STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision	)	Case 14-M-0101

NEW YORK STATE ELECTRIC & GAS CORPORATION AND

ROCHESTER GAS AND ELECTRIC CORPORATION

RESIDENTIAL TIME-OF-USE RATES

June 1, 2017

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I. Introduction

New York State Electric & Gas Corporation ("NYSEG") and Rochester Gas and Electric Corporation ("RG&E" and together with NYSEG, the "Companies") submit these comments in response to the New York State Public Service Commission's ("NYPSC" or "Commission") Order issued May 19, 2016[1] requiring utilities to examine their existing voluntary residential time-of-use ("TOU") rates. Specifically, Ordering Clause No. 8 states: "Each utility listed in Ordering Clause No 1 is directed to file revisions to voluntary time of use rates and promotion and education tools as described in this order either in its next rate filing or by June 1, 2017 for utilities with rate plans that expire after January 1, 2019." The Commission concluded that "expanding the use of opt-in TOU rates is a necessary step toward a more comprehensive reform of rate design[2]. The Track 2 Order states that other than NYSEG's day/night rate, the rate of adoption for opt-in TOU rates in New York State is low when compared to nationwide averages[3]. The Commission notes that although promotion and education are relevant to adoption rates, design characteristics also play a role and must be examined. The Commission expressed an interest in learning more about "the duration of the peak period, the ratio between on and off-peak prices, the addition of critical peak pricing and the availability to customers of tools that enable response to TOU variations."[4] Each utility is to examine its existing TOU rate with references to the design characteristics and practices used by utilities with higher customer

[1] Case 14-M-0101, *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision*, Order Adopting a Ratemaking and Utility Revenue Model Policy Framework (issued and effective May 19, 2016), (the "Track Two Order").
[2] *Id.*, p. 133.
[3] *Ibid*.
[4] *Id.*, p. 134.

adoption rates, and develop promotion and customer education tools while the redesign of rates is under consideration[5].

[5] Track Two Order, page 134. The Commission clarifies that while improved promotion strategies should be developed, implementation involving substantial expenditures should not be undertaken until the revision of design characteristics is complete.

II. Contextual Statement

The Commission Order suggests that the opt-in TOU enrollment rate in New York is much lower than the 25 percent national average for opt-in TOU programs. Footnote 30 on page 133 of the Track Two Order, as well as the characteristics of full scale opt-in TOU programs, pilots, and demonstration projects employed in other states. The sources of this information are reports by the Lawrence Berkeley National Laboratory ("LBNL Report")[6] and the Brattle Group ("Brattle Report").[7] The enrollment information presented in the LBNL Report[8] reflects only the results for various opt-in and opt-out approaches tested by a group of 10 utilities participating in a Department of Energy study.[9] The Brattle Report also presents results for specific companies and notes:

> Oklahoma Gas & Electric (OG&E) has achieved the highest level of full scale opt-in enrollment, with 15 percent of its residential customer base enrolled in its VPP rate and a target of 20 percent enrollment by 2016. This has been achieved through proactive marketing and outreach, and by offering a free smart thermostat to customers who enroll in the rate.[10]

While the LBNL and Brattle reports are informative, the basis for the conclusion that participation in opt-in TOU programs is much lower for New York than the nationwide average enrollment of 25% is not clear to the Companies. Nevertheless, the Companies see value in the Commission's directive to consider the characteristics of opt-in TOU approaches that have attracted larger percentages of customers than New York's programs. The Commission has long recognized the need to reduce load during peak periods; the Companies support this concept. Section III presents information based on the Companies review of successful opt-in TOU programs with references to various reports and some aspects of Arizona Public Service ("APS") and OG&E programs, including the deployment of smart meters on a wide scale basis.

III. Drivers of TOU Success

a. Enabling Technologies

[6] Scheer, "Response to Time Based Rates," Lawrence Berkeley National Laboratory, LBNL-183029, June 2015.
[7] Faruqui, Hledik, and Lessem, "Smart by Default," Public Utilities Fortnightly, August 2014.
[8] LBNL Report, p. 24-25.
[9] LBNL Report, pp. 10-12.
[10] Brattle Report, p. 5.

The fundamental enabling technology required to implement modern TOU on a wide-scale basis is advanced metering infrastructure ("AMI") consisting of an integrated system of smart meters, communications networks, and data management systems that enable two-way communication between utilities and customers. Customer systems include in-home displays, home area networks, energy management systems, and other customer-side-of-the-meter equipment that enable smart grid functions in residential, commercial, and industrial facilities. Customer equipment consists of: (1) passive technology that conveys price information to customers without taking any direct action based on that information; and (2) active technology that includes programmable thermostats and other equipment capable of automatically adjusting load based on price information. Research suggests that TOU programs with active technology will produce more savings than programs using only passive technology.[11]

The rollout of AMI will improve a utility's position to attain increased enrollment in TOU programs. As of 2015 APS had deployed over 1.2 million smart meters with supporting technologies while OG&E had deployed over 870,000 smart meters and supporting technologies.[12] By contrast, the number of smart meters deployed in New York State was less than 100,000.[13] Until AMI investments are approved and deployed on a wide scale basis in New York, a large increase in TOU program enrollment is unlikely. The Companies submitted an AMI proposal to the Commission in December 2016 that would result in full scale AMI deployment by the end of 2021.[14] The Commission is expected to act on this request later this year.

b. Opt-in Versus Opt-out

The amount of peak reduction savings from TOU programs is dependent on a variety of considerations. The most critical consideration is the enrollment methodology. While the Companies understand that the Commission's current policy is to offer a traditional utility rate as

[11] *See e.g.,* "A Review of Alternative Rate Designs: Industry Experience with Time-Based and Demand Charge Rates for Mass-Market Customers", Rocky Mountain Institute, May 2016 ("RMI Report").
[12] Cooper, "Electric Company Smart Meter Deployments: Foundation for a Smart Grid", Institute for Electric Innovation, The Edison Foundation, October 2016, pp. 8-16.
[13] *Ibid.*
[14] Case 15-E-0283 *et. Al., Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of New York State Electric & Gas Corporation for Electric Service,* Petition of New York State Electric & Gas Corporation and Rochester Gas & Electric Corporation for Authorization for Full-Scale Deployment of Advanced Metering Infrastructure and to Establish a Surcharge, December 20, 2016.

the default rate and TOU pricing on an opt-in basis, an alternative approach would offer TOU pricing as the non-mandatory default rate and the traditional utility rate on an opt-in basis. Both the LBNL and Brattle Reports present information indicating that customer enrollment levels with TOU as the non-mandatory default option are much higher than customer enrollment with TOU offered on an opt-in basis and consequently, savings from peak reduction is much greater as well. Customer retention rates under the two approaches were similar. Thus, to the extent that the Commission wishes to maximize savings from peak reduction the use of a non-mandatory TOU default rate may accomplish this objective.

Another matter related to the enrollment methodology is the level of promotional activities required under the two approaches. While both opt-in and opt-out TOU programs require skilled customer service representatives and online tools that enable customers to evaluate potential savings under a particular TOU option, opt-in programs also require extensive promotional materials and campaigns. The results obtained by OG&E are, as Brattle noted, the result of extensive outreach and advertising.

c. Opt-In Considerations

One impediment to increased enrollment in New York TOU programs is the existence of a utility default rate that does not require customers to make a choice. Default bias is a behavioral phenomenon in which people "are predisposed to accept the default over the other options offered."[15] Default bias, if it exists, will make it more difficult for utilities to increase enrollment in opt-in TOU programs.

The Commission can address default bias by considering modifications to the rate options offered to new customers. Unlike utilities in New York, APS does not have a default rate. Rather it offers new residential customers a choice of rate options including both TOU rates and more traditional approaches. By eliminating the default rate and consequently the potential for default bias, TOU options are placed on a level playing field with the more traditional rate options. In New York, this would mean that new residential customers would have a choice of TOU programs[16] or the standard rate that most residential customers currently take, which is

[15] LBNL Report, p. vii.
[16] It is assumed that TOU rates would not be hedged.

partially hedged. The quality of the information provided to customers to assess various options and the availability of tools that help customers assess options are also key considerations.

While the approach discussed above addresses default bias for new customers, this phenomenon continues to exist for customers already on the default option. One potential way of addressing this matter would be to make the current default rate an option and requiring customers to select a rate option from a list that includes both TOU approaches and the former default option. An approach like this was employed as part of the restructuring of the telecommunications industry: all customers were required to choose a supplier of long-distance service from among a group of companies including their current long-distance provider.

d. Default Rate Transparency

The current default rate as it is now structured is based on a partially hedged electric supply portfolio that is intended to protect customers from large swings in energy prices (price volatility). It may be difficult for customers considering TOU options to make a fully informed choice when comparing an unhedged TOU rate to a hedged default rate. Although not a perfect solution, one way of addressing this would be to direct utilities to similarly stop taking hedges for default supply rate customers.

e. Peak to Off-Peak Price Ratio ("POPR")

The POPR compare the on-peak price to the off-peak price for a particular TOU offering. The level of the POPR ratio for a TOU offering is influenced by offering details such as the frequency of peak periods, the duration of peak periods, and any seasonal differences in payment values. In general, the greater the POPR the more attractive a program will appear to potential participants. Frequent peak periods, longer peak period durations, and fewer seasonal differences in payment values will tend to decrease the POPR while fewer peak periods, shorter peak period durations, and more seasonal differences in payment values will tend to increase the POPR.[17]

APS currently has approximately 50% of its residential customers on some type of TOU rate. In 2015, over 25 percent of the company's residential customers are in a program that

[17] RMI Report, pp. 25-34.

extends from May to October and establishes a weekday peak price between the hours of noon and 7 p.m. of $24.50/MWh and an off-peak price of $6.10/MWh.[18] The POPR, therefore, is 4.0. APS offers several other TOU options including: (1) a similar program with an enhanced offer for low-income customers and (2) a program that adds a super peak price of $46.50/MWh between 3-6 p.m. for June through August and an off-peak price of $5.50/MWh (a POPR of 8.5). OG&E offers several TOU options for residential customers with POPRs ranging from 10.2 to 2.5.[19]

This information suggests that the Commission could encourage more than one TOU offering for residential customers by permitting utilities to offer several TOU options that vary by peaking period, duration of on-peak periods, and duration of critical-peak periods. It is also possible that some portion of existing funding for low income customers could be redirected to develop a TOU offering for low-income customers. It would also be useful for the Commission to provide utilities the flexibility to adjust programs, in a revenue neutral manner, if it becomes clear that they are not working. Finally, the Companies note that TOU prices must reflect a careful analysis of the peak costs at the time periods that peak-pricing is in place. It is unclear at this point whether the summer POPR for TOU offerings in upstate New York will be as high as the levels presented above. To the extent that the POPR for the Companies is not as high as for the APS and OG&E programs, it may be more difficult to attract customers on an opt-in basis.

f. Marketing Strategies

The APS marketing strategy, which has been in place for many years is that the "point-of-sale" conversation with a new customer is the step where customers are provided information sufficient to make a determination about whether to select a TOU option. The company offers no financial incentives and does not conduct mass media campaigns in support of its TOU program.[20] APS supports this with an online calculation tool showing the impact of various rate choices and its customer service representatives are very well attuned to the differences between various rate options.[21] OG&E, on the other hand, started the company-wide implementation of a

[18] Levin and Torres, "Can Arizona's Success with Time-Of-Use Rates be Replicated in California?", Conference Draft, Center for Research in Regulated Industries, June 9, 2014, pp. 4, 14-16 ("Levin and Torres").
[19] RMI Report, p. 46.
[20] Levin and Torres, p. 17.
[21] *Id.*, p. 18.

TOU program based on the results of various test pilots. The full-scale launch of the program was, as the Brattle Report noted, accompanied by a significant customer education and promotional campaign.[22] If the Commission were to eliminate the current default price option and require all full-service customers to choose among various pricing options including several TOU approaches, a similar customer education and promotional campaign would be necessary.

g. Temporary Protections

The concept of TOU rates is likely foreign to most residential electric customers in New York and it is quite possible that some customers would be reluctant to opt-in to a TOU program due to concerns about the potential cost exposure. Many companies address this concern by providing assurance that for the first year under the program, the customer would be no worse off under the TOU program than under traditional rates. This provides customers time to acclimate to the TOU program and determine if it is something worth continuing after the initial year. A contrary view is that price protections will mask customers' response to price signals and not provide a meaningful evaluation of the TOU rate option.

IV. Current Residential TOU Options

a. NYSEG

NYSEG currently has two residential TOU rate options: Service Classification ("SC") No. 8 – Residential Service – Day/Night Rate, and SC No. 12 – Residential Service – Time-of-Use Rate. The SC No. 8 rate option became effective in January 1983 and the SC No. 12 rate option became effective in September 1993.

SC No. 8 is available to residential customers who voluntarily opted for the day/night metering prior to May 27, 1988 or for any new or existing residential customer using 1000 kilowatthours ("kWhs") or more per month. This rate is also available for community residence supportive living facilities, religious organizations, and not for profit Veterans' organizations that own or lease a post or hall. The Company meters and bills all energy used during the meter controlled "night" hours (11:30 PM – 7:00 AM, all days) at the night service rate. Energy used during the "day" hours (7:00 AM – 11:30 PM, all days) is billed at the day service rate.

[22] Brattle Report, p. 5.

The customer charge for SC No. 8 is $17.40 per month. The delivery charge is 3.551 cents per kWh and is the same for both the day and night periods. There is as an on-peak supply charge for the day hours and a lower off-peak supply charge for the night hours.

NYSEG currently serves approximately 760,000 residential customers. Approximately 130,000 residential customers, or 17%, take service under SC No. 8. The high participation in SC No. 8 is due primarily to the presence of electric heat throughout portions of NYSEG's territory. When NYSEG first offered SC No. 8, the Company was promoting Electric Thermal Storage (ETS) heating units, controlled water heating and energy efficiency in general. Market penetration of new ETS customers led to more customers opting for the day-night electric rates, as the night rate was significantly lower than the day rate which provided customers opportunities for savings and made the SC 8 rate a favorable option. For example, in 1985, the bundled (i.e., delivery and commodity) energy charge for an SC 8 customer was 10.6 cents per kWh for the first 500 kWhs on-peak, 8.5 cents per kWh for over 500 kWhs on-peak, and 3.8 cents per kWh for all off-peak usage. As a comparison, the bundled rate for SC No. 1-Residential Service was 9 cents per kWh for the first 500 kWhs and 8 cents per kWh for any usage above 500 kWhs. When comparing to other jurisdictions, NYSEG's SC No. 8 has been successful in attracting customers to select this classification and incentivizing them to shift energy usage to off-peak periods.

SC No. 12 is available to large residential customers who have an annual minimum usage of 35,000 kWhs. This rate is also available to community residence supportive living facilities, religious organizations, and not for profit Veterans' organizations that own or lease a post or hall. The Company meters and bills all energy used during the on-peak, mid-peak, and off-peak periods as defined by the tariff. The SC No. 12 rate periods are listed in the table below.

SC No. 12 Rate Periods

	Winter	Summer	Off-Season
Months	Dec, Jan, Feb	June, July, Aug	March, April, May, Sept, Oct, Nov
On Peak	7:00 AM – 10:00 AM (M-F)	10:00AM – 6:00 PM	n/a

	5:00 PM – 10:00 PM (M-F)	(M-F)	
Mid-Peak	10:00AM – 5:00 PM(M-F) 10:00PM – 11:30PM(M-F) 7:00 AM – 11:30PM (Sat, Sun, and Holidays)	7:00AM – 10:00 AM(M-F) 6:00PM – 11:30PM(M-F) 7:00 AM – 11:30PM (Sat, Sun, and Holidays)	7:00AM – 11:30PM
Off-Peak	11:30PM – 7:00 AM	11:30PM – 7:00 AM	11:30PM – 7:00 AM

The customer charge for SC No. 12 is $24.11 per month. The delivery charge is 3.749 cents per kWh and is the same for all periods. The supply charges are computed for the on-peak, mid-peak, and off-peak rate periods and billed accordingly.

Approximately 3,800 residential customers, or 0.5% of the total number of residential customers, are enrolled in SC No. 12.

b. RG&E

RG&E currently has two residential TOU rate options: SC No. 4, Schedule I - Residential Service – Time-of-Use Rate, and SC No. 4, Schedule II – Residential Service - Time-of-Use Rate. The SC No. 4 - Schedule I tariff became effective in July 1987 and the SC No. 4 - Schedule II tariff became effective in August 1988.

SC No. 4 - Schedule I is a voluntary rate option available to any residential customer with annual consumption up to and including 24,750 kWh. The Company meters and bills all energy used during the meter controlled peak hours (7:00 AM – 9:00 PM, Monday-Friday) at the on-peak service rate. Energy used during all other hours is billed at the off-peak service rate.

A customer taking service under SC No. 4 - Schedule I is billed a customer charge of $21.38 and a meter charge of $3.98 per month. . The delivery charge is 4.39 cents per kWh and

is the same for both the on and off-peak periods. The supply charge is computed as on-peak rate for the weekday hours and a lower off-peak rate for the night and weekend hours.

SC No. 4 - Schedule II is a voluntary rate option available to large residential customers who have an annual minimum usage over 24,750 kWh. The same TOU rate periods as SC No. 4 - Schedule I apply. Under SC No. 4 – Schedule II, the customer is billed a customer charge of $24.86 and a meter charge of $3.98 per month. The delivery charge is 5.414 cents per kWh and is the same for both the on and off-peak periods. The supply charge is computed as an on-peak rate for the weekday hours and a lower off-peak rate for the night and weekend hours.

RG&E currently serves approximately 332,000 residential customers. Approximately 2,500 residential customers, or 0.75%, take service under SC No. 4 - Schedule I, and approximately 1,200 residential customers, or 0.36%, are enrolled in SC No. 4 - Schedule II.

c. Recent modifications to NYSEG and RG&E TOU rate structures

In the Order approving the Joint Proposal in the Companies' most recent rate proceeding[23], the Commission approved changes to NYSEG's and RG&E's voluntary residential TOU classes that are intended to provide customers the opportunity for more benefits than offered under the current structures. Specifically, Appendix W of the Joint Proposal states:

> The hedge adjustment will be removed from the calculation of commodity charges for NYSEG SC-8 and SC-12, and RG&E SC-4, Schedules 1 and 2 commencing with the effective date of new rates for RY1 [Rate Year 1] in these proceedings. In addition, the cost of the capacity component will be applied to the on-peak hours only as opposed to all the hours.

The parties to the Joint Proposal agreed that these changes provide better market price signals to residential customers that choose a voluntary TOU rate option, thus providing more opportunity for savings if customers are able to shift usage to off-peak periods.

V. Recommendation

[23] Case 15-E-0283-Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of New York State Electric & Gas Corporation for Electric Service, and Case 15-E-0285-Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Rochester Gas and Electric Corporation for Electric Service, *Order Approving Electric and Gas Rate Plans in Accord with Joint Proposal*, Issued and Effective June 15, 2016.

The Companies recommend maintaining their current residential TOU rate options until AMI is deployed on a wide-scale basis in the respective service territories. AMI is the enabler of more granular time-of-use pricing and improved price signals, which are important goals as stated by the Commission[24]. As noted above, the deployment of smart meters and supporting technologies are fundamental to the successful adoption of opt-in TOU programs at APS and OG&E. The rollout of AMI will better position the Companies to develop more granular rates and TOU options that offer the potential for increased enrollment and participation by customers.

Concurrent with the full scale deployment of AMI, the Companies are developing time-varying rate options in its Energy Smart Community ("ESC") that will test many of the best practices of other utilities regarding TOU rates, as discussed above. The ESC, located in the Ithaca, N.Y. region, will serve as a test-bed environment for several REV initiatives and technologies and provide insights on effective ways to engage customers and evaluate for potential revisions to TOU options in a future rate proceeding. The ESC will include the first introduction of AMI for NYSEG and RG&E, with the installation of 12,400 electric and 7,300 gas smart meters. A collaborative is on-going to discuss potential electric rate options for customers in the ESC. The discussions to date have focused on several key principles: customers having the choice to opt in to a new rate option, providing customers with an opportunity to respond to prices and make informed decisions on their energy usage, having a strong price signal that focuses on the system peak period, designing rates that reflect cost and developing rates that are revenue neutral by service class. Proposed rate options under discussion for the residential classes currently include a delivery price with a significant POPR (i.e., > 4.0) and hourly commodity prices.

All customers in the ESC will have access to an on-line portal that provides customers with information to better understand their energy usage pattern and tools for determining potential energy savings. The portal will also provide access for customers to purchase energy saving products. The Companies will the test outreach and education needed to promote the rate options and inform customers of the choices. Evaluating the customer's experience on the rate will provide information on whether adjustments are needed before offering such options on a wider scale.

[24] Track 2 Order, pgs. 118-121.

Until AMI is in place, the Companies recommend maintaining their current residential TOU rate options. The Companies have continued to review their service class offerings, and as noted above, recently made changes to its TOU rates to increase transparency for TOU customers to make decisions regarding their electricity consumption (*i.e.*, removing the hedging component from the supply charge and applying the capacity component only during on-peak hours). Modifying the current TOU rate periods would be a challenging and costly undertaking as individual customer meters would need to be re-programmed with new TOU rate periods. Customer billing systems would also require updates to adapt to any TOU modification.

VI. Conclusion

The Companies appreciate the opportunity to provide these comments for the Commission's consideration.