

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

At a session of the Public Service
Commission held in the City of
Albany on March 9, 2017

COMMISSIONERS PRESENT:

Audrey Zibelman, Chair
Gregg C. Sayre
Diane X. Burman, concurring

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

CASE 16-M-0411 - In the Matter of Distributed System
Implementation Plans.

ORDER ON DISTRIBUTED SYSTEM IMPLEMENTATION PLAN FILINGS

(Issued and Effective March 9, 2017)

BY THE COMMISSION:

INTRODUCTION

In the Reforming the Energy Vision (REV) Track One Order, the Commission began a transition from the historic model of a unidirectional electric system serving inelastic demand, to a dynamic model of a grid that encompasses both sides of the utility meter and relies increasingly on distributed resources and dynamic load management.¹ To guide this transition of the utility model, the Commission defined a set of functions of the modern utility that are called, collectively, the Distributed System Platform (DSP). DSP functioning combines planning and

¹ Case 14-M-0101, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Order Adopting Regulatory Policy Framework and Implementation Plan (issued February 26, 2015) (Track One Order).

operations with enabling markets.² The vehicle by which improved planning and operations will be defined and implemented is referred to as the Distributed System Implementation Plan (DSIP).

On April 20, 2016, the Commission issued a Guidance Order for DSIP filings to inform the transition of the State's Investor-Owned Utilities (Utilities)³ to a modern utility model serving as a DSP provider.⁴ The Guidance Order directed the utilities to make three filings, which included: (1) a plan and associated timeline for a stakeholder engagement process during DSIP filing development (due May 5, 2016); (2) an individual utility Initial DSIP addressing its own system and identifying immediate changes that can be made to effectuate state energy goals and objectives (due June 30, 2016); and, (3) a joint Supplemental DSIP by all utilities addressing the tools, processes, and protocols that will be developed jointly or under shared standards to plan and operate a modern grid capable of dynamically managing distribution resources and supporting retail markets (due November 1, 2016).

The Guidance Order required the Utilities to describe and analyze certain specified processes and data related to distribution system planning and distribution grid operations that integrate Distributed Energy Resources (DERs). The DSIP filings also required the Utilities to analyze common grid

² Case 14-M-0101, supra, Track One Order, pp. 26-30.

³ The Utilities include Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc. (Con Edison), New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation d/b/a National Grid, Orange and Rockland Utilities, Inc. (O&R), and Rochester Gas and Electric Corporation.

⁴ Case 14-M-0101, Order Adopting Distributed System Implementation Plan Guidance (issued April 20, 2016) (Guidance Order).

architecture approaches and interfaces, advanced metering initiatives, and gathering and sharing of customer data to support robust and liquid retail markets.

On June 30, 2016, the Utilities separately filed Initial DSIPs, which included details about each Utility's physical systems, system planning efforts (including load and DER forecasts), tools, and evolving practices that are relevant to advancing the State's REV initiative. In addition, the Initial DSIPs provide information regarding the Utilities' current five-year capital investment plans. The descriptions and data provided are intended to be a first step toward providing customers and other parties with the information they need for identifying and characterizing near-term opportunities for DER development in each utility's electric distribution system.

On November 1, 2016, the Utilities jointly filed a Supplemental DSIP. Part of the filing described the ongoing stakeholder engagement process that helped to inform the contents in the Supplemental DSIP on a wide range of technical and policy issues. This process offered several different forums for stakeholders to participate. The Utilities also identified the resources and tools necessary for planning, implementing, and operating a modern grid capable of managing distributed resources and supporting retail markets, while operating safely and reliably. This included the processes and protocols to be developed jointly or under shared standards in order to plan and operate the modern electric grid envisioned in the REV proceeding.⁵

To help inform its decision-making, the Commission sought comments from interested entities on the Initial and

⁵ Case 14-M-0101, supra, Order Instituting Proceeding (April 25, 2014).

Supplemental DSIP filings. In this Order, the Commission considers those comments and addresses a subset of the matters raised in the DSIP filings made by the Utilities. The Commission finds that it is appropriate to address these matters at this time in order to provide guidance on the necessary near-term actions warranted by the Utilities. Specifically, the Commission provides guidance herein with respect to: 1) hosting capacity, 2) interconnection portals, 3) non-wires alternatives, 4) aggregated customer data privacy, and, 5) energy storage. Further development of these areas in the near-term is expected to have significant benefits. These actions, as discussed below, are designed to provide third parties with better information and resources that will facilitate improved decision-making, and promote expansion of DERs. The Commission recognizes that a broader set of matters, as some commenters raise, will need to be addressed in the future. For instance, cost recovery issues will be addressed in individual utility rate cases and/or through other proceedings, as noted in the Guidance Order.⁶

NOTICE OF PROPOSED RULE MAKING

Pursuant to the State Administrative Procedure Act (SAPA) §202(1), a Notice of Proposed Rulemaking (SAPA Notice) regarding the Initial DSIPs was published in the State Register on August 10, 2016 [SAPA No. 16-M-0411SP1]. The time for submission of comments pursuant to the SAPA Notice expired September 26, 2016. Moreover, in a "Notice of New Case Number and Soliciting Comments on the Initial Distributed System Implementation Plans," issued July 26, 2016, the Commission

⁶ Case 14-M-0101, supra, Guidance Order, p. 4.

sought initial comments by September 12, 2016, with replies due on September 26, 2016.

Subsequently, pursuant to SAPA §202(1), a SAPA Notice regarding the Supplemental DSIP was published in the State Register on November 23, 2016 [SAPA No. 16-M-0411SP2]. The time for submission of comments pursuant to the SAPA Notice expired January 9, 2017. Additionally, in a "Notice Soliciting Comments on the Supplemental Distributed System Implementation Plan," issued November 23, 2016, initial comments were solicited by January 9, 2017, with replies due on January 23, 2017.

In response to the various notices, a wide range of interested entities submitted comments. These commenters are listed with abbreviations in Appendix A. The comments applicable to the matters addressed herein are discussed below.⁷

DISCUSSION

The Initial and Supplemental DSIP filings are the result of significant work and effort by the Utilities and interested stakeholders. The Commission is particularly encouraged by the plans outlined in the Initial DSIPs to use newer technologies to enhance the integrated electric system, such as the incorporation of advanced distribution management systems to manage the system. By pursuing these plans, the Utilities will enable features such as volt/var optimization, power flow management, and fault location, isolation, and

⁷ In comments filed out-of-time on February 23, 2017, Acadia Center, Alliance for Clean Energy New York, Association for Energy Affordability, CLEAResult, Natural Resource Defense Council, Lime Energy, Sealed, TRC Solutions, and Urban Green seek to include energy efficiency investments or a framework for energy efficiency as part of the DSIP process. While the Commission recognizes the value and importance of energy efficiency, the Commission declines to act on this request at this time so that it may be adequately considered.

restoration. As the Utilities expand their current monitoring and control capabilities, DERs will be able to assist in providing coordinated grid support functions. Moreover, the actions being taken to plan and deploy advanced technologies will lead to a more efficient system and provide the Utilities with information needed to avoid unnecessary investments.

The Supplemental DSIP portrays a productive collaboration among the Utilities and indicates that they are developing a good understanding of the needs and opportunities that lie ahead. The Commission agrees with several commenting parties that indicated the Supplemental DSIP did not provide sufficient details necessary for anticipating, monitoring, and evaluating each Utility's progress toward its DSP implementation over the next few years. Although the Utilities provide a useful high level timeline in the Executive Summary and other parts of the Supplemental DSIP, that information needs to be developed at a much more detailed level. We expect that the Utilities will continue to develop and share additional details that are informative and useful in a timely manner.

The Utilities must aggressively and continuously build upon the work accomplished and knowledge gained as their DSP planning and implementation efforts progress. One important outcome will be the ability to use distribution-connected DER as an efficient and effective resource for balancing the variable output of renewable energy sources, at all levels of the integrated grid. In achieving that outcome, the Utilities will make a major contribution toward realizing New York State's clean energy goals. This outcome will depend on market animation, which the Utilities must accomplish by orchestrating a wide range of activities.

The Utilities describe the DSP activities and investments needed for market animation as longer-term

objectives. Because the steps needed for market animation are still being developed, the DSP development and implementation information is not yet well defined in the DSIPs. Nonetheless, work toward DSP development is progressing in several areas. To implement an animated market that employs DERs as an integral resource, the Utilities are, among other things, establishing policies and processes for efficiently connecting DERs to the distribution grid. A closely related activity is the expansion and enhancement of the devices, systems, and processes that the Utilities will use to monitor and control their distribution systems. This includes designing appropriate monitoring and control solutions that account for the distinct characteristics of each type of DER. The Utilities must also implement advanced system modeling capabilities that fully support planning and operation of their electric systems as DER penetration increases and market animation develops.

Extensive integration of the Utilities' planning and operating processes with related processes at the New York Independent System Operator, Inc. (NYISO) will be a fundamental aspect of market animation. That integration must in-turn enable wholesale and retail market mechanisms that recognize and compensate for the benefits of services provided by each type of DER. As a result, many complex and nearly continuous interactions will need to occur among the NYISO, the DSPs, and DER operators. Without effective coordination, the NYISO and the Utilities will not be able to operate the combined resources of the electric system efficiently and reliably. Although the extent of the future coordination requirements is difficult to gauge at this early stage, we do know that the exact requirements will need to be identified, characterized, and supported as new market rules, products, and services evolve. Toward that end, the Utilities and the NYISO are collaborating

and engaging stakeholders in developing their approaches to coordinating resources and operations in the bulk power and distribution systems. The Commission regards this collaboration as a necessary activity and encourages the Utilities to continue promoting and leveraging their work with the NYISO to the greatest extent possible.

In addition, data sharing between the Utilities and third parties is essential and must become part of the Utilities' normal business practices. Without the necessary data, DER investment opportunities cannot be effectively identified such that the maximum benefits of DERs can be realized. One of the more fundamental elements of information that has been missing to date is hosting capacity data. While the Supplemental DSIP describes the Utilities' plan for developing and providing DER hosting data, the overall timeframe for providing this information is too long and the details regarding the prioritization of circuits are insufficient.

Data sharing efforts should continue to advance the amount of Utility information available to parties as it relates to the planning and operation of the electric grid (e.g., historical load levels, reliability performance, and forecasts) not only at the system level, but also on a granular basis. The Utilities' processes need to be refined to produce more granular data and forecasts in the future. Additionally, to ensure an accurate forecast, the Utilities need to better incorporate DER forecasts from developers, after validation and benchmarking, as another input to the forecasting process. Through ongoing cooperative efforts involving the Utilities and third parties, we expect continued progress with regard to the expected contribution of each type of DER to peak load, energy reduction, and load shape for the next five years.

While some of the efforts to share system data have shown promise, such as the development of data portals and improvements to web sites, more work is needed. It is essential that the greatest amount of useful information is provided as early as possible to enable informed decision-making. The Utilities must improve the transparency of their distribution system needs, such that DER resources may be proposed as a means to address those needs. The Commission also finds that improvements to the Non-Wires Alternatives (NWAs) process are needed to enable innovative DER opportunities.

Data sharing is not only important with regard to the system, it also enables customers to better understand the options available to them. The DSIPs outline positive steps towards empowering customers with access to their energy use and cost information. As new technologies are deployed, we expect increases in the types and amounts of data to be shared, and in customers' ability to readily share their data with others. The knowledge gained by customers from their data will enable them to make informed decisions to advance energy efficiencies, which may employ the use of smart home devices and other similar technologies.

With regard to the Utilities' planned provisions for supporting electric vehicles (EVs) and electric vehicle supply equipment (EVSE), the Commission expects the Utilities to continue investigating EV-related infrastructure effects and modifications in anticipation of a potential future when the range of needs and demands for EVs is substantial. Further, the guiding principles that the Utilities and market participants developed as part of the stakeholder engagement process are a good first step, as is the initiative to develop an EV Readiness Framework within 12 months or sooner. The Commission also

acknowledges that modeling and forecasting to assess EV-related system needs and planning should be utility-specific.

Although the DSIPs cover numerous topics, the Commission has identified a need for increased focus and tangible results to enable development of DSPs that facilitate use of DERs. Specifically, we see hosting capacity, interconnection portals, NWAs, energy storage, and aggregated customer data privacy as areas where near-term actions by the Utilities will have significant benefits. The intent of these actions, discussed below, is to provide third parties with improved information and resources that will facilitate better decision-making and promote expansion of DERs by enabling the development of fully-informed business cases for DER investments.

Hosting Capacity

The Initial DSIPs define hosting capacity as the amount of DERs that the electric distribution system can reliably accommodate without material system upgrades. Analysis of hosting capacity considers, among other things, voltage/power quality constraints, thermal constraints, protection limits, safety, and reliability. Hosting capacity is location dependent, feeder specific, and time varying. Hosting capacity data can be used to support DER developers' understanding of more favorable locations for interconnection of Distributed Generation (DG), enable distribution planners to consider DER in system planning, and inform utility interconnection processes.

In the Supplemental DSIP, the Utilities propose a four stage roadmap and methodology for establishing and evaluating hosting capacity, including 1) distribution indicators, 2) hosting capacity evaluations, 3) advanced hosting capacity evaluations, and 4) fully integrated DER value assessments. The filing summarizes the current status of each Utility with

respect to Stage 1, which includes Red Zone Maps⁸ and other tools available for DER developers. Advancement in Stage 2, scheduled to begin in 2017, will consist of calculating hosting capacities using the Distribution Resource Integration and Value Estimation (DRIVE) tool developed by the Electric Power Research Institute (EPRI). Because the tool is based on circuit models, the Supplemental DSIP discusses the need to perform circuit analyses.

Hosting capacities developed for the three phase portion of the circuit as part of this process will be displayed on "Heat" maps that represent capacity ranges using color schemes that are consistent across the Utilities. Hosting capacity ranges are based on the circuit characteristics and assume that there are no DERs interconnected. Therefore, the maps will have pop-up boxes that display the DERs currently interconnected and DER projects that are in the interconnection queue process. The data in the pop-up boxes is to be updated monthly, whereas the underlying hosting capacity would be updated at least annually. The Utilities commit to have hosting capacity data available for at least half of the circuits in each of their service territories by the end of 2017, and for all circuits by mid-2018. The discussion on Stages 3 and 4 indicates how the hosting capacity data will be further refined, such as calculating hosting capacities on a sub-feeder level, and incorporating the locational value that interconnection of DERs would have on a particular feeder and/or substation.

In addition to the calculation and presentation of hosting capacity information, the Supplemental DSIP presents approaches to increase hosting capacity by resolving voltage,

⁸ Red Zone Maps identify the layout of overhead circuits and generally indicate whether the interconnection of certain sized DG would likely have a higher or lower cost.

thermal, and/or protection violations that limit additional DERs from interconnecting. Options discussed include grid-side solutions, operational changes, and customer-sided solutions. The Supplemental DSIP also recognizes existing and proposed demonstration projects related to increasing the number of DERs that could be interconnected by using control systems to curtail DERs such that system violations would not occur.

Hosting capacity was one of the most frequent topics discussed in the comments. Commenters on the Initial DSIPs generally noted that the information currently provided by the Utilities is insufficient and that more data related to hosting capacity is needed. In order to readily identify areas that may easily accommodate additional DERs, commenters requested that additional and more granular data be provided, preferably in the form of interactive maps, as compared to what is available now. Many commenters recommended a detailed road map or plan with fixed timelines, while urging a more expeditious effort to advance the hosting capacity tools. Some commenters simply expressed an interest in the process proceeding as quickly as possible. The Interstate Renewable Energy Council, Inc. (IREC) stated a concern over the simplified EPRI methodology and requested that the methodology be made public in sufficient detail so that its validity can be tested. To maintain accuracy, several commenters supported updating hosting capacity maps at least monthly. In addition to monthly updates, IREC believes the maps should include voltage, current generation, queued generation, peak and minimum load profiles, and limiting factor criteria violations.

The comments on the Supplemental DSIP echoed the concerns regarding the lack of details and lack of hosting capacity data. Common themes were concerns that the plans for hosting capacity are not sufficiently addressed; the timeline

proposed is not ambitious enough to ensure meaningful change; the Utilities' vision lacks details; and uncertainty about how constrained circuits will be managed. Borrego and IREC cited the lack of transparency and justification in the selection of the EPRI methodology and note that the accuracy of the output is important. Commenters also raised the lack of a feedback loop into the interconnection process and the distribution investment plan, and that the Utilities do not recognize the full potential of the hosting capacity analyses. Another criticism shared by several commenters is that only large photovoltaic (PV) installations are considered when developing hosting capacity maps, which will underestimate hosting capacity of the system and result in misinterpreting and leaving out key findings that rooftop DG could have on the distribution feeder. Commenters assert that the Stage 2 analysis needs to incorporate smaller, more distributed and dynamic DERs. SolarCity also states that Stage 2 should recognize customer-side solutions such as smart inverters and VAR control.

A contention of Energy Storage Association (ESA) and New York Battery and Energy Storage Technology Consortium, Inc. (NY-BEST) was the need for more attention on already constrained circuits, and the lack of effort to increase hosting capacity from 2017 to 2021. They believe proactive management and a directive from the Commission for the Utilities to develop plans that will ensure capacity constraints are addressed within one year of identification are needed, as well as additional mechanisms to incentivize increasing hosting capacity. Another concern was the lack of discussion on a plan for managing hosting capacity in the near-term and long-term as increasing levels of renewables come on to the grid. In addition, Borrego noted that it supports recent efforts by the Utilities that include a revised policy on supplemental anti-islanding

protection, increasing Hosting Capacity via Flexible Interconnect, variable output schemes, and energy storage solutions.

The Commission recognizes that the availability of hosting capacity data is one of the most fundamental elements needed for enabling DER development. The utilities must advance the capabilities for calculating and presenting hosting capacity data as quickly as possible and we are generally supportive of the phased approach outlined by the Utilities. However, their progress has been unacceptably slow and not supportive of the industries' needs.

While the method for calculating hosting capacity proposed in the Supplemental DSIP is not perfect, the Commission finds that its limitations can be managed such that relatively accurate hosting capacity data could be produced. As more accurate methodologies are developed, the Utilities should incorporate them into their practices for establishing hosting capacity data.

The Commission also finds that the proposed timeline for developing hosting capacity lacks specifics and does not provide the required data efficiently. Considering that many large DG projects are unable to readily connect to smaller circuits operating at lower voltages, we direct that the hosting capacity analysis for all circuits at and above 12kV be completed by October 1, 2017. This includes circuits that currently lack Supervisory Control and Data Acquisition (SCADA) capability.

The Commission agrees with the commenters suggesting the need to improve hosting capacity maps and the data provided with the maps. The creation of interactive maps that allow users to simply obtain hosting capacity information is necessary. We also agree with IREC that the maps should provide

basic information about the feeder, and that the developers should be able to download the underlying data for each location of interest in a useable format.

While the Utilities presented system data in response to the Guidance Order, the quality of the data varied by Utility. National Grid's online data portal is noteworthy due to the breadth of information provided and the ease at which third parties can navigate the interactive maps. The Utilities should work collectively with interested stakeholders to identify the additional content to be provided in the pop-up boxes on the hosting capacity maps, such as the circuit rating, historical circuit loading, and forecasted peak loads. System information that is not integrated into the hosting capacity maps should be provided in the same portal, similar to what is currently done by National Grid.

The Commission recognizes that hosting capacity information is dynamic and the analysis must be refreshed on a periodic basis. The Supplemental DSIP includes a commitment to update the hosting capacity values at least annually, based on interconnection volumes, capabilities, and resources of each utility. Further, the data tables provided with the map will be updated at least monthly. At this stage, the Commission concurs with these timeframes. Experience in developing the models and analyses should result in the ability to update the hosting capacity values more frequently.

Interconnection Portals

As part of the REV Track One Order, the Commission directed the Utilities to develop a means for DER developers to apply for interconnection through an online portal, subsequently named the Interconnection On-line Application Portal (IOAP), which is capable of automatically performing impact studies, such as load flow and fault potential, in order to issue a

decision in a timely manner. Although implementation of the IOAP was required by the time of the Initial DSIP filings, at that time, none of the electric utilities had successfully implemented a fully functioning portal as described by the REV Track One Order. However, as part of the Initial DSIP filings, each of the Utilities provided some insight and information as to the status of its IOAP efforts.

In September 2016, an IOAP functional specifications report was issued in order to help identify a proposed scope of work and schedule for the expected electric utilities IOAP efforts.⁹ The functional specification report proposes the portal be developed in three phases over the next two years: Phase 1 will include automated application management, and is scheduled for completion by early 2017; Phase 2 will automate SIR technical screening, and is scheduled for completion by the end of 2017; and, Phase 3 will integrate full automation of all processes, and is scheduled for completion between 2017 and 2019.

The Supplemental DSIP filing provided a high level summary of the IOAP implementation plan, while the Utilities stated that the process is underway to have more consistent near-term functionality as outlined in the functional specification report. The Utilities, however, stated that in order to provide the functionality to end users, some steps will be performed manually in the near-term due to current state of non-integration among different background systems. The Utilities also note that many of the capabilities outlined in Phase 2 and Phase 3 are not currently available. According to

⁹ New York Interconnection Online Application Portal Functional Requirements prepared by EPRI is accessible at:
[http://www3.dps.ny.gov/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/dcf68efca391ad6085257687006f396b/\\$FILE/EPRI%20Task%201%20Memo%20Report_Final%209-9-16.pdf](http://www3.dps.ny.gov/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/dcf68efca391ad6085257687006f396b/$FILE/EPRI%20Task%201%20Memo%20Report_Final%209-9-16.pdf).

the Utilities, the work that O&R is doing in conjunction with the New York State Energy Research and Development Authority is a critical learning experience for all Utilities to implement Phases 2 and 3. The Interconnection Technical Working Group¹⁰ and Interconnection Policy Working Group¹¹ that were formed to address interconnection issues and involve interested stakeholders are also viewed by the Utilities as valuable platforms for discussing and finding solutions to these technical and policy challenges.

IREC notes that while Con Edison and O&R were the only Utilities to directly address the interconnection portal requirements in the Initial DSIPs, the information provided was vague and lacked a clear timeline. IREC points out that the other Utilities discussed interconnection efforts but failed to address compliance with the Commission's requirements. In general, comments on the Supplemental DSIP requested goals and timelines to automate the interconnection process more rapidly. Borrego and SolarCity indicated that hosting capacity analysis should be part of the automated interconnection process. SolarCity also believes the interconnection process should incorporate load flow and fault indicators, as well as automated technical screening.

In reply comments on the Supplemental DSIP, the Utilities noted that Pareto, unlike other commenters, did not think the automated Phase 1 interconnection portal should be

¹⁰ See Interconnection Technical Working Group meeting information and materials, <http://www3.dps.ny.gov/W/PSCWeb.nsf/All/DEF2BF0A236B946F85257F71006AC98E>.

¹¹ See Interconnection Policy Working Group meeting information and documents, <http://www3.dps.ny.gov/W/PSCWeb.nsf/All/0D7596DBBEF0380885257FD90048ADFA>.

implemented as a priority. The Utilities asserted that Pareto, as a practitioner of large Combined Heat and Power (CHP) systems, found that such a portal was impracticable at this time and should be postponed until the interconnection reform in other areas is further advanced.

The Commission is concerned with the Utilities' lack of discussion and details with regard to how they plan to implement Phase 1 of the IOAP. Of particular concern is the failure to specify target dates or define the timelines around this entire effort. Although we recognize there has been some recent progress with the IOAP, it appears that this is not a high priority at this time. While we understand there is still uncertainty in the later phases of the effort, the Utilities are directed to ensure that Phase 1 is fully implemented by no later than October 1, 2017, and to submit a compliance filing.

Non-Wires Alternatives

The Guidance Order required the Utilities to identify specific areas where there are impending or foreseeable infrastructure upgrades needed in their Initial DSIPs, such that NWAs could be considered and so that DERs could potentially provide delivery infrastructure avoidance value or other reliability or operational benefits. The Utilities were directed to list specific infrastructure projects by location, and indicate the potential for DERs to address the forecasted system requirements.

The Utilities had previously proposed NWA Screening Criteria as part of their response to the Department of Public Service Staff (Staff) White Paper regarding the Benefit Cost Analysis (BCA).¹² In the BCA Framework Order, the Commission

¹² Case 14-M-0101, Initial Comments of the Joint Utilities to Staff White Paper on Benefit-Cost Analysis (filed August 21, 2015).

rejected the Utilities' proposal and ordered the Utilities to describe the process by which DER solutions would be compared as potential NWA alternatives to traditional grid infrastructure projects in the Initial DSIPs, and to demonstrate how the Utilities would maximize integration of DERs as part of NWA projects in order to avoid making unnecessary infrastructure investments.¹³ Each Utility filed a number of NWA opportunity areas in their Initial DSIPs. Prior to filing the Supplemental DSIP, the Utilities held a number of stakeholder engagement meetings to discuss potential revisions to the proposed criteria. As a result, a new framework was developed for future use in identifying NWA opportunities.

The Supplemental DSIP included the proposed common framework, which the Utilities termed the Suitability Criteria, which would be used to identify and prioritize utility distribution infrastructure projects that would be most suitable for a NWA solicitation. The Supplemental DSIP also expanded on the processes for procuring DERs for use in NWA projects through competitive sourcing. The proposed Suitability Criteria framework consists of three components to determine if a project should be considered for an NWA, including: 1) project type; 2) timeline; and, 3) cost. These three factors would serve as guidelines to help show where NWAs could be more cost-effective than traditional solutions.

With respect to "project type" as a Suitability Criteria for NWAs, the Supplemental DSIP notes that certain projects better lend themselves to non-traditional solutions. For instance, projects that focus on load relief and would utilize solutions such as reconductoring, new substations or

¹³ Case 14-M-0101, supra, Order Establishing the Benefit Cost Analysis Framework (issued January 21, 2016) (BCA Framework Order).

expansions, or transformer upgrades could also be addressed by NWAs, such as energy efficiency, demand response, or other DERs. In contrast, public requirements projects where utility facilities need to be relocated in order to accommodate other public facility construction or maintenance (e.g., highways) would not be well suited for a NWA.

The "timeline" component of the Suitability Criteria addresses the time needed to complete the procurement process (development and issuance of a Request for Proposals (RFP), vendor response, technical review of proposals, and contracting) as well as the implementation of the chosen proposal(s). Sufficient lead time prior to the need date for the project is necessary to ensure that a solution is in place, whether the ultimate solution turns out to be one or more NWAs, traditional solution, or a combination of the two. The Utilities state that the timelines will vary depending on factors such as project size, complexity, and customer demographics. Based on recent experiences, the Utilities note that the NWA solicitation and implementation process may need to begin up to 60 months before the required system need for some of the largest projects.

The third Suitability Criteria, "cost", is intended as a floor, for which traditional projects with costs exceeding the floor would be considered for a potential NWA solicitation. This floor represents the minimum project cost level where NWAs may be cost-effective and able to overcome the transaction and opportunity costs associated with smaller scale projects. The Utilities again note that the cost floor will vary by utility and will serve as a guideline rather than a cut off for potential NWA projects.

The Utilities committed to completing, within four months of the Supplemental DSIP filing, utility-specific matrices that would detail how the NWA Suitability Criteria

framework would specifically be applied for individual utilities.¹⁴ For instance, the project cost floor for a larger utility like Con Edison may be higher than that for a smaller utility such as Central Hudson. The matrices would also explain variations in required lead times and minimum project costs based on project type and size of the NWA solution necessary. The Utilities state that they will continue to work with stakeholders to refine the Suitability Criteria as both the Utilities and the developers gain more experience through future NWA solicitation processes.

Regarding DER sourcing for NWA opportunities, the Supplemental DSIP laid out a process for the utilities to streamline NWA procurements by: (1) providing a standard set of system data and requested DER performance characteristics within each solicitation; (2) maintaining a list of each utilities' NWA opportunities on their respective websites; (3) maintaining a common list of all NWA opportunities on a single website; and, (4) developing vendor pre-qualification processes to help further quicken NWA procurement timelines.

Commenters generally expressed a favorable view of the Suitability Criteria and DER sourcing proposals; however, commenters expressed concern regarding certain aspects of the filings. Regarding the Suitability Criteria, several parties stated that the types of projects considered for NWAs should be more inclusive and should be applied flexibly. In particular, NY-BEST expressed concern that the proposed utility-specific cost floors would unnecessarily constrict potential NWA opportunities, and requests that additional information regarding how the cost floors would be applied be provided by the Utilities. Commenters also assert that the minimum

¹⁴ The matrices were filed with the Commission on March 1, 2017, under Case 14-M-0101.

timeframe proposed in the Supplemental DSIP should be shortened to be more inclusive of shorter-run, smaller projects.

In addition, commenters recommend that information should be made available regarding the costs of capital infrastructure projects being delayed through NWAs and the reasoning behind why capital infrastructure projects that were not pursued as NWAs were not considered suitable. Advanced Energy Economy Institute (AEEI) suggests that if the Commission decides not to require a utility to reveal the capital costs of the traditional infrastructure being replaced or delayed through NWA projects, then the Commission should balance concerns of developers and the Utilities by periodically reviewing market competitiveness to determine if releasing cost information would, in fact, harm the ratepayers or the DER market.

Regarding DER sourcing, commenters assert that the Supplemental DSIP focused too heavily on NWA solicitations and procurements and did not focus on pricing or programs. Further, they note an absence of how NWAs will be holistically integrated into future distribution system planning, and that the plans lacked a consideration of how NWA procurements will interact with other ongoing market developments, such as the Value of DER proceeding in Case 15-E-0751. Commenters assert that the Utilities should move toward a portfolio optimization solution instead of the more simplistic solicitations, and that DERs should be selected as part of an NWA portfolio considering an expanded list of public policy goals and other operating criteria, such as optionality, as requested by NY-BEST.

The City of New York (City) suggests that the Commission initiate a collaborative with Con Edison and other stakeholders to develop a list of policy goals and a prioritization rubric for valuing policy criteria for the City, which would proceed in lockstep with other ongoing collaborative

efforts. AEEI posits that the Utilities should publish reasonable rules for participating in NWA solicitations six months prior to the release of the solicitation.

Although the utilities each filed a list of upcoming infrastructure projects which could be deferred or avoided through implementing an NWA, the utilities generally applied the screening criteria that had been rejected. The Suitability Criteria framework presented in the Supplemental DSIP represents a first step toward identifying beneficial locations for DERs. However, the Suitability Criteria framework, as well as the matrices filed on March 1, 2017, are inadequate. While they provide some consistency and predictability to DER developers regarding potential project opportunities, the criteria unreasonably limit NWA opportunities.

Furthermore, the Utilities have not clearly described how the Suitability Criteria will be incorporated into utility planning procedures, nor have they indicated how and when the criteria will be applied to projects in their current capital plans. To that end, the Utilities are directed to file additional information and revised matrices, within 60 days following this Order. The submission should describe how the proposed NWA Suitability Criteria will be applied as a standard procedure in the development of transmission and distribution project justifications. Additionally, each utility should identify all projects in its five year capital plan that meet the criteria and when a NWA solicitation will likely be issued for those projects. For projects that meet the Suitability Criteria, the Commission agrees that information on such projects should be made available not only on each utility website, but on a common repository as well.

Utilities should consider all aspects of operational criteria and public policy goals when selecting which DERs to

procure as part of a NWA solution. The Commission does not want the Utilities to contemplate necessary infrastructure upgrades, such as designing a new substation, and then issue an RFP to supplant that system need. Rather, the utilities should consider the procurement process earlier and more broadly incorporate system design into NWA solutions. Con Edison's Brooklyn/Queens Demand Management (BQDM) Program, for example, allows for DER to come online through various procurement mechanisms by leveraging its existing Energy Efficiency program, allowing it to procure a significant amount of load relief.¹⁵ The Commission also encourages the Utilities to meet with local municipalities and public interest groups to discuss how NWAs can be best designed to help meet public policy objectives. Specifically, the Commission advises the Utilities develop programs and align the program with where the greatest system need is located, in collaboration with these local stakeholders.

Efforts are now underway to determine what information, including costs, is truly needed to have an efficient and effective NWA solicitations process. The DER procurement processes should also be clear regarding how participation through a NWA might impact a customer's eligibility for other programs. For example, customers that participate in demand response activities as part of the BQDM program should not be eligible to participate in Con Edison's more general peak-shaving demand response program within the BQDM program area.¹⁶ NWA procurement contracts must clarify

¹⁵ Case 14-E-0302, Brooklyn/Queens Demand Management Program, BQDM Quarterly Expenditures Report Q3-2016 (submitted November 28, 2016).

¹⁶ Case 16-E-0236, Con Edison Commercial Demand Response Restrictions, Order Approving Tariff Amendment (issued July 14, 2016).

whether specific contract terms either incorporate or supersede otherwise-available programs or policy.

Aggregated Customer Data Privacy

The sharing of aggregated customer usage allows for innovative approaches to efficiency and enables DER developers to make investment decisions. In the Supplemental DSIP, the Utilities proposed a "15/15" privacy standard that would keep customer's identities anonymous when reporting aggregated data sets. The proposed 15/15 standard states that an aggregated data set may be shared only if it contains at least 15 customers, with no single customer representing more than 15 percent of the total load for the group. Although the Utilities recognize that the 15/15 standard is more conservative compared to other privacy standards used in different states, or by other utilities, they believe that starting with a more restrictive standard at this time is appropriate while they will remain open to changing the standard as the market develops. As proposed, the privacy standard would apply to aggregated data set use cases (i.e., community planning and community choice aggregation). The Supplemental DSIP did not separately address building energy management and benchmarking reporting other than to state it would comply with local laws or ordinances, such as New York City's Local Law 84.¹⁷

The comments were primarily focused on the building energy management and benchmarking use case. In that context, commenters stated that the 15/15 standard is excessively restrictive and burdensome. Comments received on an anonymized privacy standard indicate that a blanket 15/15 standard should not be applied to all aggregated data use cases. As noted by

¹⁷ For benchmarking purposes Local Law 84 has requirements for energy and water use data to be submitted for qualifying buildings (based on square footage).

the City, in April 2016, the U.S. Environmental Protection Agency (EPA) issued a document that tracks how different utilities across the country are providing energy data for benchmarking in ENERGY STAR Portfolio Manager.¹⁸ The City notes that the EPA document illustrates that approximately twenty utilities across the country used a privacy standard less restrictive than the 15/15 standard. The City also noted that six utilities use the minimum, two tenant privacy standard for providing aggregated whole-building data.¹⁹ Commenters proposed that, for building energy management and benchmarking, an aggregation level of 2 or 3 metered customers should be allowed, as opposed to the 15/15 standard.

The Commission recognizes that the proposed 15/15 standard for aggregating data may be a conservative standard; however, it is in accord with national trends and the record does not offer a strong basis for departing from this standard. Therefore, the Commission will adopt the proposed 15/15 standard for aggregated data set use cases.²⁰ To ensure that community planning and community choice aggregation are provided the quality of data needed, each utility, or platform program (e.g., Utility Energy Registry) will be required to monitor and track

¹⁸ EPA ENERGY STAR, Utilities Providing Energy Data for Benchmarking in ENERGY STAR Portfolio Manager (April 2016), Table 1, available at: https://www.energystar.gov/sites/default/files/tools/Web_Services_Fact_Sheet_02042016_508_0.pdf.

¹⁹ The EPA identifies the following utilities as using a two customer privacy standard: (1) Seattle City Light; (2) Enwave Seattle; (3) Clark Public Utilities; (4) PSEG Long Island; (5) Consolidated Edison Company of New York, Inc.; and (6) Sacramento Municipal Utility District.

²⁰ The 15/15 privacy standard we adopt in this case will also apply to the aggregation of data sets that are the subject of Case 14-M-0224, Proceeding on Motion of the Commission to Enable Community Choice Aggregation Programs.

all aggregated data requests and be prepared to report on the number of requests that do not clear the 15/15 standard. This will allow the Commission to monitor how the 15/15 standard works in practice.

The Commission agrees with commenters that applying the 15/15 standard to building energy management and benchmarking reporting would greatly limit the number of buildings that would be capable of reporting their building energy consumption.²¹ Therefore, the Commission believes that a less restrictive standard should apply with regard to building energy management and benchmarking data. While some information was put forth by commenters, we do not have enough information to determine the appropriate balance of needs to set a standard at this time.²²

The Commission is particularly interested in developing a better record given that certain less conservative whole building energy data aggregation standards are used in connection with other protocols that provide additional layers of privacy protection (i.e., access limited to building owners/agents, and non-disclosure agreements).²³ Therefore, the Utilities must work with Staff and interested entities to develop an approach to address a standard(s) that specifically addresses aggregated whole building data outside of New York

²¹ The City commented that in a statistical analysis performed by the U.S. Department of Energy (DOE) that analyzed the impacts of different aggregation thresholds both on tenant privacy, and on whole-building data access, it was determined that using a 15 meter threshold will only yield information for less than 12 percent of a utility's buildings

²² This Order does not override building benchmarking city and local laws.

²³ See, e.g., Code of Colorado Regulations, Public Utilities, Rule 3034.

City.²⁴ That method shall consider, among other things, a standard that addresses limited access (e.g., building owner/manager/agent access), non-disclosure arrangements, and/or end user consent that is consistent with nationally recognized open standards and best practices. The Utilities should also consider a standard for supplying aggregated whole building data to the public. The Utilities are directed to propose building energy management and benchmarking data standard(s) within 90 days of this Order, which will be subject to future Commission action.

Energy Storage

In the Guidance Order, the Commission directed the Utilities to develop a methodology for determining energy storage impacts in their Supplemental DSIP filing. The Commission noted that the use of energy storage located at key locations in the distribution system or on customer premises has the potential to defer transmission and distribution upgrades; support the integration of DERs, especially intermittent solar photovoltaic; shift energy spatiotemporally, alleviate congestion and reduce strain on grid infrastructure; and, normalize prices, among other things. Storage distributed throughout the system also has the potential to support the needs of the DSP through renewable ramping, ancillary services, such as reactive power and voltage support, and other services critical to maintaining a safe and reliable system. The Supplemental DSIP acknowledges that energy storage could play more than one role in the future, including by increasing hosting capacity. However, little information is presented on

²⁴ Con Edison currently provides whole building energy data without an aggregation limit to building owners in New York City such that they can comply with Local Law 84.

how the Utilities are preparing to integrate the various forms and applications of storage on a routine basis.

Commenters note the importance of energy storage in enabling the level of renewable energy generation needed to meet the State's energy goal of 50% renewable energy by 2030. NY-BEST, ESA, and JSPNY echo previous comments in the REV proceeding in recommending that the Commission establish a target level of energy storage deployment. Commenters also assert the importance of storage in increasing the amount of distribution circuit hosting capacity available for distributed renewable resources, such as solar PV. The JSPNY points out that the Utilities' Supplemental DSIP filing discusses only part of the full range of potential energy storage applications and benefits. In order to ensure that the multiple benefits of energy storage technologies are fully and timely realized, the JSPNY recommends addressing energy storage as a distinct and separate category of resources.

The Commission finds that the Utilities have thus far advanced a limited number and variety of energy storage projects. Moreover, their DSIPs do not present a robust and comprehensive plan for fully understanding and productively employing energy storage any time soon. The Commission concludes that this is inconsistent with the increasingly prominent role that energy storage technologies are generally expected to play in addressing multiple distribution system needs, including as a potential "grid-side enhancement."

The Utilities should be striving to develop their abilities to plan and use energy storage as part of their normal course of business. Utility ownership of DER contemplated here, where energy storage will be integrated into distribution grid architecture, is a permissible exception to the basic presumption that utility ownership of DER conflicts with REV's

underlying tenet that competitive markets and risk-based capital should fund asset development.²⁵ Determining optimal locations, types, levels, and uses of storage, either on the system or behind customers' meters, should become routine, collaborative activities involving the Utilities, customers, storage product vendors, DER developers, and other interested parties. Based on the Utilities current state and plans with regard to energy storage, we conclude that the Utilities must expedite the integration of energy storage. To that end, we direct the Utilities to significantly increase the scope and speed of their energy storage endeavors. By no later than December 31, 2018, each individual utility must have energy storage projects deployed and operating at no fewer than two separate distribution substations or feeders, which shall be documented in a compliance filing. The Utilities should strive to perform at least two types of grid functions with the deployed energy storage resources (e.g., increasing hosting capacity and peak load reduction). The Utilities shall collaborate to ensure the fullest range of available energy storage technologies and applications that are potentially productive in New York State and that duplicative projects are avoided.

Finally, we note that the use of energy storage as part of a NWA or demonstration project would be acceptable to comply with this directive. This energy storage requirement is an invitation for the Utilities to propose projects that will lead to incremental learning while accommodating the deployment of DER, or increasing the effectiveness of DER. By their nature, NWA projects are designed to result in ratepayer savings compared with traditional infrastructure investment. The Utilities shall integrate this energy storage requirement as

²⁵ Case 14-M-0101, supra, Track One Order, pp. 67-69.

part of existing budgets, including any budget limitations associated with overall approved rate expenditure plans or REV demonstration projects.²⁶ Any incremental project, with an associated incremental budget increase, must be proposed for Commission approval prior to utility investment.

CONCLUSION

The near-term actions required herein are both feasible and necessary to promote timely development of a modern grid capable of managing DERs and supporting retail markets, while operating safely and reliably. Furthermore, these actions will facilitate development of the DSP, allowing the distribution utilities to efficiently plan and operate the grid using DERs, while providing a competitive retail market for transacting electric grid services.

The Commission orders:

1. Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation d/b/a National Grid, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation shall submit a filing by October 1, 2017, in Case 16-M-0411, documenting that the hosting capacity analysis for all circuits at and above 12kV has been completed, as discussed in the body of this order.

2. Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation

²⁶ REV demonstration project criteria was previously established by the Commission in the Track One Order, p. 115-117; and, Case 14-M-0101, Memorandum and Resolution on Demonstration Projects (issued December 12, 2014).

d/b/a National Grid, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation shall submit a filing by October 1, 2017, in Case 16-M-0411, documenting that Phase 1 of the Interconnection Portals has been fully implemented, as discussed in the body of this order.

3. Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation d/b/a National Grid, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation shall submit a filing within 60 days of this order, in Case 16-M-0411, clearly describing how the Suitability Criteria will be incorporated into utility planning procedures, and how and when the Suitability Criteria will be applied to projects in their current capital plans, as discussed in the body of this order.

4. Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation d/b/a National Grid, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation shall submit a filing within 90 days of this order, in Case 16-M-0411, containing proposed building energy management and benchmarking data standard(s) for the Commission's consideration, as discussed in the body of this order.

5. Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation d/b/a National Grid, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation shall submit a filing by December 31, 2018, in Case 16-M-0411, documenting that each individual utility has deployed energy storage projects that are

operating at no fewer than two separate distribution substations or feeders, as discussed in the body of this order.

6. In the Secretary's sole discretion, the deadlines set forth in Ordering Clause Nos. 1 through 5 may be extended. Any request for an extension must be in writing, must include a justification for the extension, and must be filed at least one day prior to the affected deadline.

7. These proceedings shall be continued.

By the Commission,

(SIGNED)

KATHLEEN H. BURGESS
Secretary

CASES 14-M-0101 and 16-M-0411

Commissioner Diane X. Burman, concurring:

As reflected in my comments made at the March 9, 2017 session, I concur on this item.

ENTITIES THAT COMMENTED ON INITIAL AND SUPPLEMENTAL DSIPSPublic Interest Interveners

Acadia Center	Acadia
Interstate Renewable Energy Council, Inc.	IREC
Natural Resources Defense Council, Pace Energy and Climate Center, Solar Energy Industries Association, and Vote Solar	NR
Sierra Club	Sierra Club
The Alliance for Solar Choice	TASC
Environmental Defense Fund	EDF
Citizens for Local Power	CLP
Advanced Energy Economy Institute ²⁷	AEEI
Natural Resources Defense Council, Urban Green Council, Pace Energy and Climate Center, Vote Solar, Association for Energy Affordability	NRDC/Urban Green
Northeast Energy Efficiency Partnerships	NEEP
Sierra Club, Natural Resources Defense Council, Acadia Center, Environmental Advocates of New York, and Pace Energy and Climate Center	Sierra Club/NRDC
Acadia Center, Alliance for Clean Energy New York, Natural Resources Defense Council, Lime Energy, Sealed, TRC Solutions, Urban Green, CLEAResult, Association for Energy Affordability	EE Parties

Providers & Trade Organizations

ChargePoint, Inc.	ChargePoint
Energy Storage Association	ESA
Mission:data Coalition	Mission:data
New York Battery and Energy Storage Technology Consortium, Inc.	NY-BEST
Pareto Energy	Pareto
Sealed Inc.	Sealed
Multiple Interveners	MI
Nucor Steel	Nucor
Borrego Solar Systems, Inc.	Borrego
SolarCity Corporation	SolarCity
Joint Storage Parties of New York	JSPNY

Governmental Entities

City of New York	NYC
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²⁷ AEEI submits comments on behalf of AEE, ACE NY, the NECEC, and their joint and respective member companies.

Individuals

Mr. Ted Kidd

Mr. Kidd

Utilities

Joint Utilities²⁸

New York State Electric & Gas Corporation

Rochester Gas and Electric Corporation

Joint Utilities

NYSEG/RGE

²⁸ Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation d/b/a National Grid, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation.