STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

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	)	Case 17-E-0238
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 Gas Service	)	Case 17-G-0239

DIRECT TESTIMONY OF MARK LeBEL

ON BEHALF OF ACADIA CENTER

August 25, 2017

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I. INTRODUCTION, QUALIFICATIONS, AND SUMMARY

Q. Please state your name, title, employer, and business address.

A. My name is Mark LeBel. I am a Staff Attorney for Acadia Center, and my office is located at 31 Milk Street, Suite 501, Boston, MA 02109.

Q. Please tell me more about Acadia Center.

A. Acadia Center is a non-profit, research and advocacy organization committed to advancing the clean energy future in the Northeast. Acadia Center is at the forefront of efforts to build clean, low carbon and consumer friendly economies. Acadia Center's approach is characterized by reliable information, comprehensive advocacy, and problem solving through innovation and collaboration. Collectively, Acadia Center's staff has several decades of experience on the impact of utility rate design on consumer adoption of energy efficiency and clean energy technologies, and the ability of consumers to control their energy bills. Acadia Center has been active in New York and other northeastern states in researching and promoting consumer-friendly rate design that preserves incentives to use energy wisely, gives consumers greater control over energy bills, and modernizes net metering tariffs to account for costs and benefits.

Q. Please summarize your work experience and educational background.

A. I have been employed by Acadia Center since 2013. In my current position, I have participated in policy advocacy on a wide range of topics, spanning clean transportation, grid modernization and utility reform, renewable energy, and

energy efficiency. More specifically, I have led Acadia Center's efforts around vehicle electrification since 2014 and around electricity rate design and compensation for distributed energy resources (DER) since 2015.

Prior to joining Acadia Center, I worked at Connecticut Fund for the Environment on state-level energy policy in 2012 and 2013. From 2007 to 2009, I worked as an analyst at NERA Economic Consulting, performing economic analysis of energy and environmental policies.

I received a J.D. from New York University in 2012. My classwork, extracurriculars, and employment during law school focused on the law and economics of policies related to energy and the environment, including my published note on sulfur dioxide trading and the Clean Air Interstate Rule. I received my bachelors in Applied Mathematics, with a focus in economics, from Harvard College in 2007. A copy of my resume is appended to this testimony as Exhibit MEL-1.

Q. Have you testified in the past at the New York State Public Service Commission?

A. No, I have not.

Q. Have you participated in other capacities in proceedings at the New York State Public Service Commission?

A. Yes. Most notably, I have participated extensively in Case 15-E-0751 on the Value of Distributed Energy Resources, including the stakeholder process,

submission of comments on the Staff Report, and recently the submission of joint comments on the Phase I Order Implementation Plans. Previously, I also worked with colleagues on Acadia Center (formerly known as Environment Northeast or ENE) comments in the main Reforming the Energy Vision docket, Case 14-M-0101, particularly with respect to the Staff White Paper on Ratemaking and Utility Business Models and the Staff White Paper on Benefit-Cost Analysis.

Q. Have you testified at other public utility commissions?

A. Yes. I have provided testimony at the Massachusetts Department of Public Utilities (MA DPU) in Docket 17-05, the current Eversource rate case, on rate design and proposals related to electric vehicle infrastructure, and in Docket 17-13, the National Grid petition for approval of its electric vehicle market development program.

Q. Have you otherwise participated in proceedings at other public utility commissions?

A. Yes. I have been counsel for Acadia Center in several formal adjudicative proceedings at the MA DPU, including Docket 15-155, the recent National Grid rate case, and Docket 15-120, the National Grid petition for approval of their Grid Modernization Plan. I served as counsel for Acadia Center in Docket 4568 on electricity rate design at the Rhode Island Public Utilities Commission and I also participated in Docket 4600 at the Rhode Island Public Utilities Commission on rate design issues.

Q. What is the purpose of your testimony on rate design in this proceeding?

A. The purpose of my testimony is to discuss relevant principles of rate design and DER compensation reform; to describe Acadia Center's vision for rate design and DER compensation in the short-, medium-, and long-terms; to review National Grid's rate design proposals; and to provide recommendations.

Q. What specific rate design topics does your testimony cover?

A. My testimony focuses on three separate rate design topics: (1) residential customer charges, (2) demand charges for C&I customers, and (3) residential voluntary time-of-use rates.

Q. Are you sponsoring any exhibits for your testimony?

A. Yes, I am sponsoring seven exhibits: Exhibit MEL-1 through Exhibit MEL-7. Exhibit MEL-1, as previously described, is my resume. Exhibit MEL-2 is a report from the Regulatory Assistance Project titled "Smart Rate Design for a Smart Future." Exhibit MEL-3 is an Acadia Center piece titled "Sustainable Rate Design: Near-Term Consumer-Friendly Reforms for a Clean Energy Future." Exhibit MEL-4 is an analysis by National Consumer Law Center titled "Utility Rate Design: How Mandatory Monthly Customer Fees Cause Disproportionate Harm, U.S. Region: NY." Exhibits MEL-5 and MEL-6 present the results of calculations, based on National Grid's own spreadsheet, of a lower and upper bound on reasonable residential electric customer-charge costs in this proceeding. Exhibit MEL-7 is an Acadia Center piece titled "Distribution Reliability Charge:

Transitioning to Sustainable Rate Design." All of these exhibits were prepared by me or under my supervision.

Q. Please summarize your conclusions.

A. Residential customer charges of $17 per month are not justified and a reasonable range, depending on the inclusion of appropriate labor-related costs, would be between $5.57 and $8.30 per month. Such a reduction would benefit most residential customers, improve incentives for energy efficiency and DER, and is necessary to achieve the transactional energy future envisioned by REV. Additional steps should also be taken to make C&I demand charges and residential voluntary time-of-use rates more aligned with cost causation, as directed by previous Commission order.

II. ACADIA CENTER VISION FOR RATE DESIGN AND DISTRIBUTED ENERGY RESOURCE COMPENSATION

Q. Please describe what you mean by the term "distributed energy resource".

A. The term "distributed energy resource" covers a wide array of energy technologies connected to the grid at the distribution level. DER tend to be smaller than typical utility-scale resources and may be positioned closer to demand centers, frequently located at customer sites. The simplest description of DER technologies is distributed generation (DG) and storage, but a wide range of technologies like electric vehicles and connected, controllable appliances can also

be considered DER. My usage of this term in this testimony does not include energy conservation or more traditional energy efficiency investments.

Q. Please describe what you mean by the term "rate design"

A. The term "rate design" is a longstanding term that refers to the billing determinants for retail electricity customers and the prices set for each billing determinant.

Q. What is net energy metering?

A. Net energy metering is an accounting tool that allows a customer with distributed generation to only pay for net consumption over a certain time period. If net consumption is greater than zero, the customer pays for the net kilowatt-hours (kWh) consumed at the relevant retail rate. If net consumption is less than zero (i.e. generation over the relevant period of time is higher than consumption), then that customer has "net metering credits," which can be used to offset other charges or roll over to the next billing period.

Q. What is the difference between volumetric and monetary crediting?

A. Volumetric crediting means that one kWh of net metering credits is applied by reducing one kWh off of a customer's bill. This means that the value of the credit is definitively linked to the retail kWh rates for the customer who is applying the credit. In contrast, monetary crediting means that a kWh of credits is defined by a certain amount of monetary value, which can be applied to any element of a

customer's bill and is not necessarily linked to the retail kWh rates for that customer.

Q. What is monthly netting?

A. Monthly netting is a prevalent form of net metering where net consumption for DG customers is calculated on a monthly basis. Other forms of netting are possible, but it depends on what type of metering is available.

Q. What is credit allocation for net metering?

A. In some states, including New York, accounts that receive net metering credits can transfer those credits, with certain restrictions, to another utility account. This allows a customer to credit generation that does not take place behind his or her meter towards his or her own electricity bills. It also allows customers that may have multiple meters – for example a farm or municipality – to allocate credits across its operations or bills. Credit allocation offers several unique benefits, notably expanding customer and community access to solar and other distributed generation, customer convenience, tax benefits, and avoiding restrictions on cash transfers to low-income residents and low-income housing. In New York, this is referred to as community distributed generation or remote net metering.

Q. How are stand-alone distributed generation and credit allocation important to a local clean energy future?

A. Stand-alone distributed generation and credit allocation are important for several reasons. First, not all consumers and businesses are able to take advantage of local

clean generation options, such as solar PV or distributed wind, where they live or operate. That could be because they do not have a suitable rooftop, because they are renters, or because they are low-income and do not have good access to credit. Second, municipalities and other organizations that have multiple meters cannot necessarily use all of their properties for clean energy projects. Third, stand-alone distributed generation often can offer economies of scale compared to smaller distributed generation options, like rooftop solar. Mechanisms like credit allocation allow all consumers, businesses, non-profits, and municipalities to participate in the clean energy future and control their electric bills.

Q. Please describe what you mean by the term "DER compensation".

A. The term "distributed energy resource compensation" or "DER compensation" encompasses any number of methods for compensating DER through retail-level transactions, including, but not limited to, net metering structures. When I use the term "DER compensation," I am excluding incentive programs such as NY-SUN and electric vehicle rebates. These incentive programs are not primarily under the jurisdiction of the Department and are based on separate criteria from compensation through rates. From a policy perspective, DER compensation and such incentive programs must be looked at together to determine impacts on existing DER and the development of new DER.

Q. Why do you distinguish between rate design and DER compensation?

A. Often the term "rate design" refers to the structure of prices paid by retail customers for electricity consumption. Under current practices, rate design is often linked to DER compensation because net metering credit value is determined by a statutorily specified relationship to retail per-kWh rates. As a result of this, changes to rate design often have a direct and predictable impact on net metering credit value. However, net metering credit value can be set in other ways, as demonstrated by the Value of Distributed Energy Resources proceeding. The term "rate design" is sometimes used to cover both categories, but I will use both terms to make it clear that I am referring to the combined set of issues.

Q. Does Acadia Center believe that reforms to rate design and DER compensation are necessary?

A. Yes. Current policies in New York and other states on rate design and DER compensation have many positive features, but are blunt and inefficient in many respects. Both rate design and DER compensation must evolve over time to both accommodate and accelerate a future with widespread local clean energy and a smart and dynamic electric system. These reforms for rate design and DER compensation are also an integral part of broader reforms to utility regulation that are also necessary.

A. HIGH-LEVEL PRINCIPLES

Q. What are the Bonbright principles for rate design?

A. In 1961, James Bonbright laid out a long list of general principles for rate design. These are often summarized, but in full they are:

1. The related, "practical" attributes of simplicity, understandability, public acceptability, and feasibility of application.
2. Freedom from controversies as to proper interpretation.
3. Effectiveness in yielding total revenue requirements under the fair-return standard.
4. Revenue stability from year to year.
5. Stability of the rates themselves, with a minimum of unexpected changes seriously adverse to existing customers. (Compare "The best tax is an old tax.")
6. Fairness of the specific rates in the apportionment of total costs of service among the different customers.
7. Avoidance of "undue discrimination" in rate relationships.
8. Efficiency of the rate classes and rate blocks in discouraging wasteful use of service while promoting all justified types and amounts of use:

a. In the control of the total amounts of service supplied by the company:

b. In the control of the relative uses of alternative types of service (on-peak versus off-peak electricity, Pullman travel versus coach travel, single-party telephone service versus service from a multi-party line, etc.).

(Principles of Public Utility Rates, James C. Bonbright, Columbia University Press 1961, p. 291).

Q. Are the Bonbright principles still applicable?

A. These long-standing principles are broadly accepted and are helpful guideposts on many questions. However, they are general and do not necessarily provide concrete answers to regulators dealing with 21st century issues.

Q. What more specific principles for retail rate and DER compensation reform has Acadia Center laid out previously?

A. Based on UtilityVision,[1] our 2015 blueprint for utility reforms to achieve a fully integrated, flexible, and low carbon electric grid that empowers and protects consumers, Acadia Center has articulated the following four principles:

[1] http://acadiacenter.org/document/utilityvision/

1. Monthly customer charges should be no higher than the cost of keeping a customer connected to the grid and the related customer service, but can be kept lower based on public policy considerations.
2. Other components of electricity rates can be reformed to better align customer incentives with cost drivers and the value they can provide to the system.
3. Ratepayers must be able to understand significant reforms and have a basis on which to respond and manage bills.
4. Self-generation consumed directly on-site should be treated the same as reductions in energy usage.

Q. Has the Regulatory Assistance Project proposed a related set of principles?

A. Yes, in a 2015 report titled "Smart Rate Design for a Smart Future", attached as Exhibit MEL-2, Regulatory Assistance Project (RAP) laid out the following three principles, that are similar to the four Acadia Center principles identified above:

1. A customer should be able to connect to the grid for no more than the cost of connecting to the grid.
2. Customers should pay for grid services and power supply in proportion to how much they use these services and how much power they consume.
3. Customers who supply power to the grid should be fairly compensated for the full value of the power they supply. (p. 6).

Q. Has the New York Department of Public Service issued principles for rate design?

A. Yes. In Appendix A of the May 19, 2016 Order Adopting a Ratemaking and Utility Revenue Model Policy Framework ("Track Two Order"), the Department endorsed the principles of cost causation, encouraging outcomes related to energy efficiency, resilience, and reduced environmental impacts, policy transparency, economically efficient decision-making, fair value, customer-orientation, bill stability, access, gradualism, and economic sustainability.

Q. Do you believe the Department's principles are consistent with Bonbright's principles and Acadia Center's more specific principles?

A. Yes, I believe they are consistent, with the exception of a sentence on fixed charges under the principle of cost causation.

Q. Did the Department provide other guidance in the Track Two Order relevant to your testimony?

A. Yes. At a general level, the Track Two Order stated that "more granular rate design must be made available to engage customers efficiently in multi-sided DER markets." (p. 123.) More concretely, the Track Two Order required each utility to: (1) examine current C&I demand charges and propose more granular rates, and (2) revise voluntary time-of-use rates for mass market customers, along with an analysis of such rates in other jurisdictions and a promotion and education tool.

B. ACADIA CENTER VISION IN SHORT-, MEDIUM-, AND LONG-TERMS

Q. Please describe Acadia Center's long-term vision for rate design and DER compensation from UtilityVision.

A. In the long term, customers should be charged for the products and services they receive and credited for the products and services they provide on a granular basis. Charges should reflect equitable recovery of costs for use of the distribution grid. Credits for exports and other services should reflect the net value, including both benefits and costs to the system. This vision includes time-varying charges and credits for energy supply, transmission, and distribution. There could be charges and credits for new retail-level markets and products, and additional values related to the environment and public health could be reflected as well. All

charges and credits, except those that reflect any environmental or public health values, should be on a technology-neutral basis. It may also include well-designed demand charges that are focused around local or system peaks. For customers with distributed generation or storage, netting of energy imports and exports would occur on a granular basis, instead of the current practice of monthly netting for many types of customers.

Q. Are there other public policy goals that must be met in this long-run vision?

A. Yes. In addition to the rate design principles discussed above, this long-term vision also includes customer control over energy costs, and equitable access to clean energy options, such as community solar.

Q. Would this long-term vision apply to all customers?

A. Not necessarily. Keeping certain consumer segments, such as low-income and vulnerable populations, on simpler rate structures may be justified by both economics and consumer protection principles.

Q. Please describe any hurdles to this long-term vision.

A. There are many reasons why this long-term vision cannot be set up overnight. It will require advanced metering functionalities, billing system upgrades, energy management technologies that are affordable for small customers, significant customer education efforts, and processes to fairly determine the charges and credits for distinct types of products and services. Statutory changes may also be necessary to implement certain reforms.

Q. Has New York taken any significant steps towards this long-term vision?

A. Yes. The Track Two Order, as discussed above, contained significant reforms to both rate design and DER compensation, which have been elaborated on in the March 9, 2017 Order on Net Energy Metering Transition, Phase One Value of Distributed Energy Resources, and Related Matters in Case 15-E-0751. This also includes steps towards advanced metering functionality for ConEd in Case 15-E-0050.

Q. Have other states in the Northeast taken significant steps towards this long-term vision?

A. In Massachusetts, the Department of Public Utilities issued Orders 12-76-B and 14-04-C in 2014, requiring utility proposals for a rollout of advanced metering functionality and time-varying rates for energy supply. These proposals are currently being adjudicated in a proceeding for each utility, including Docket 15-120 for National Grid. In Rhode Island, a working group, including Acadia Center, National Grid, Northeast Clean Energy Council and others, recently released a stakeholder report in Rhode Island Public Utility Commission Docket No. 4600 that includes a joint long-term vision for rate design that is consistent with Acadia Center's vision. Rhode Island has also launched the Power Sector Transformation Initiative, which has the potential to take steps towards this vision.

Q. Given this long-term vision, how does Acadia Center approach the short- and medium-term?

A. We believe that reforms in the short- and medium-term must take steps towards this long-term vision, and simultaneously satisfy the relevant rate design principles and public policy goals. Gradualism and customer understanding are also key to implementing reforms. Rate reforms can be phased in, and customer protections like "shadow billing," where customers can see what their bill would be under different rate structures, and "hold-harmless periods," where customers can only benefit from new rate structures, are helpful transition tools. Metering costs and billing system upgrades must also be considered in the short- and medium-term.

Q. Has Acadia Center proposed a set of short-term reforms?

A. Yes. The Acadia Center document "Sustainable Rate Design: Near-Term Consumer-Friendly Reforms for a Clean Energy Future," attached as Exhibit MEL-3, lays out five near-term steps that states across the region can take to begin to make rate design and DER compensation fairer and more accurate, while maintaining or improving incentives for energy efficiency and access to clean energy:

1. Limit reliance on fixed customer charges;
2. Implement Acadia Center's "distribution reliability charge"[2] proposal to begin to account for any proven cross-subsidies due to distributed generation installed by mass market customers;
3. Offer opt-in time-of-use rates;
4. Enable or maintain credit allocation for community distributed generation, with a robust low-income component; and
5. Implement monetary crediting, begin to align net metering credits with ratepayer value, and remove caps on net metering.

Q. What key issues are addressed by these proposed short-term reforms?

A. These short-term reforms reflect gradualism, minimal additional metering costs and billing system upgrades, and several incremental steps to better reflect the costs and benefits of customer consumption patterns and exports from distributed generation. One step of particular relevance in a rate case is the beginning of a process to unbundle distribution system costs, or otherwise distinguish between (1) the full embedded costs of the distribution system that must be recovered by the utility, and (2) the value of exported energy to the delivery system. Such a process is key to establishing the proper level of the distribution reliability charge.

[2] See, infra, at Section III.E, pages 30-32 for more detail on the distribution reliability charge proposal.

Q. How does this apply in New York and other states in the region?

A. Each state in the region is in a different place on these issues. New York is currently launching a community solar market with enormous potential, has taken important steps to begin aligning net metering credit structures with ratepayer value, and offers time-of-use rates for mass market customers. In those respects, New York is leading many other states. However, New York currently has very high residential customer charges by regional or national standards.

Q. Has Acadia Center proposed concepts for medium-term reforms?

A. Acadia Center is beginning to explore concepts for medium-term reforms. This could include:

1. Default time-of-use rates for certain categories of customers, including time-of-use netting for distributed generation customers;
2. Charging for embedded delivery system costs and public policy costs for imports and crediting for value to the delivery system for exports;
3. Incremental avoided environmental and public health compliance costs can be credited for exports on a technology-specific basis; and
4. Charges and credits corresponding to other portions of the electric system (e.g., energy and generation capacity) can be symmetric for imports and exports.

Such steps would logically link short-term steps with Acadia Center's long-term vision. Default time-of-use rates and time-of-use netting is a significant step

beyond current practices, particularly for DG customers for whom monthly netting is currently the norm. These medium-term reforms would require substantial processes to unbundle delivery values, and determine other appropriate credits and charges by time-of-use period and by technology as appropriate.

Q. Must reforms to rate design and DER compensation follow a specific sequence?

A. Each individual reform has prerequisites for implementation, but not every state will need to make each stop along the way. In other words, some jurisdictions may be able to skip straight to reforms that I would describe as medium-term, or some may adopt short-term reforms for a number of years before adopting long-term reforms. Lastly, states may be able to apply more advanced reforms to certain customers, primarily larger C&I customers, on a shorter timetable.

III. REVIEW OF NATIONAL GRID RATE DESIGN PROPOSALS AND RECOMMENDATIONS

A. RESIDENTIAL MONTHLY CUSTOMER CHARGES

Q. What are monthly customer charges?

A. A monthly customer charge, also known as a fixed charge or a basic service charge, is a flat fee paid every billing period by a customer, regardless of how many kWh are consumed or other billing determinants.

Q. What are the direct impacts of higher monthly customer charges on other parts of the electric bill?

A. Higher monthly customer charges mean that less revenue needs to be collected through other portions of rates. For rate classes without demand charges, higher fixed charges mean lower per-kWh rates.

Q. What are the negative impacts of higher customer charges and lower per-kWh rates?

A. There are a number of negative impacts. First, lower per-kWh rates decrease the incentives for energy efficiency investment and limit customer control of bills. Second, there are significant distributional consequences because smaller customers end up paying more and larger customers end up paying less. This is particularly significant in the residential context. The National Consumer Law Center (NCLC) has shown that low-income households consume less electricity than average, so higher customer charges increase bills for low-income households. A New York-specific NCLC analysis is attached as Exhibit MEL-4. Third, because of the linkage between per-kWh rates and net metering credit value, higher customer charges arbitrarily decrease DER compensation.

Q. Why do some argue that fixed charges should be higher?

A. Utilities across the country often argue that past investments are "fixed" and should therefore be recovered through fixed charges. However, this confuses two concepts. Historical investments are sunk costs, but that does not mean that they

should be recovered through fixed charges. Rates should be forward-looking and consider the impact of customer choices on future investments. Nationally, the arguments in favor of fixed charges also align with utility interests in increasing revenue stability, and reducing incentives for energy efficiency and distributed generation. In restructured jurisdictions, even decoupled distribution utilities still have an interest in increased revenue stability in terms of timing and the certainty of collections. Also, because companies that invest in transmission lines and other energy resources receive a return on those investments, they have an incentive to discourage local energy production that could reduce the need for additional infrastructure investment.

Q. What downsides do high fixed charges present to utilities?

A. In the long run, high fixed charges encourage customers to disconnect from the grid entirely. As the costs of distributed generation and storage continue to fall, this may become a viable option for increasing numbers of ratepayers.

Q. How do fixed charges relate to broader principles of economic regulation?

A. One key role of public utility regulation is to approximate the incentives of market competition and prevent monopolistic behavior. Utility claims about the necessity of recovering costs through fixed charges are definitively disproven by the numerous competitive industries where large fixed investments are recovered through per-unit purchases by consumers. This includes oil refineries where

consumers pay for gasoline by the gallon, and farms where consumers pay for apples by the pound.

Q. How do these considerations relate to the previously described rate design principles?

A. The negative impacts of higher customer charges inform Acadia Center's first principle of rate design reform that monthly customer charges should be no higher than the cost of keeping a customer connected to the grid and the related customer service, but may be kept lower based on public policy considerations. Relatedly, high customer charges violate the more general rate design principles of efficiency and fair cost allocation among customers, as well as public policy principles around equity for low-income customers.

Q. What did the Track Two Order say with respect to monthly customer charges?

A. The Track Two Order described a long-running debate about which distribution system costs are truly variable and ultimately adopted the principle that "[f]ixed charges should only be used to recover costs that do not vary with demand or energy usage." Appendix A.

Q. Do you agree with this principle?

A. No. The categories of costs that are appropriate for customer charges should be more limited and defined as the incremental cost of connection. This includes the

costs of a simple meter, billing expenses, the service drop, and certain elements of customer service.

Q. Why is this definition more appropriate?

A. Customer charges that are higher than the cost of connection encourage uneconomic bypass, discourage energy efficiency and self-generation, and inappropriately shift costs toward low usage customers. There are many types of distribution costs that do not directly vary with energy or demand, but are not a part of the cost of connection. That includes a wide range of general administrative and overhead costs and potentially other program costs. Utilities also argue that there are costs of distribution infrastructure, beyond the meter and service drop, that do not vary with energy or demand.

Q. What is National Grid proposing with respect to residential customer charges?

A. National Grid is proposing to keep residential customer charges the same at $17 per month for general SC-1 residential customers. Exh. E-RDP-4, Schedule 3A.

Q. What evidence has National Grid presented in support of these customer charge proposals?

A. The primary evidence produced in support of these customer charge proposals is Exhibit E-RDP-3, Schedule 4, titled "Customer Charge Costs in Revenue Requirement". National Grid provided an updated working spreadsheet version of this exhibit as Attachment 2 to the response to AC-1 IR-4.

Q. Have you examined the calculation of customer-charge costs?

A. Yes, I have.

Q. What have you concluded about the calculation of customer-charge costs?

A. The methods used end up allocating a wide range of costs inappropriately as customer-charge costs: such as program costs for energy efficiency, low-income discounts, and economic development, transformer costs, the delivery portion of uncollectible accounts, and certain portions of "labor-related" costs. National Grid did appropriately exclude most distribution infrastructure costs from customer-charge costs.

Q. Please explain the issues with the calculation of customer-charge costs.

A. Costs included in customer charges should be limited to the costs of connecting a customer to the grid, primarily the costs of a simple meter, billing expenses, the service drop, and elements of customer service. This is reflected in Acadia Center's rate design principles as well as the principles of the Regulatory Assistance Project. However, National Grid's calculations do not appear to line up with these principles.

Q. Have you calculated revised customer-charge costs that would be reasonable in light of these principles?

A. Yes. Exhibits MEL-5 and MEL-6 present respectively a lower bound and upper bound on a reasonable definition of customer-charge costs in this proceeding. I

have minimally adjusted National Grid's own spreadsheet for this purpose.[3] Both cases eliminate clearly inappropriate costs, namely program costs for energy efficiency, low-income discounts, and economic development, transformer costs, and the delivery portion of uncollectible accounts. More detailed questions are raised by National Grid's inclusion of labor-related costs that are not directly included in metering and billing expenses. For example, it may be appropriate to include a portion of employee benefits and payroll-related taxes, but it is less appropriate to include general plant and other overhead costs. To provide fair bounds, I've calculated customer-charge costs with and without labor-related costs. Exhibit MEL-5 demonstrates that a reasonable lower bound is $5.57 for general residential customers. Exhibit MEL-6 demonstrates that a reasonable upper bound is $8.30 for general residential customers.

Q. Are there any precedents for reforming and lowering monthly customer charges?

A. Yes. Based on 2015 legislation, the Connecticut Public Utilities Regulatory Authority (CT PURA) reduced the residential customer charge for United Illuminating from $17.25 per month to $9.67 per month. CT PURA Docket No. 16-06-04, Final Decision dated December 14, 2016. CT PURA is currently undertaking a generic docket to make a final determination on the categories of

[3] Edited cells are highlighted in yellow in Exhibits MEL-5 and MEL-6.

costs that are appropriate for inclusion in customer charges. CT PURA Docket No. 17-01-12.

Q. How do lower monthly residential customer charges impact customer bills?

A. It is important to understand that the majority of customers benefit from lower customer charges, even if volumetric kWh rates are correspondingly increased. As a matter of mathematics given a fixed revenue requirement, lower customer charges and higher volumetric rates leads to a lower bill for any customer with lower than average usage. Given the distribution of kWh consumption, many more bills are below average usage than above average usage. In 2016, the average monthly consumption for the residential customer class was 639 kWh per month (AC-3 IR-1), but the median bill only used 507 kWh (AC-3 IR-2). As a result, approximately 60% of customer bills would be lower with lower customer charges. See Attachment 1 to AC-1 IR-7REV.

Q. What are other benefits of lower customer charges?

A. Shifting cost recovery from customer charges to other billing determinants allows for better incentives for energy efficiency and DER. Ultimately, these types of economically justified incentives are necessary to make the transactional DER future envisioned by REV possible. Lower customer charges also reduce the incentives for customers to disconnect from the grid, as well as to master meter.

Q. What are some common arguments against lowering monthly customer charges?

A. Arguments against lowering monthly customer charges include (1) lower financial stability for utilities, (2) potential adverse impacts on the subset of low-income customers with higher than average usage, and (3) inappropriately high kWh prices and potential cross-subsidies.

Q. Do you believe that these concerns represent insurmountable obstacles?

A. No, I do not and I can address each in turn.

Q. What about concerns with respect to utility financial stability?

A. New York is ultimately an outlier with its high customer charges and utilities in other states remain financially viable with lower customer charges. New York has revenue decoupling, which helps address overall financial stability, albeit with a time lag. However, National Grid itself has much lower customer charges in Massachusetts and Rhode Island, namely $5.50 per month and $5 per month, and this does not seem to be an impediment to the successful operation of its distribution companies.

Q. What about concerns with respect to higher usage low-income customers?

A. In general, it accords with common sense that low-income customers use less electricity than higher-income counterparts, with smaller homes and fewer appliances. This is reflected in statewide data from NCLC discussed above. However, patterns may vary by service territory. In National Grid service

territory, existing low-income customers have modestly lower average annual consumption, at 612 kWh per month,[4] than the overall residential population at 639 per month. However, low-income customers have higher average consumption than other residential customers from December through April, and lower average consumption from May through November. Pace-1 AD-4. In general, these averages may be biased through self-selection of customers with larger bills into energy assistance programs, but they are also consistent with significant numbers of low-income customers having inefficient electric resistance heating. This issue can be productively addressed by implementing seasonal kWh rates, with higher charges in the peak summer months and lower charges in other months. Seasonal kWh rates both provide improved economic incentives, but also mitigate any impacts on low-income customers with high bills due to electric resistance heating. Programs to help low-income customers replace electric resistance heating with efficient and clean alternatives, notably efficient electric heat pumps, would also productively address this issue.

Q. What about concerns with respect to inappropriately high variable prices and potential cross-subsidies?

A. In general, low customer charges and higher variable rates provide a more efficient set of incentives that have fewer undesirable side effects. Better

[4] In Pace-1 AD-4, over the course of 2016, there are 1,237,950 low-income customer bills and usage of 757,203,955 kWh on those bills, for a calculated average of 612 kWh.

incentives for energy efficiency through higher variable rates are well-justified due to the significant externalities for the environment and public health that are not included monetarily in rates. In the future, as rates become more granular through other REV processes, this can take forms other than traditional flat kWh charges for residential customers, which will also provide improved incentives to optimize the electric system, and can provide the basis for the transactional DER future envisioned by REV. Customer charges that are higher than the marginal cost of connection also incentivize uneconomic bypass of various kinds, leading to fewer accounts than optimal. Higher customer charges mean that customers will inefficiently disconnect from the grid and master meter whenever possible, leading to potentially suboptimal incentives for tenants. Specific concerns about any cross-subsidies for mass market net energy metering customers can be addressed through the Phase II Value of Distributed Energy Resource process, but Acadia Center also has an interim proposal that could be implemented in this rate case.

Q. What is this interim proposal?

A. As discussed above, Acadia Center has proposed the distribution reliability charge (DRC) to address any proven cost shifts shown by a transparent study with sufficient stakeholder input. A full description of the proposal is attached as Exhibit MEL-7.

Q. Please provide a high-level summary of the distribution reliability charge.

A. The DRC operates within existing statutory limitations to create a new billing determinant for distribution that is not based on demand or customer charges, but rather on a 12-month rolling average of net monthly consumption. For the purposes of this new billing determinant, a net metering customer would not be able to factor in months with net exports, effectively creating a floor of zero on net monthly consumption. This new charge would be revenue neutral and offset by the appropriate reduction in the traditional per-kWh rate. Lastly, because the DRC is not a traditional per-kWh rate, it would not be factored into the value of net metering credits for exports.

Q. What are the impacts of the DRC?

A. The impacts of the DRC on customers without distributed generation are minimal, merely smoothing a portion of the bill over the course of a year. For customers with distributed generation, there are two impacts: (1) lower net metering credit value due to the adjustment to the per-kWh rate and (2) a new billing determinant that is bounded below at zero. In some ways, the DRC mimics the impacts of a demand charge, without the negative consequences of being based on demand.

Q. How would the level of the DRC be determined?

A. Ideally, the level of the DRC or any successor mechanisms would be determined based on a process for unbundling distribution rates. In the shorter term, refinements to the existing allocated cost of service study process could serve as a

proxy to divide categories of distribution system costs that can be avoided or lowered by DER ("avoidable costs") from categories of distribution system costs that are not impacted by DER ("unavoidable costs"). The avoidable costs would remain in the per-kWh charge and would be reflected in the value of net metering credits. This is appropriate as a proxy for the value of DER exports. The unavoidable costs would be put into the DRC, and appropriately removed from the value of net metering credits, since those costs are not related to the value of DER exports.

Q. What rate classes should this apply to?

A. This would primarily apply to residential rate classes if customer charges are lowered significantly, where demand charges are clearly inappropriate in the short term.

Q. How does the DRC relate to Acadia Center's medium- and long-term vision?

A. The DRC is a modest step that reflects key principles in our medium- and long-term vision. Distribution rates should be unbundled to determine the value of DER to the distribution system, a process that is beginning in New York in the Value of DER Proceeding, Case 15-E-0751. This allows for a well-justified distinction between the rates for imports that reflect embedded costs through a combination of energy charges and any demand charges, and credits for exports that reflect value. As mentioned previously, appropriate statutory changes to net metering structures would better enable these types of reforms.

Q. Are there any other residential customer charge issues that the Department should consider?

A. Yes, although simple metering is a reasonable part of customer connection costs, advanced metering provides benefits that are related to demand and energy usage. The Regulatory Assistance Project identifies a range of benefits from advanced meters in its report, "Smart Rate Design for a Smart Future." Exhibit AC-ML-2 at 56-57. Many of the benefits of advanced metering are related to energy savings, peak load management, and distribution cost controls. The portion of the advanced metering costs, including back office costs, that are related to these benefits should not be collected through the customer charge. It is fairer and more efficient to collect these costs through other billing determinants, particularly because larger customers benefit more from electric system savings.

B. DEMAND CHARGES FOR C&I CUSTOMERS

Q. What is a demand charge?

A. A demand charge is a charge based on a customer's usage over a short period of time, often between 15 minutes and one hour. It is often denominated in kilowatts (kW), not kWh like typical volumetric charges, but typically reflects average consumption during the relevant period, not an instantaneous kW power draw. A demand charge can be based on different time periods. A non-coincident peak demand charge could be based on a customer's peak 15-minute usage at any point during a billing period, even if the customer's peak is at a time that is unlikely to

be a local or system peak hour. However, demand charges can also be based on more narrow time windows, such as peak usage during given hours or customer demand at actual coincident peak times. Demand charges based on these narrow time periods typically require more expensive metering than those that measure non-coincident individual peaks.

Q. What type of demand charges are currently included in National Grid's C&I tariffs?

A. Reviewing the tariffs indicate that National Grid's demand charges are based on non-coincident individual peaks in each billing period, with provisions for ratchets and contract demand levels. This leaves substantial room for improvement and additional granularity.

Q. Did National Grid propose more granular demand charges as required by the Track Two Order?

A. No. In a separate filing in the primary REV docket, National Grid argued that no changes were necessary to current C&I demand charge structures. Demand Charge Evaluation Filing of Niagara Mohawk Power Corporation, April 17, 2017, Case 14-M-0101.

Q. Have you examined this separate demand charge evaluation filing?

A. Yes, at a high level.

Q. What is your opinion on the analysis in this filing?

A. The analysis does not necessarily look at the right questions. The load shape for individual rate classes is much less relevant than the combined load shape, across rate classes, at different points on the delivery system. Furthermore, a flat load shape for a given customer class indicates that customers are responding rationally to the incentives provided by existing demand charges, but it certainly does not indicate efficient behavior from a system perspective.

Q. What is your opinion on additional steps that should be taken to reform National Grid's demand charges?

A. For C&I customers with sophisticated metering, gradual steps should be taken to make demand charges more aligned with delivery system peaks. This does not mean that all costs should be recovered from a narrow peak window. However, a portion of delivery costs could be moved into an additional 3- to 6-hour daily window that corresponds with the relevant peaks on a seasonal basis. For C&I customers without the necessary metering, similar steps can be taken if and when advanced metering has been rolled out to those customers.

C. RESIDENTIAL VOLUNTARY TIME-OF-USE RATES

Q. What is National Grid proposing with respect to the SC-1 voluntary time-of-use rate?

A. National Grid is proposing to keep the same structure that was approved in 2016.[5] This included an on-peak time period of 7 am to 11 pm on non-holiday weekdays for both delivery and supply, a super-peak period of 2 pm to 6 pm on non-holiday weekdays from June through August for supply, and an incremental customer charge of $3.36 per month. Exhibit E-RDP 4, Schedule 4 proposes new on-peak and off-peak delivery rates for delivery, but does not mention any changes to the customer charge structure.

Q. What is your opinion on this structure for the SC-1 voluntary time-of-use rate?

A. Given the super-peak period, this may represent a reasonable structure with respect to supply. However, the extremely broad on-peak period and lack of seasonal variation does not provide any serious linkage to cost causation for delivery costs. These elements should all be reconsidered, including the level of any incremental customer charge. In particular, the highest pricing periods should be focused on delivery system peaks, both local and regional, but limited to less than 6 hours in duration per day to enable a reasonable customer response. The

[5] http://www9.nationalgridus.com/niagaramohawk/home/rates/4_vtou.asp

reformed structure for delivery should either be synchronized with the supply structure or both structures should be reconsidered together. For the purposes of customer understanding in the short term, it would be wise to limit the different time periods adopted in this rate case to two or three per season. In the future, energy management technology could allow small customers to manage their consumption and DER to properly utilize more complex TVR options.

Q. Has National Grid proposed a promotion and education tool in this docket as required by the Track Two Order?

A. Yes, the Electric Customer Panel discusses such a proposal, but it lacks many specifics. Electric Customer Panel testimony at 77-79.

V. SUMMARY AND CONCLUSION

Q. Please summarize your conclusions regarding National Grid's proposals for residential monthly customer charges.

A. National Grid's proposal for monthly residential customer charges is not reasonable given the calculation in Exhibit E-RDP-3, Schedule 4. If inappropriate costs are removed from this calculation, namely program costs for energy efficiency, low-income discounts, and economic development, transformer costs, the delivery portion of uncollectible accounts, and certain portions of "labor-related" costs, a reasonable range for monthly residential customer charges is between $5.57 and $8.30. A majority of residential customers will benefit from lower customer charges and such a change will result in better incentives for

energy efficiency and DER. Lower customer charges, based on the incremental cost of connection, are well justified based on long-standing practices in many other states and Connecticut is currently reforming and lowering residential customer charges based on this principle. New York should pursue similar reforms and any negative side effects can be managed with other incremental rate reforms, such as seasonal rates or Acadia Center's proposal for a distribution reliability charge.

Q. Please summarize your conclusions regarding National Grid's proposals with respect to C&I demand charges.

A. National Grid's current demand charges for C&I customers are almost exclusively based on non-coincident individual customer peaks in each billing period. The analysis filed by National Grid in Case 14-M-0101, which argues that no demand charge reforms are necessary, does not necessarily look at the right questions. Gradual steps should be taken now to make C&I demand charges more granular for customers with sufficiently sophisticated metering and, as more sophisticated metering is rolled out for other customers, similar steps should also be taken.

Q. Please summarize your conclusions regarding National Grid's proposals with respect to the residential voluntary time-of-use rate?

A. National Grid is proposing to keep the same structure for residential time-of-use rates that was recently approved in 2016. However, the broad on-peak period from 7 am to 11 pm for delivery pricing, with no seasonal variation, is not

reasonably linked to cost causation. All of the elements of the voluntary time-of-use rate should be reconsidered, including the level of any incremental customer charge. For the purposes of gradualism and customer understanding, the number of time periods per season should be limited to two or three.

Q. Does this conclude your testimony?

A. Yes, it does.