N	32600-33599	4	131,840				4	131,840
2017	7	SC1C	N	33600-34599	6	206,441				6	206,441
2017	7	SC1C	N	34600-35599	4	139,314				4	139,314
2017	7	SC1C	N	35600-36599	3	108,288				3	108,288
2017	7	SC1C	N	36600-37599	3	110,189				3	110,189
2017	7	SC1C	N	37600-38599	3	114,400				3	114,400
2017	7	SC1C	N	38600-39599	3	116,393				3	116,393
2017	7	SC1C	N	39600-40599	2	80,754				2	80,754
2017	7	SC1C	N	40600-41599	2	82,422				2	82,422
2017	7	SC1C	N	41600-42599	2	83,720				2	83,720
2017	7	SC1C	N	42600-43599	4	172,681				4	172,681
2017	7	SC1C	N	43600-44599	3	132,428				3	132,428
2017	7	SC1C	N	44600-45599	2	90,520				2	90,520
2017	7	SC1C	N	45600-46599	3	137,640				3	137,640
2017	7	SC1C	N	46600-47599	2	94,520				2	94,520
2017	7	SC1C	N	47600-48599	4	192,445				4	192,445
2017	7	SC1C	N	49600-50599	1	50,000				1	50,000
2017	7	SC1C	N	50600-51599	2	102,320				2	102,320
2017	7	SC1C	N	51600-52599	1	51,680				1	51,680
2017	7	SC1C	N	53600-54599	3	162,297				3	162,297
2017	7	SC1C	N	55600-56599	2	112,560				2	112,560
2017	7	SC1C	N	56600-57599	2	114,595				2	114,595
2017	7	SC1C	N	57600-58599	2	116,440				2	116,440
2017	7	SC1C	N	59600-60599	1	59,700				1	59,700
2017	7	SC1C	N	60600-61599	1	61,360				1	61,360
2017	7	SC1C	N	61600-62599	1	62,560				1	62,560
2017	7	SC1C	N	62600-63599	2	126,566				2	126,566
2017	7	SC1C	N	63600-64599	1	64,480				1	64,480

Service Class 1C (SC1C)  
Customer Accounts and Usage by Block  
July 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 14 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Non-Low Income Customers by Block				Low Income Customers by Block			Total Customers	
			LOW INCOME IDENTIFIER	CONSUMPTION BLOCK	NUMBER OF ACCTS	TOTAL KWH	LOW INCOME IDENTIFIER	NUMBER OF ACCTS	TOTAL KWH	NUMBER OF ACCTS	TOTAL KWH
2017	7	SC1C	N	64600-65599	2	130,520				2	130,520
2017	7	SC1C	N	67600-68599	1	68,400				1	68,400
2017	7	SC1C	N	69600-70599	3	210,320				3	210,320
2017	7	SC1C	N	70600-71599	1	71,440				1	71,440
2017	7	SC1C	N	72600-73599	1	73,554				1	73,554
2017	7	SC1C	N	73600-74599	1	74,550				1	74,550
2017	7	SC1C	N	75600-76599	1	76,480				1	76,480
2017	7	SC1C	N	78600-79599	1	79,240				1	79,240
2017	7	SC1C	N	79600-80599	1	80,560				1	80,560
2017	7	SC1C	N	80600-81599	1	80,880				1	80,880
2017	7	SC1C	N	83600-84599	1	84,480				1	84,480
2017	7	SC1C	N	84600-85599	1	85,280				1	85,280
2017	7	SC1C	N	85600-86599	1	86,537				1	86,537
2017	7	SC1C	N	87600-88599	2	176,560				2	176,560
2017	7	SC1C	N	89600-90599	1	90,480				1	90,480
2017	7	SC1C	N	90600-91599	1	90,880				1	90,880
2017	7	SC1C	N	92600-93599	1	93,120				1	93,120
2017	7	SC1C	N	94600-95599	1	95,440				1	95,440
2017	7	SC1C	N	96600-97599	2	194,357				2	194,357
2017	7	SC1C	N	98600-99599	2	197,360				2	197,360
2017	7	SC1C	N	99600-100599	1	100,500				1	100,500
2017	7	SC1C	N	100600-101599	1	100,800				1	100,800
2017	7	SC1C	N	102600-103599	2	205,760				2	205,760
2017	7	SC1C	N	104600-105599	1	105,200				1	105,200
2017	7	SC1C	N	105600-106599	1	106,200				1	106,200
2017	7	SC1C	N	110600-111599	1	111,440				1	111,440
2017	7	SC1C	N	112600-113599	1	112,960				1	112,960
2017	7	SC1C	N	>= 115600	15	2,824,630				15	2,824,630
					5,455	27,351,748				39	38,971
										5,494	27,390,719

Service Class 2 (SC2)  
Customer Accounts and Usage by Block  
January 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 15 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Total Customers by Block			
			LOW INCOME IDENTIFIER	CONSUMPTI ON BLOCK	NUMBER OF ACCTS	TOTAL KWH
2017		1 SC2	N	0-99	27428	816,123
2017		1 SC2	N	100-199	12580	1,866,793
2017		1 SC2	N	200-299	10167	2,524,531
2017		1 SC2	N	300-399	8963	3,127,140
2017		1 SC2	N	400-499	7877	3,529,483
2017		1 SC2	N	500-599	6304	3,453,080
2017		1 SC2	N	600-699	4921	3,186,171
2017		1 SC2	N	700-799	4226	3,161,695
2017		1 SC2	N	800-899	3660	3,104,014
2017		1 SC2	N	900-999	3244	3,079,783
2017		1 SC2	N	1000-1099	2859	2,998,117
2017		1 SC2	N	1100-1199	2658	3,051,793
2017		1 SC2	N	1200-1299	2314	2,887,484
2017		1 SC2	N	1300-1399	1920	2,586,755
2017		1 SC2	N	1400-1499	1732	2,509,103
2017		1 SC2	N	1500-1599	1452	2,248,161
2017		1 SC2	N	1600-1699	1276	2,102,224
2017		1 SC2	N	1700-1799	1072	1,873,424
2017		1 SC2	N	1800-1899	848	1,566,081
2017		1 SC2	N	1900-1999	712	1,385,598
2017		1 SC2	N	2000-2099	524	1,072,229
2017		1 SC2	N	2100-2199	421	904,457
2017		1 SC2	N	2200-2299	341	766,170
2017		1 SC2	N	2300-2399	287	672,400
2017		1 SC2	N	2400-2499	220	538,721
2017		1 SC2	N	2500-2599	179	456,326

Service Class 2 (SC2)  
Customer Accounts and Usage by Block  
January 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 16 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Total Customers by Block			
			LOW INCOME IDENTIFIER	CONSUMPTI ON BLOCK	NUMBER OF ACCTS	TOTAL KWH
2017		1 SC2	N	2600-2699	161	425,743
2017		1 SC2	N	2700-2799	115	316,235
2017		1 SC2	N	2800-2899	94	267,089
2017		1 SC2	N	2900-2999	80	236,160
2017		1 SC2	N	3000-3099	73	222,670
2017		1 SC2	N	3100-3199	60	188,126
2017		1 SC2	N	3200-3299	71	231,015
2017		1 SC2	N	3300-3399	52	174,037
2017		1 SC2	N	3400-3499	39	134,255
2017		1 SC2	N	3500-3599	35	124,370
2017		1 SC2	N	3600-3699	27	98,477
2017		1 SC2	N	3700-3799	32	119,860
2017		1 SC2	N	3800-3899	30	115,494
2017		1 SC2	N	3900-3999	29	114,445
2017		1 SC2	N	4000-4099	26	105,076
2017		1 SC2	N	4100-4199	28	116,065
2017		1 SC2	N	4200-4299	21	89,100
2017		1 SC2	N	4300-4399	14	60,710
2017		1 SC2	N	4400-4499	10	44,337
2017		1 SC2	N	4500-4599	10	45,532
2017		1 SC2	N	4600-4699	14	65,217
2017		1 SC2	N	4700-4799	14	66,254
2017		1 SC2	N	4800-4899	4	19,380
2017		1 SC2	N	4900-4999	10	49,325
2017		1 SC2	N	5000-5099	10	50,436
2017		1 SC2	N	5100-5199	7	35,962

Service Class 2 (SC2)  
Customer Accounts and Usage by Block  
January 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 17 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Total Customers by Block			
			LOW INCOME IDENTIFIER	CONSUMPTI ON BLOCK	NUMBER OF ACCTS	TOTAL KWH
2017		1 SC2	N	5200-5299	11	57,791
2017		1 SC2	N	5300-5399	5	26,653
2017		1 SC2	N	5400-5499	6	32,642
2017		1 SC2	N	5500-5599	7	38,779
2017		1 SC2	N	5600-6599	55	330,526
2017		1 SC2	N	6600-7599	38	265,860
2017		1 SC2	N	7600-8599	16	130,426
2017		1 SC2	N	8600-9599	24	221,010
2017		1 SC2	N	9600-10599	15	149,389
2017		1 SC2	N	10600-11599	12	131,351
2017		1 SC2	N	11600-12599	11	132,467
2017		1 SC2	N	12600-13599	9	118,089
2017		1 SC2	N	13600-14599	6	84,704
2017		1 SC2	N	14600-15599	1	15,080
2017		1 SC2	N	16600-17599	4	67,951
2017		1 SC2	N	17600-18599	2	36,018
2017		1 SC2	N	18600-19599	3	57,280
2017		1 SC2	N	20600-21599	2	42,575
2017		1 SC2	N	21600-22599	1	21,840
2017		1 SC2	N	22600-23599	2	46,903
2017		1 SC2	N	25600-26599	1	26,275
2017		1 SC2	N	26600-27599	1	26,600
2017		1 SC2	N	28600-29599	1	28,640
2017		1 SC2	N	29600-30599	1	30,400
2017		1 SC2	N	30600-31599	3	93,680
2017		1 SC2	N	31600-32599	1	31,920



Service Class 2 (SC2)  
Customer Accounts and Usage by Block  
January 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 18 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Total Customers by Block			
			LOW INCOME IDENTIFIER	CONSUMPTI ON BLOCK	NUMBER OF ACCTS	TOTAL KWH
2017		1 SC2	N	42600-43599	1	43,040
2017		1 SC2	N	43600-44599	1	43,920
2017		1 SC2	N	50600-51599	1	50,880
2017		1 SC2	N	73600-74599	1	73,849
2017		1 SC2	N	>= 115600	1	999,990
					109,494	62,439,754

Service Class 2 (SC2)  
Customer Accounts and Usage by Block  
July 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 19 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Total Customers by Block			
			LOW INCOME IDENTIFIER	CONSUMPTI ON BLOCK	NUMBER OF ACCTS	TOTAL KWH
2017		7 SC2	N	0-99	33065	1,084,849
2017		7 SC2	N	100-199	14439	2,126,554
2017		7 SC2	N	200-299	11150	2,757,613
2017		7 SC2	N	300-399	9345	3,252,055
2017		7 SC2	N	400-499	7695	3,440,475
2017		7 SC2	N	500-599	5752	3,147,118
2017		7 SC2	N	600-699	4486	2,903,089
2017		7 SC2	N	700-799	3565	2,663,995
2017		7 SC2	N	800-899	3077	2,607,545
2017		7 SC2	N	900-999	2585	2,450,449
2017		7 SC2	N	1000-1099	2321	2,432,515
2017		7 SC2	N	1100-1199	1968	2,258,933
2017		7 SC2	N	1200-1299	1784	2,225,605
2017		7 SC2	N	1300-1399	1568	2,113,702
2017		7 SC2	N	1400-1499	1354	1,960,316
2017		7 SC2	N	1500-1599	1169	1,809,658
2017		7 SC2	N	1600-1699	966	1,592,552
2017		7 SC2	N	1700-1799	756	1,321,519
2017		7 SC2	N	1800-1899	623	1,150,737
2017		7 SC2	N	1900-1999	496	966,921
2017		7 SC2	N	2000-2099	427	873,562
2017		7 SC2	N	2100-2199	300	643,987
2017		7 SC2	N	2200-2299	225	504,990
2017		7 SC2	N	2300-2399	184	431,710
2017		7 SC2	N	2400-2499	149	364,166
2017		7 SC2	N	2500-2599	118	300,760
2017		7 SC2	N	2600-2699	98	259,918

Service Class 2 (SC2)  
Customer Accounts and Usage by Block  
July 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 20 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Total Customers by Block			
			LOW INCOME IDENTIFIER	CONSUMPTI ON BLOCK	NUMBER OF ACCTS	TOTAL KWH
2017		7 SC2	N	2700-2799	75	205,872
2017		7 SC2	N	2800-2899	72	204,779
2017		7 SC2	N	2900-2999	45	132,522
2017		7 SC2	N	3000-3099	42	127,823
2017		7 SC2	N	3100-3199	37	116,414
2017		7 SC2	N	3200-3299	34	110,507
2017		7 SC2	N	3300-3399	27	90,483
2017		7 SC2	N	3400-3499	20	69,015
2017		7 SC2	N	3500-3599	23	81,651
2017		7 SC2	N	3600-3699	21	76,551
2017		7 SC2	N	3700-3799	20	74,824
2017		7 SC2	N	3800-3899	21	80,653
2017		7 SC2	N	3900-3999	11	43,430
2017		7 SC2	N	4000-4099	18	72,696
2017		7 SC2	N	4100-4199	9	37,438
2017		7 SC2	N	4200-4299	7	29,741
2017		7 SC2	N	4300-4399	8	34,563
2017		7 SC2	N	4400-4499	13	57,923
2017		7 SC2	N	4500-4599	4	18,258
2017		7 SC2	N	4600-4699	13	60,541
2017		7 SC2	N	4700-4799	7	33,219
2017		7 SC2	N	4800-4899	8	38,679
2017		7 SC2	N	4900-4999	5	24,704
2017		7 SC2	N	5000-5099	8	40,397
2017		7 SC2	N	5100-5199	4	20,481
2017		7 SC2	N	5200-5299	7	36,704
2017		7 SC2	N	5300-5399	6	32,173

Service Class 2 (SC2)  
Customer Accounts and Usage by Block  
July 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 21 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Total Customers by Block			
			LOW INCOME IDENTIFIER	CONSUMPTI ON BLOCK	NUMBER OF ACCTS	TOTAL KWH
2017		7 SC2	N	5400-5499	4	21,756
2017		7 SC2	N	5500-5599	1	5,513
2017		7 SC2	N	5600-6599	33	201,930
2017		7 SC2	N	6600-7599	28	198,561
2017		7 SC2	N	7600-8599	19	153,215
2017		7 SC2	N	8600-9599	5	45,535
2017		7 SC2	N	9600-10599	3	30,262
2017		7 SC2	N	10600-11599	8	88,382
2017		7 SC2	N	11600-12599	6	71,988
2017		7 SC2	N	12600-13599	2	26,584
2017		7 SC2	N	13600-14599	2	28,652
2017		7 SC2	N	14600-15599	1	15,456
2017		7 SC2	N	15600-16599	3	48,219
2017		7 SC2	N	16600-17599	4	68,819
2017		7 SC2	N	17600-18599	2	35,702
2017		7 SC2	N	21600-22599	2	44,880
2017		7 SC2	N	24600-25599	1	25,350
2017		7 SC2	N	28600-29599	1	28,720
2017		7 SC2	N	35600-36599	1	35,747
2017		7 SC2	N	37600-38599	1	37,920
2017		7 SC2	N	42600-43599	1	43,360
2017		7 SC2	N	43600-44599	1	44,480
2017		7 SC2	N	45600-46599	1	46,160
2017		7 SC2	N	49600-50599	1	50,018
2017		7 SC2	N	51600-52599	1	51,640
2017		7 SC2	N	52600-53599	1	52,640
2017		7 SC2	N	58600-59599	1	59,440

Service Class 2 (SC2)  
Customer Accounts and Usage by Block  
July 2017

Niagara Mohawk Power Corporation  
d/b/a National Grid  
Matter 17-01277  
Attachment 1 to UIU-1-17  
Page 22 of 22

REVENUE YEAR	REVENUE MONTH	SERVICE CLASS	Total Customers by Block			
			LOW INCOME IDENTIFIER	CONSUMPTI ON BLOCK	NUMBER OF ACCTS	TOTAL KWH
2017		7 SC2	N	65600-66599	1	65,920
2017		7 SC2	N	77600-78599	1	77,923
2017		7 SC2	N	88600-89599	1	88,703
					110,367	51,390,809

Date of Request: March 12, 2018  
Due Date: March 28, 2018

Informal Request No. UIU-1-18  
Page 1 of 1

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request for Information

FROM: Utility Intervention Unit, Kathleen O'Hare

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Request:

18. Approximately how many residential heating and non-heating customers are currently in the Company's service territory that are (1) multifamily and (2) single family? Does the Company currently have the ability to extrapolate this information from its CIS system?

Response:

18. Please see below which was provided in Cases 17-E-0238 *et al.*, *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*, Information Request number UIU-1 KOH-24 (submitted May 8, 2017).

Type of customers	Number of Customers Single Family	Number of Customers Multifamily
Electric Residential Heating	96,687	60,799
Electric Residential Non-heating	1,011,075	291,468
Gas Residential Heating	402,447	125,869
Gas Residential Non-Heating	8,884	18,292

Name of Respondent:  
Michael Duschen

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-1-1  
NMPC Req. No. NMINF-1

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – General

Request:

1. Does the Company assert that economic efficiency is enhanced on a Company or societal basis when fixed costs are recovered using fixed charges? Is yes, please provide citations to any authorities that support this assertion. Please explain how the Company reflects its position in its cost of service approaches.

Response:

1. Economic efficiency is enhanced when utility rates accurately reflect customer-related fixed costs in the customer charge, demand-related costs in the demand charge, and volumetric kWh-related costs in a kWh charge.

This is recognized in the National Association of Regulatory Utility Commissioners (“NARUC”) *Distributed Energy Resources Rate Design and Compensation Manual* (November 2016) which states:

There are many costs associated with a customer being connected to the grid, as well as benefits to the customer. Particularly to the extent that costs are recovered through volumetric rates, a DER customer may not be paying for all such costs. These costs would then be paid for by other customers, to the benefit of DER customers. (p. 82)

The need for economic efficiency in utility rates is also emphasized by Department of Public Service Staff in its July 28, 2015 Staff White Paper on Ratemaking and Utility Business Models in Case 14-M-0101, which states:

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-1-1  
NMPC Req. No. NMINF-1

Efficient price signals and transparency are hallmarks of a successful market. Rate design and compensation mechanisms that accomplish these will help to optimize the investment in and use of DER, thereby reducing total system costs and customer bills, not only for customers with DERs. Conversely, rates that are bundled and mask the underlying costs of service will not facilitate efficient decisions. (p. 81)

Additionally, Chapter 16, Criteria of a Sound Rate Structure, of *Principles of Public Utility Rates* by James C. Bonbright (published in 1961), provides discussion that supports this assertion. Bonbright discusses various principles of rate design, including that an objective of reasonable public utility rates should be:

The optimum-use or consumer-rationing objective, under which the rates are designed to discourage the wasteful use of public utility services while promoting all use that is economically justified in view of the relationships between costs incurred and benefits received. (p. 292)

Bonbright follows by writing “without doubt the most widely accepted measure of reasonable public utility rates and rate relationships is cost of service” (p. 294). He goes on to describe a hypothetical example of the evolution of increased sophistication in rate structures for an electrical utility in order to better reflect cost of service. Bonbright begins with a simplistic rate that only charges a uniform rate per kilowatt-hour. He states the problem with this rate is that “in treating the total cost of the business as if it varied directly with the changes in the kilowatt-hour output of energy – a grossly false assumption – it violates the most widely accepted canon of fair pricing, the principle of service at cost.” (p. 307). His hypothetical evolution of increasing rate sophistication goes on to introduce a customer charge because a two-part rate based only upon energy and demand “overlooks the fact that a material part of the operating and capital costs of a utility business is more directly and more closely related to the number of customers than to the energy consumption on the one hand or maximum kilowatt demand on the other hand. The most obvious examples of these so-called customer costs are the expenses associated with metering and billing.” (p. 311)

The Company’s position is reflected in its cost-of-service ratemaking approaches by classifying any costs associated with the presence of customers on the electric delivery system as customer-related and by moving customer charges closer to such customer-related costs.

Name of Respondent:  
Lauri Mancinelli

Date of Reply:  
March 28, 2018



Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-1-2  
NMPC Req. No. NMINF-2

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – General

Request:

2. Please provide spreadsheets and data associated with the presentation to the VDER meeting on March 6, 2018.

Response:

2. Please see Consolidated Edison's response to Pace informal Information Request Number JRP-1-2, which includes the detail for all of the utilities.

Name of Respondent:  
Carol Teixeira

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-1-3  
NMPC Req. No. NMINF-3

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – General

Request:

3. Please provide spreadsheets for all data associated with the cost of service and rate design for all current mass market customer rates.

Response:

3. This question is unduly burdensome and irrelevant because it does not contribute to the Commission's goal of establishing a net energy metering ("NEM") successor for mass market customers by December 31, 2018.

Name of Respondent:  
Howard Gorman

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-2-1  
NMPC Req. No. NMINF-4

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Request for Information

FROM: Pace Energy and Climate Center, Radina Valova

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Marginal Cost Recovery

Request:

1. Does the Company assert that its current mass market rates do or do not collect marginal costs for serving customers in the mass market classes? Please explain and provide documentation, including the marginal costs for each rate component of service and for each mass market rate classification.

Response:

1. The Company asserts that current rates to all rate classifications, including mass market rate classifications, recover the revenue requirement as determined in the Joint Proposal in its most recent rate case proceeding, Cases 17-E-0238 *et al.*, *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*. That revenue requirement was based on embedded costs in accordance with the Company's embedded cost of service ("ECOS") and Commission-approved revenue allocation and rate design principles and precedents.

Concerning the request for documentation in support of the Company's assertion that current rates recover the embedded cost to serve (and not the marginal cost to serve) customers in each rate classification, this request is unduly burdensome, and not directly related to the goal of establishing a net energy metering ("NEM") successor for mass market customers by December 31, 2018.

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-2-1  
NMPC Req. No. NMINF-4

However, the Company has submitted a marginal cost study in connection with its recent rate case, Cases 17-E-0238 *et al.*, *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*.

Name of Respondent:  
Howard Gorman

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-2-2  
NMPC Req. No. NMINF-5

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Marginal Cost Recovery

Request:

2. Please provide an explanation of the sources of marginal costs recovered in mass market rates.

Response:

2. The Company's rates are designed to recover its embedded cost to serve customers as submitted in each proceeding. The Company submitted a marginal cost study in connection with its recent rate case, Cases 17-E-0238 *et al.*, *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*; see the Company's response to JRP-2.1 in regard to marginal costs informing rate design.

Name of Respondent:  
Howard Gorman

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-3-1  
NMPC Req. No. NMINF-6

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01277

In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding Rate Design – Marginal Cost Recovery

Request:

1. Please provide a detailed explanation of the cost of service methodology used by the Company in establishing mass market rates.

Response:

1. The Company has explained its cost of service methodology used in establishing mass market rates in its Electric Rate Panel Testimony in its most recent rate case, Cases 17-E-0238 *et al.*, *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*. This testimony is provided in Attachment 1 and the cost of service methodology is described in Section IV.

In addition, please refer to the March 6, 2018 Joint Utilities' presentation to the VDER Rate Design Working Group.

Name of Respondent:  
Carol Teixeira

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-3-2  
NMPC Req. No. NMINF-7

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Marginal Cost Recovery

Request:

2. Please describe and numerically display the methodologies used for determining the classification and functionalization of costs in the cost of service study.

Response:

2. Please refer to the presentation on March 6, 2018 by the Joint Utilities entitled “VDER Rate Design Working Group Joint Utilities Presentations: ECOS Analysis.”

Name of Respondent:  
Howard Gorman

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-3-3  
NMPC Req. No. NMINF-8

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Marginal Cost Recovery

Request:

3. Please explain why the Company is using the methodology or methodologies that it is currently uses for each aspect of the ECOSS that the Company uses.

Response:

3. The request is not relevant to the goal of establishing a net energy metering (“NEM”) successor for mass market customers by December 31, 2018. Notwithstanding, the Company developed its most-recent embedded cost of service (“ECOS”) study in accordance with prior practice and Commission precedent. Please refer to the March 6, 2018 Joint Utilities’ presentation.

Name of Respondent:  
Howard Gorman

Date of Reply:  
March 28, 2018



Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-3-4  
NMPC Req. No. NMINF-9

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case No. 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter No. 17-01277 – In the Matter of the Value of Distributed Energy Resources Working  
Group Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Marginal Cost Recovery

Request:

4. If the Company uses any form of minimum system, zero-intercept, zero-load, or other similar methodology, please provide a detailed description of the method. Please provide any citations or authorities supporting the selected method, and the reason for rejecting alternative methods.

Response:

In its most recent rate case, Case 17-E-0238 *et al.*, *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*, the Company used a zero-load study to determine the customer-related portion of certain costs. The zero-load study is described in the Testimony of the Electric Rate Design Panel, and is presented in Exhibit \_\_\_\_ (E-EDP-3), Schedule 9C. Identification of a customer component of the distribution system is supported by the National Association of Regulatory Utility Commissioners (“NARUC”), among other authorities, and is accepted in New York State.

Name of Respondent:  
Howard Gorman

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-3-5  
NMPC Req No. NMINF-10

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Marginal Cost Recovery

Request:

5. Please provide a detailed list of the types and levels of costs that are: (1) included in costs that are classified as customer costs, (2) included in demand-related costs, and (3) included in energy-related costs in the cost of service study.

Response:

5. Please refer to the presentation on March 6, 2018 by the Joint Utilities entitled “VDER Rate Design Working Group Joint Utilities Presentations: ECOS Analysis,” Slide 16, as well as the Company’s response to Pace JRP 1-2.

Name of Respondent:  
Howard Gorman

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-3-6  
NMPC Req. No. NMINF-11

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Marginal Cost Recovery

Request:

6. Please describe the Company's preferred cost of service methodologies. Please explain how the methods currently in use differ from the preferred approach. Please detail the cost and rate consequences of any deviation between the preferred method and the currently used methods. Please detail the Company's plans to change the methodologies that it currently uses in future rate proceedings.

Response:

6. The Company's preferred embedded cost of service methodology is the three-step methodology that it used in its most recent case, Cases 17-E-0238 *et al.*, *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*. The methodology is described in the Testimony of the Electric Rate Design Panel.

Name of Respondent:  
Howard Gorman

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-3-7  
NMPC Req. No. NMINF-12

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Marginal Cost Recovery

Request:

7. Please detail the actual incremental costs the Company incurs to connect a new customer or initiate new customer service in each mass market rate class.

Response:

7. The Company asserts that this request is not directly related to the goal of establishing a net energy metering (“NEM”) successor for mass market customers by December 31, 2018. Specifically, “the actual incremental costs the Company incurs to ... initiate new customer service in each mass market rate class” has no relevance in the determination of customer charges to mass market service classes that reflect the Commission’s cost causation rate design principle.

However, the Company submitted a marginal cost study in connection with its recent rate case, Cases 17-E-0238 et al., *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*, with class-specific marginal costs.

Name of Respondent:  
Howard Gorman

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-3-8  
NMPC Req. No. NMINF-13

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Marginal Cost Recovery

Request:

8. Please detail the costs that the Company would allocate to the customer cost category if the Company used a “Basic Customer Cost” methodology.

Response:

8. The Company does not understand the meaning of the methodology characterized as “Basic Customer Cost” and as such is unable to respond to this request.

Name of Respondent:  
Howard Gorman

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-4-1  
NMPC Req. No. NMINF-14

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Cost Allocation

Request:

1. Please explain what cost allocation methods (i.e., coincident or non-coincident peak, and number of peak hours, months per year) the Company uses for each of the cost components of mass market rates. Please explain how these allocation methods operate to determine the revenue requirement associated with each component of each mass market rate. For example, if Cost “A” is allocated according to class NCP, please show the basis for calculating the class NCP, the costs to be allocated and their source, the calculations applying the allocator to the costs, and the resulting addition to the class revenue requirement.) Please provide electronic (Excel) tables with formulas intact for this information.

Response:

1. The requested information concerning allocation methods is provided in the Joint Utilities’ March 6, 2018 presentation, slide 16. This information has also been provided in Excel spreadsheets in Consolidated Edison’s response to Pace informal Information Request No. JRP-1-2.

Please see the testimony in the Company’s latest rate case, Cases 17-E-0238 *et al.*, *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*, for detailed information on the allocation approaches and results from the Company’s most recent filed embedded cost of service (“ECOS”). It is described in the Testimony of the Electric Rate Design Panel, and the calculations are presented in Exhibit\_\_\_(E-RDP-3).

Name of Respondent:  
Howard Gorman

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-4-2  
NMPC Req. No. NMINF-15

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Cost Allocation

Request:

2. Please provide a detailed explanation and citations to authorities for each cost allocation method used in the Company's mass market rates. Please explain how these authorities support the use of the particular allocation method for that cost or category of costs.

Response:

2. The Company asserts that this request is unduly burdensome and not directly related to the goal of establishing a net energy metering ("NEM") successor for mass market customers by December 31, 2018.

Nevertheless, the three-step embedded cost allocation methodology used by the Company is supported by the National Association of Regulatory Utility Commissioners ("NARUC"), among other authorities, and is accepted in New York State.

Name of Respondent:  
Howard Gorman

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-5-1  
NMPC Req. No. NMINF-16

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Rate Design

Request:

1. Does the Company agree with the content of the Brattle Group presentation that was discussed in the March 6, 2018 meeting? If there are any aspects of the presentation that the Company does not agree with, please identify them.

Response:

1. National Grid generally agrees with the content of The Brattle Group's March 6, 2018 presentation, "Rate Design for DER Customers in New York." The Company especially agrees with the overall focus of the presentation, which is summarized on slide 8, quoting James Bonbright from Principles of Public Utility Rates, where "one standard of reasonable rates can fairly be said to outrank all others in the importance attached to it by experts and public opinion alike – the standard of cost of service."

Name of Respondent:  
Lauri Mancinelli

Date of Reply:  
March 28, 2018



Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-5-2  
NMPC Req. No. NMINF-17

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Rate Design

Request:

2. Does the Company agree with the statement of Dr. Faruqui that all policy matters (such as low income customer support or incentives for DG systems) should be excluded from rate design considerations? Would the Company support policy changes such as an increased and permanent ITC for solar and “e-stamps” to help reduce the energy burden on low income customers if these aspects were removed from rate design?

Response:

2. National Grid asserts that this Information Request is not relevant to the goal of establishing a net energy metering (“NEM”) successor for mass market customers by December 31, 2018.

Notwithstanding the Company’s assertion that this Information Request is not relevant, the Company believes that it is Dr. Faruqui’s position that electric rates should be determined in a manner that reflects the costs to provide service.

Name of Respondent:  
Lauri Mancinelli

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-5-3  
NMPC Req. No. NMINF-18

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Rate Design

Request:

3. If the Company proposes a rate design that generally conforms with the Brattle Group recommendations (i.e. a three-part rate for mass-market customers), please describe the following aspects of the rate design:
- What costs (e.g. primary distribution, secondary distribution, transformers, etc) will be recovered through the demand charge?
  - Will demand be measured based on NCP or CP? If based on CP, will it be based on the system (ISO) CP, the utility-specific CP, the zonal CP, the class CP, or some other measure?
  - What is the duration of the demand interval that would be used (i.e. 15 minute, 60 minute, etc)?
  - Will there be any time of use demand charges? If so, what will be the methodology for determining the peak seasons/days/hours?
  - For customers served by the Company under a standard offer service tariff, will any of the supply costs be recovered through demand charges? If so, please describe the demand rate structure for supply costs and whether it differs from the demand rate structure for T&D costs.

Response:

3. National Grid cannot respond to the question at this time as it is premature. Rate design proposals are currently scheduled to be submitted on May 14, 2018 and the Company expects to provide a presentation on its rate design proposal on May 24, 2018.

Name of Respondent:  
Lauri Mancinelli

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-5-4  
NMPC Req. No. NMINF-19

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Rate Design

Request:

4. If a customer whose previous highest individual peak demand was 10 kW hits a new highest individual monthly peak demand of 12 kW at a time when neither the system nor the class is peaking, what equipment must be added to serve this incremental peak demand? If no equipment must be added, what are the incremental costs associated with serving the additional 2 kW of customer peak demand?

Response:

4. This question does not include sufficient information to determine if any equipment must be added to serve the hypothetical incremental peak demand.

The Company also asserts that this Information Request is not relevant to the goal of establishing a net energy metering (“NEM”) successor for mass market customers by December 31, 2018. Specifically, the cost of additional equipment that may or may not be required if one mass market customer increases peak demand by 2 kW is not relevant to cost-based ratemaking. Rather, cost-based ratemaking for a service classification should be informed by the combined effect of all customers in the service classification on the utilization of the Company’s transmission and distribution systems.

The Company’s current cost-based rates provide price signals related to the use of a utility’s current transmission and distribution assets. A customer who increases demand from 10 kW to 12 kW is using the capacity-related components of the system and pays according to the current application of the Commission’s rate making principle of cost causation.

Name of Respondent:  
Howard Gorman

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-5-5  
NMPC Req. No. NMINF-20

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Rate Design

Request:

5. What steps would the Company take to educate mass-market customers that would be subject to the three-part rate?

Response:

5. The Company cannot respond to the question at this time as it is premature. The approach to outreach must be coordinated with the recommended rate design approach which will not be submitted until May 14, 2018.

Name of Respondent:  
Lauri Mancinelli

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-5-6  
NMPC Req. No. NMINF-21

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova  
TO: Niagara Mohawk Power Corporation d/b/a National Grid  
SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Rate Design

Request:

6. Does the Company believe that pilots or actions described on page 45 of the Brattle presentation should be performed before implementing mass-market three-part rates for NEM customers on January 1, 2020? Does the Company believe that there is sufficient time to design, implement, and learn from these pilots by January 1, 2020?

Response:

6. The Company does not believe that it is necessary to perform pilots before implementing three-part rates for net energy metering (“NEM”) mass market customers on January 1, 2020. The Company will be guided by the experience and learnings from other jurisdictions and utilities that have implemented demand charges for mass market customers.

Name of Respondent:  
Lauri Mancinelli

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-5-7  
NMPC Req. No. NMINF-22

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Rate Design

Request:

7. Slide 42 of the Brattle presentation shows that energy usage for medium and large customers increased by 0.8% and 2.1%, respectively, under the residential demand charge tariff compared to the flat rate. Does this increase in energy usage from this rate design concern the Company?

Response:

7. The increase in energy usage that is shown on Slide 42 of the Brattle presentation is not concerning for the Company. The information presented by Brattle on Slide 42 is hypothetical, based on the assumed load profiles (shown on Slide 41) for Customers A (small but peaky), B (average customer), and C (large and less peaky), and the hypothetical “current,” “time-of-use (“TOU”),” and “Residential Demand” rates. The customer responses to the Brattle hypothetical TOU and demand rates that are summarized on Slide 42 are specific to the hypothetical load profiles and rates that were used in Brattle’s example and are not indicative of the way that any group of actual customers would respond to any set of actual rate designs.

In addition, based on rate design principles, rate designs should empower economic decisions. It is an appropriate customer response to the introduction of properly-designed price signals with a demand charge that at least some customers would increase total usage. For example, a residential customer that could switch from the “Current” to the “Residential Demand” rates on Slide 41 may respond by acquiring an electric vehicle (“EV”) that they charged at home during off-peak hours, when the EV charging would not affect the (on-peak) demand charge. This customer’s total usage would likely increase due to the EV charging that may be considered beneficial to society, however, this customer’s on-peak demand would likely decrease, in response to the on-peak demand charge.

Name of Respondent:  
Lauri Mancinelli

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. Pace JRP-5-8  
NMPC Req. No. NMINF-23

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources  
Matter 17-01277 – In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design

Informal Request for Information

FROM: Pace Energy and Climate Center, Radina Valova

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group  
Regarding Rate Design – Rate Design

Request:

8. Will each of the Companies have metering infrastructure and billing systems in place that will:
- Allow NEM customers to see the date and time of their peak usage in their monthly bill by January 1, 2020?
  - Allow all mass-market customers to see this value by January 1, 2020?
  - If the answer to either part (a) or part (b) is no, please indicate when the necessary metering and billing infrastructure will be operational for NEM and all mass-market customers to be able to receive this value on their monthly bill.

Response:

8.a. The proposed rate design will apply to new mass market net energy metering (“NEM”) successor tariff customers after January 1, 2020. Those customers will be able to see the date and time of their peak usage.

8.b. The Commission has not set a deadline that rate design changes will apply to all mass market customers by 2020. Meter infrastructure and billing system capabilities will be in place to support rate design changes for new mass market NEM successor tariff customers by January 1, 2020.

8.c. The implementation of rate design changes for all mass market customers will, as noted in Staff’s January 30, 2018 rate design instructions (pp. 3, 6), be dependent on the results of a bill impact analysis and reflect the principle of gradualism. All customers subject to rate design changes will have the necessary meters to provide this information.

Name of Respondent:  
Lauri Mancinelli

Date of Reply:  
March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01276

In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request for Information

FROM: Director of State Affairs, Northeast, SEIA, David Gahl

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request:

How do Niagara Mohawk's current MCOS methodology and assumptions differ from those proposed in the Phase I VDER proceeding?

Response:

Please refer to the Company's April 24, 2017 enhanced marginal cost work plan filing in compliance with the Commission's March 9, 2017 *Order on Net Energy Metering Transition, Phase One of Value of Distributed Energy Resources, and Related Matters* in Case 15-E-0751.

The Company is employing a new study, the Marginal Avoided Distribution Capacity ("MADC") for the Value of Distributed Energy Resources ("VDER") Phase Two in contrast to the traditional Marginal Cost of Service ("MCOS") study employed in VDER Phase One. As compared to the traditional MCOS approach, the MADC study evaluates projects over a different temporal scale, at a higher level of spatial resolution, and for the purpose for which they are intended to serve.

The traditional MCOS study and the new MADC study differ in the timing of the projects they evaluate. The traditional MCOS study uses a sample of historical projects whereas the MADC study is forward looking and examines only future projects based on available estimates.

The traditional MCOS study and the new MADC study also differ in their level of spatial granularity. The MCOS study uses a sample of projects across the Company's entire service territory whereas the MADC study aggregates projects into zones by substation.

Lastly, the MCOS and the MADC study approaches differ in the types of projects they evaluate. The MCOS study includes traditional utility work needed to connect new customers to be served by the utility as well as traditional utility upgrade work needed to meet increased demand,



Date of Request: March 13, 2018

Due Date: March 28, 2018

Informal Request No. SEIA-1-1

Page 2 of 2

whereas the MADC study only examines the latter category as the former cannot be deferred by injections from DER.

Name of Respondent:

Toby Hyde

Date of Reply:

March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01276

In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request for Information

FROM: Director of State Affairs, Northeast, SEIA, David Gahl

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request:

Regarding the load forecasts:

- a. If there are two possible traditional investment alternatives to address a projected need, how does Niagara Mohawk determine which to use in the VDER study?
- b. Does Niagara Mohawk consider different load growth scenarios? If not, why not? If so, how does Niagara Mohawk determine which load growth scenario to use in the VDER study?

Response:

- a. The Company uses engineering judgment to determine the least cost solution for its customers.
- b. The Company employs two load growth forecasts for the Marginal Avoided Distribution Capacity ("MADC") study, a top-down and bottom-up forecast, both calibrated to the 95/5 load level. Each forecast contains two scenarios: (1) no marginal DER; and (2) additional DER consistent with trends derived from customer propensity modeling. The top-down forecast is based on traditional New York Independent System Operator ("NYISO") zones. Load at each substation is scaled based on forecasted load increases within each given NYISO zone. The second forecast is an 8,760 hour forecast generated from models of customer behavior aggregated to the substation level. The MADC study considers project needs dictated by the two scenarios under both the bottom-up and top-down forecasts. These projects are then translated into compensation for DER through the Value of Distributed Energy Resources ("VDER") Value Stack Tariff.

Name of Respondent:  
Toby Hyde

Date of Reply:  
March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. SEIA-1-3  
Page 1 of 1

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Case 17-01276

In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request for Information

FROM: Director of State Affairs, Northeast, SEIA, David Gahl

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request:

Refer to Niagara Mohawk's response to SEIA's February 16, 2018 question no. 2, which states, "The Company's enhanced marginal cost study will also include calculation of amounts that would be included in an annual revenue requirement for each type of incremental investment." Please describe each of the types of investment.

Response:

The Company's enhanced marginal cost study will identify project types when it is completed. It is premature to identify project types before the study concludes.

Name of Respondent:  
Toby Hyde

Date of Reply:  
March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01276

In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request for Information

FROM: Director of State Affairs, Northeast, SEIA, David Gahl

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request:

Please describe any benefits that DERs provide to the transmission and distribution system that are not reflected in Niagara Mohawk's current MCOS model. Does Niagara Mohawk's plan to study or has Niagara Mohawk studied any of these benefits? If so, provide related studies, reports, memoranda, and workpapers.

Response:

The Company's Marginal Avoided Distribution Capacity ("MADC") study incorporates the load and peak reduction benefits that DER provide to the transmission and distribution ("T&D") system and the Company is confident that these DER benefits are comprehensive. However, should the Company identify any additional benefits to the T&D system provided by DER that are related to avoidable marginal costs in the future, the Company would engage in a further study of those benefits.

Name of Respondent:  
Toby Hyde

Date of Reply:  
March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01276

In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request for Information

FROM: Director of State Affairs, Northeast, SEIA, David Gahl

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request:

Please describe costs and risks of traditional transmission and distribution system investments that are not reflected in Niagara Mohawk's model.

a. For each cost and risk, please describe to what extent and how a) shareholders and b) ratepayers bear the cost or risk.

b. Does Niagara Mohawk plan to study or has Niagara Mohawk studied any of these costs or risks? If so, provide related studies, reports, memoranda, and workpapers.

Response:

National Grid objects to this question as vague, overbroad, and unduly burdensome; at the current time the Company does not have plans to conduct a special study. Without waiving the foregoing objection, please refer to the Company's Initial Distributed System Implementation Plan ("DSIP"), filed on June 30, 2016, in Case 14-M-0101, *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision*.

Name of Respondent:

Lauri Mancinelli

Date of Reply:

March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01276

In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request for Information

FROM: Director of State Affairs, Northeast, SEIA, David Gahl

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request:

With respect to calculating the LSRV using a ten highest usage hours approach:

a. How would Niagara Mohawk's ten highest usage hours be defined? That is, at what level of granularity?

b. If the ten highest usage hours would be calculated for Niagara Mohawk's entire service territory, rather than for specific to local areas of the service territory, how would the local areas line up with sub-regions designated in the MCOS methodology?

Response:

a. No changes to the Locational System Relief Value ("LSRV") calculation methodology have been proposed since the Company filed its Phase One Value Stack Implementation Proposal on May 1, 2017 in compliance with the Commission's March 9, 2017 *Order on Net Energy Metering Transition, Phase One of Value of Distributed Energy Resources, and Related Matters* in Case 15-E-0751.

b. The Company has not conducted such analysis because no changes have been proposed to the LSRV calculation methodology.

Name of Respondent:

Toby Hyde

Date of Reply:

March 28, 2018

Date of Request: March 13, 2018  
Due Date: March 28, 2018

Informal Request No. SEIA-1-7  
Page 1 of 1

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01276

In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request for Information

FROM: Director of State Affairs, Northeast, SEIA, David Gahl

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request:

Please explain how Niagara Mohawk currently manages its system to comply with the NYISO rule that prohibits more injections than utility default load.

Response:

The New York Independent System Operator (“NYISO”) requires the reported hourly load by zone for each load-serving entity (“LSE”) to be non-zero and will reject a negative reported value. While the Company has not yet experienced negative load hours in its service territory, the combination of energy injections from distributed energy resources (“DER”) and retail choice migration could result in negative load hours at a future point.

Name of Respondent:  
Lauri Mancinelli

Date of Reply:  
March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01276

In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request for Information

FROM: Director of State Affairs, Northeast, SEIA, David Gahl

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request:

Please explain how existing DERs are incorporated into MCOS studies and capital improvement plan projections. a. Are existing DERs assumed to remain in service in perpetuity?

b. What capacity factor assumptions are used for in-service DERs?

c. Are future deployments of DERs taken into account when forecasting system load?

d. How is degradation in existing DER generation over time taken into account?

e. Are DERs modeled separately based on technology, location, or any other factor?

f. Do existing DERs reduce projected load that is used as an input to MCOS studies and capital improvement plan projections? Are existing DERs included in the baseline when calculating projected changes in load?

Response:

For the purposes of compensation for Distributed Energy Resources ("DER") compensation in the Value of Distributed Energy Resources ("VDER") proceeding, the enhanced MCOS, which is the Company's Marginal Avoided Distribution Capacity ("MADC") study, is the relevant study, not the Company's capital improvement plan. Answers to the above questions are in the context of the MADC study.

The Company has updated its forecast methodologies consistent with the path envisioned in Chapter 4, Section a.i.4, of the Company's initial Distributed System Implementation Plan ("DSIP"), filed June 30, 2016 in Case 14-M-0101, *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision*.

a. The MADC study is strictly forward looking and uses 2017 as a base year. All DER installed as of the 2017 peak load are incorporated into the ten-year study. DER in place as of



the 2017 peak, and which appear in the MADC through their impact on load, are assumed to remain in place for the duration of the study.

- b. Capacity factors for existing DER are reflected in their impact on peak load in the base year, 2017.
- c. Yes, future deployments of DERs taken into account when forecasting system load. The MADC study employs two base forecasts, a top-down and a bottom-up forecast, both of which cover two scenarios: the first with, and the second without, marginal DER to the base year.
- d. The Company did not degrade existing DER in the ten-year MADC study.
- e. Yes, existing DER are modeled based on their impact on local net load.
- f. Existing DER are included in the baseline forecasts based on their impact on the base year load.

Name of Respondent:

Toby Hyde

Date of Reply:

March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01276

In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request for Information

FROM: Director of State Affairs, Northeast, SEIA, David Gahl

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request:

Do MCOS studies incorporate the potential for vehicle and heating electrification?

- a. If so, how do such studies incorporate projections for electrification?
- b. If not, why not?

Response:

As discussed in Chapter 4 of the Company's initial Distributed System Implementation Plan ("DSIP") filed on June 30, 2016 in Case 14-M-0101, *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision*, forecasts which inform the Company's enhanced Marginal Cost of Service ("MCOS") study or Marginal Avoided Distribution Capacity ("MADC") study include electric vehicle ("EV") load. Similarly, the forecasts employed for the MADC study span a range that covers the potential impact of heating electrification over the study period.

The Company has performed separate analyses of forecasted EV adoption and found that those forecasts were covered by the scenario range of the top-down and bottom-up forecasts used for the MADC study.

Name of Respondent:  
Toby Hyde

Date of Reply:  
March 28, 2018

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID

Matter 17-01276

In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request for Information

FROM: Director of State Affairs, Northeast, SEIA, David Gahl

TO: Niagara Mohawk Power Corporation d/b/a National Grid

SUBJECT: In the Matter of the Value of Distributed Energy Resources Working Group Regarding the Value Stack

Request:

At the March 6 conference, Con Edison stated that it would prefer for DERs above a certain size threshold (e.g. 100 kW) to participate in NYISO to get compensation, rather than simply being a load modifier.

- a. Does Niagara Mohawk agree? Why or why not?
- b. If so, in Niagara Mohawk's opinion, what kind of DERs should be subject to the threshold? Should all types of DERs be subject to the same threshold?
- c. Please provide current DER installations and capacity, by DER type and by node, on Niagara Mohawk's system.
- d. Please provide projected DER installations and capacity, by DER type and by node, on Niagara Mohawk's system.

Response:

The fundamental premise of the above questions a. and b. is incorrect. The Company's position is that the New York Independent System Operator ("NYISO") minimum threshold level for participation (e.g., 100 kW), should be employed at some future date. In the interim, the Company recognizes that the threshold should be established at a higher kW level.

- a. The March 6, 2018 presentation reflects the combined position of the Joint Utilities.
- b. The Company's position is that any technology that has the ability to inject energy into the grid and is not grandfathered into an alternative treatment should be subject to this threshold.
- c. The Company files reports monthly with the Commission in Matter 13-00205 providing much of this type of information. This information is posted to the Distributed Generation page on the Commission's website by Department of Public Service ("DPS") Staff. Additionally, the Company provided the requested information in Attachment 1 to Information Request No. DPS-

Date of Request: March 13, 2018

Informal Request No. SEIA-1-10

Due Date: March 28, 2018

Page 2 of 2

436 JT-2 in the Company's most recent rate case, Cases 17-E-0238 *et al.*, *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*.

d. Similarly, DPS Staff maintains interconnection queue data on the Distributed Generation page by utility. Additionally, the Company provided a forecast for solar photovoltaic ("PV") generation in Attachment 1 to Information Request No. DPS-604 JT-4 in the Company's most recent rate case, Cases 17-E-0238 *et al.*, *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*.

Name of Respondent:

Lauri Mancinelli

Date of Reply:

March 28, 2018