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June 12, 2020

**VIA ELECTRONIC MAIL**

Hon. Michelle L. Phillips  
Secretary  
State of New York  
Public Service Commission  
Three Empire State Plaza  
Albany, New York 12223-1350

**Re: Case 14-M-0101 – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision – Demonstration Projects**

Dear Secretary Phillips:

By letter dated June 29, 2018, Orange and Rockland Utilities, Inc. (“Orange and Rockland”) filed an Implementation Plan for the Innovative Storage Business Model REV Demonstration Project (“Initial Implementation Plan”) with the Commission. As set forth in this filing, Orange and Rockland proposed to collaborate with Tesla on an Innovative Storage Business Model (“ISBM”) Demonstration Project. For various reasons, Orange and Rockland and Tesla mutually determined not to move forward with the ISBM Demonstration Project outlined in the Initial Implementation Plan. After discussions with Department of Public Service Staff (“Staff”), Orange and Rockland rebid the Project in early 2019, and has selected Sunrun as its partner in a revamped ISBM Demonstration Project.

In light of these developments, Orange and Rockland requests that the Initial Implementation Plan be replaced by the attached Revised Innovative Storage Business Model Demonstration Project Implementation Plan.

Please contact me if you have any questions regarding this matter.

Very truly yours,

*/s/ Enver Acevedo*

Attachments

REV Demonstration Project Implementation Plan  
Orange and Rockland Utilities, Inc.  
Innovative Storage Business Model

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June 12, 2020

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# 1 Executive Summary

Energy storage is a distributed energy resource (“DER”) with the potential to support the goals of the Public Service Commission’s (“Commission”) Reforming the Energy Vision (“REV”) initiative<sup>1</sup> through its ability to improve the overall efficiency of the bulk power system, while also providing benefits to customers and a utility’s electric distribution system.

Orange and Rockland Utilities, Inc. (“O&R” or the “Company”) will collaborate with Sunrun, Inc. (“Sunrun”) on a demonstration project (the “Project”) to illustrate an innovative solar plus storage Virtual Power Plant (“VPP”) business model to optimize and deliver clean energy, provide dispatchable grid services and reduce costs for customers. The Project will test the hypothesis that a collection of behind-the-meter (“BTM”) solar plus storage systems can be aggregated to provide value to the host customer, electric distribution system, and bulk system services, and that this value can be allocated across participating customers, non-participating customers, utilities, and developers, producing cost efficiencies and increased engagement by all parties involved. O&R’s strong brand recognition and loyal customer base will prove essential in the Project partnership to assemble customer-sited assets in order to deploy the VPP.

The building block for the Project will be Sunrun’s Brightbox – an integrated behind-the-meter residential solar plus storage product. Sunrun will deploy Brightboxes to approximately 300 residential customers throughout O&R’s service territory, focusing on 15 locations identified by the Company as having distribution value. The Project will deploy approximately 2.9 MW of distributed rooftop solar and 2.1 MW/4.7 MWh of distributed energy storage over a ten-year demonstration period. All Brightbox installations will be developed, designed, installed, operated, owned and maintained by Sunrun.

Sunrun and each individual participating residential customer (“Participants”) will enter into a lease agreement (“Program Lease Agreement”) with respect to the Brightbox to be deployed at the Participant’s residence. The Program Lease Agreement will have a 25-year term and will not require any down payment from the Participant. Participants will pay Sunrun a discounted monthly rental charge (from Sunrun’s usual rates) for the battery storage component of the system. The price paid by Participants for solar energy under the Program Lease Agreement will be, on average, comparable to the Participant’s current and projected monthly utility bill price. Sunrun will provide Participants with two pricing options for solar energy under the Program Lease Agreement, (i) a fixed rate option and a (ii) variable rate with an escalator option. This pricing will be maintained for the entire 25-year term of the Program Lease Agreement, notwithstanding the ten-year demonstration period.

Twenty percent of the Brightbox’s battery capacity will be reserved to the Participant for backup power in the case of a system outage. Sunrun will use the remaining battery capacity to provide O&R with grid services for a ten-year period. The Project will employ algorithms and protocols designed to deliver optimal dispatch for the aggregated portfolio, maximizing the portfolio value among customers, the distribution grid, and third-party vendors. Under this business model, the flexible operating characteristics of distributed energy storage will be employed to obtain the highest value use of the resource at any point in time. Through a multi-use model, such as the one employed by the Project, energy storage assets can provide value to customers, the utility, and developers. As described in the following sections, this multi-use model will increase asset utilization to take full advantage of the asset’s potential and improve economics to expand market size.

Maximizing the value of customer-sited solar plus storage VPPs by participating in multiple value streams will result in a larger market opportunity for energy storage systems. If BTM solar plus storage VPPs can be dispatched reliably to provide multiple services (e.g., distribution benefits, backup power for resiliency, wholesale revenues), then more energy storage will be deployed by third parties as a result of the increased revenue potential. Upfront costs will be reduced, and investors will benefit due to the ability of the distributed system provider (“DSP”) to monetize savings from avoided or deferred infrastructure upgrades due to optimal storage dispatch and aggregated distributed assets. Finally, operational data and lessons learned from the Project may be used to inform the development of wholesale market rules which facilitate greater value from residential energy storage systems and DERs.

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<sup>1</sup> Case 14-M-0101, *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision*

Currently, the market for storage is not mature enough to maximize benefits to customers. O&R aims to fill that market gap by providing an initial incentive to Sunrun. As the market matures and VPPs are allowed to participate in wholesale markets (*i.e.*, capacity, energy and ancillary markets), and earn revenues by benefiting the utility (*e.g.*, the Day Ahead Direct Load Management Program), an incentive from O&R will not be needed and the VPP concept will be sustainable. The Project will aim to demonstrate the wholesale and distribution benefits mentioned above.

Due to the dynamic energy environment and policy advances anticipated over the demonstration period, the Project team expects to make operational adjustments to optimize the value of the aggregation. Advances and corresponding adjustments will be highlighted and reported to the Commission during the quarterly reporting process, as discussed in Section 5 below.

## 1.1 Test Population

The Project will consist of a 2.1 MW/4.7 MWh BTM solar plus storage VPP portfolio at approximately 300 residential customer locations according to the following estimated deployment schedule:

- Year 1: 50 customers;
- Year 2: 150 customers; and
- Year 3: 100 customers.

Deployment Schedule Note: The deployment schedule for the assets noted above will be evaluated and modified, as necessary, to adapt to the effects of the ongoing COVID-19 pandemic.

The deployment will demonstrate that the allocation of costs and benefits of energy storage to multiple stakeholders will reduce the current barriers associated with energy storage. The Project will demonstrate a viable business model in which all parties may receive net benefits. Additional detail regarding the deployment is provided below. Sunrun will own the assets and the costs and benefits of the total installation will be shared among the Company, Participants, and Sunrun.

### 1.1.1 VPP Customers

The portfolio will consist of approximately 300 Sunrun Brightboxes installed at the residences of Participants. Each Sunrun Brightbox includes: (1) a photovoltaic (“PV”) system sized for the individual residential customer’s roof and load, (2) a smart inverter, and (3) an AC-coupled battery, which are all interconnected BTM. The battery will charge 100% from the BTM PV system, with the exception of <0.001% when the battery is at risk of shutting down due to lack of charge. The energy produced by the PV system is delivered to the Participant, the battery and then any excess energy is credited to the Participant through the Participant’s net meter. The Project will help demonstrate that BTM deployments can provide outage protection and resiliency benefits to the Participants, grid services to O&R, and services to the New York Independent System Operator’s (“NYISO”) wholesale market. Participants will be able to achieve potential savings and resiliency benefits at a lower system cost than would be available if the battery were used only in a single-use application.

O&R will collaborate with Sunrun to identify and select residential customers who are able to host a solar plus storage installation based on predetermined criteria, in geographical areas that will provide distribution benefits to O&R. Sales efforts will be focused on residential customers living in 15 high-value locations<sup>2</sup> that provide greater system value. O&R will guide Sunrun to locations well-suited for VPPs to maximize transmission and distribution (“T&D”) and host benefits.

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<sup>2</sup> The 15 high-value locations are served by the following Company substations: Blooming Grove, Burns, Congers, Harriman, Monroe, New Hempstead, Snake Hill, South Goshen, Tallman, West Nyack and Wisner.

## 1.2 Project Plan

O&R in collaboration with Sunrun will implement the Project in three phases to demonstrate that further value can be realized with additional sophistication. The three phases constitute the “Demonstration Period.” Within each phase are associated tasks and activities, which will be tracked and managed by the Project team and reported to the Commission and Staff of the Department of Public Service (“DPS Staff”). Please see Table 2.2 below for a summary of the overall plan.

**Table 2.2: Project Phases<sup>3</sup>**

Phase	0	1	2	3
<b>Timing</b>	July 2020 – July 2023	July 2020 – July 2020	July 2021 – July 2022	July 2022 – July 2023
<b>Objective</b>	Customer Adoption / Site Selection	Stack Value with Day-Ahead Responsiveness	Intraday Responsiveness	Wholesale Market Participation / Localized Grid Services

Table 2.2: Project Phases Note: The project phases in Table 2.2 will be evaluated and modified, as necessary, to adapt to the effects of the ongoing COVID-19 pandemic.

Start and end dates of each Project task and activity may occur earlier or later in the schedule due to various inputs which may include, but are not limited to, customer feedback, customer participation, and systems integration. The key milestones for the Project align with the completion of each phase, meeting the checkpoints within the stage and demonstrating phase success. O&R, together with Sunrun, will monitor progress and milestones through various checkpoints, and will report to the Commission quarterly. Reporting will conform to the Commission's direction and Section 5 below.

### 1.2.1 Phase 0 – Pre-Demonstration Planning, Customer Adoption, and Site Selection

Phase 0 will focus on residential host customer adoption and site selection for the solar plus storage VPP deployment, along with construction and commissioning of the assets. This phase also will involve co-marketing efforts by both O&R and Sunrun to promote the Brightbox system and increase customer adoption. Co-marketing will be the leading driver in attracting initial customers. O&R will focus primarily on bill inserts, mailers, emails, and phone calls to alert its customers in the targeted territories. Sunrun will promote the Project at multiple national retail stores within and near O&R's service territory and also conduct online marketing activities.

O&R and Sunrun will work together to identify customers who would most benefit from a Brightbox installation. This includes customers with optimal load profiles and customers located in areas with a history of outages.

### 1.2.2 Phase 1 – Stack Value with Day-Ahead Responsiveness

Phase 1 will last approximately 12 months and will focus on implementing day-ahead dispatch notification for distribution services and demand response, and pre-established discharge for capacity. This Phase will include developing expected

<sup>3</sup> Phases may not occur consecutively. For example, Phase 0 will be an ongoing effort, and work on Phase 3 could begin before Phase 2 is completed.

discharge windows and prioritizing distribution services in response to O&R's reliability needs. When no need is identified by O&R, Sunrun will operate each battery for Participant bill management and energy resilience.

Sunrun will respond to signals produced by O&R's Commercial Systems Relief Program ("CSRP") in the same way as enrolled demand response resources.

### **1.2.3 Phase 2 – Intraday Responsiveness**

Phase 2 will last approximately 12 months and will seek to leverage improvements to load forecasting and system viability. This Phase will also realize less than two-hour notifications for all services and shape discharges to set points for more efficient dispatches. As a result of the enhancement to responsiveness, Sunrun and O&R will collaborate to narrow the discharge window to increase delivery capacity and allocate capacity across multiple hours, weighted based on expected load conditions.

During Phase 2, Sunrun will expand its battery management to include responsiveness to calls for both the CSRP and the Distribution Load Relief Program ("DLRP"). The battery's capacity will be split 80/20, where 80% will be reserved for grid resiliency and the remaining 20% will offer Participant resiliency. Energy arbitrage will continue to be provided in winter and shoulder months on a scheduled basis that can be updated over time if anticipated seasonal peaks change.

### **1.2.4 Phase 3 – Wholesale Market Participation and Localized Grid Services**

Phase 3 will last approximately 12 months and will focus on participating in the NYISO's wholesale marketplace and optimizing the operational model. Brightboxes may also provide localized volt/var optimization ("VVO") and real-time responsiveness to adverse system conditions. This functionality will require integration with control software that O&R plans to replace or upgrade in the near future.<sup>4</sup> If it is more economically beneficial for the VPP to participate directly in wholesale markets, the VPP will be enrolled in the NYISO's regulation, energy, operating reserves, and/or capacity markets.

In Phase 3, advances made by O&R in same-day probabilistic load forecasting will be leveraged to better target the specific hours of the day during which the VPP will be needed. This will serve to increase the amount of capacity that is useful on a per unit basis, as well as to mitigate risk.

### **1.2.5 Post Demonstration Period**

Following the Demonstration Period, until the conclusion of the Program, approximately ten-years after the installation of the final solar plus storage system, O&R and Sunrun will continue to gather data from the operation of the VPP and will manage the aggregate energy from the VPP in a manner to maximize value based on the ongoing operational data and lessons learned from the Project. During the post-Demonstration Period, Participants will continue to enjoy the same rates and monthly costs as set forth in their respective Program Lease Agreements.

## **1.3 Test Statements**

This Project Implementation Plan outlines the hypotheses being tested as they pertain to the BTM deployments. The main hypothesis being tested is that optimization and increased use of such deployments may lead to stacked value streams for multiple stakeholders (*e.g.*, grid benefits for utilities, benefits for Participants, and wholesale revenues for utilities and third-party partners). Table 2.3 below outlines additional hypotheses to be tested by the Project.

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<sup>4</sup> See Orange and Rockland Distributed System Implementation Plan ("DSIP") at pages 64-77.

<https://www.oru.com/-/media/files/oru/documents/our-energy-projects/distributed-system-implementation-plan.pdf?la=en>

**Table 2.3: Test Statements**

Test Statement	Hypothesis
<p>1) <b>We believe...</b>residential customers will realize benefits from hosting a solar plus storage VPP.</p>	<p><b>If...</b>solar plus storage VPP can participate in multiple value streams to maximize revenue potential.</p> <p><b>And If...</b>co-marketing is successful in deploying approximately 300 Brightboxes over the duration of the Project...</p> <p><b>Then...</b>Participants can realize cost savings and obtain back-up power during the Demonstration Period.</p>
<p>2) <b>We believe...</b>VPP assets may be used to provide O&amp;R with distribution benefits.</p>	<p><b>If...</b>the asset(s) can be dispatched to relieve a distribution system constraint or respond to a contingency event...</p> <p><b>Then...</b>O&amp;R will realize distribution benefits during the Demonstration Period (Years 1 through 3).</p>
<p>3) <b>We believe...</b>VPP assets will be able to realize wholesale market revenues.</p>	<p><b>If...</b>the VPP can be dispatched into the wholesale markets...</p> <p><b>Then...</b>in the near term, the BTM VPP assets can participate in NYISO’s Day-Ahead Demand Response Program, Demand-Side Ancillary Service Program, and Special Case Resources Program to generate revenues...</p> <p><b>And Then...</b>in the long term, the Project team will regularly assess market opportunities and adjust registration and operational approaches to participate in evolving and emerging NYISO market products and programs.</p>
<p>4) <b>We believe...</b>VPP assets can be operated to produce benefits for all participating stakeholders.</p>	<p><b>If...</b>O&amp;R can leverage the assets to relieve distribution constraints</p> <p><b>And If...</b>Sunrun can optimize and operationally dispatch the VPP assets...</p> <p><b>Then...</b>the asset(s) will be dispatched to increase utilization, relative to single use-case deployments, and all stakeholder groups will realize meaningful net benefits, as defined in Test Statements 1 through 3, over the Demonstration Period.</p>

## 1.4 Test Scenarios

The Project will test scenarios across each of the three implementation phases. Each phase will address unique REV demonstration principles. Due to the dynamic energy environment and policy advances anticipated over the Demonstration Period, adjustments to the scenarios are expected. Testing the propensity of customers to adopt residential solar plus storage for resiliency benefits while providing added distribution benefit to the Company, will be the primary test scenario.



## 1.5 Project Checkpoints

Project checkpoints are noted in Table 2.5, below. These checkpoints are preliminary and are subject to change, depending on feedback from DPS Staff.

**Table 2.5: Project Checkpoints**

Checkpoint	Description
<p><b>Demonstration Planning, Site Selection, and Design (Phase 0)</b></p>	<p><b>Measure:</b> Finalize agreements, participate in co-marketing, identify and engage with host customers, and complete installation of the Brightboxes.</p> <p><b>When:</b></p> <ul style="list-style-type: none"> <li>• Finalized agreement between O&amp;R and Sunrun.</li> <li>• Co-marketing, identification and engagement with host customers, and installations will be ongoing through Phase 0, or until the 300-customer goal is reached.</li> </ul> <p><b>How:</b></p> <ul style="list-style-type: none"> <li>• Sunrun and O&amp;R will have bi-weekly meetings to discuss marketing, installation, and commissioning throughout the Demonstration Period.</li> </ul> <p><b>Expected Target:</b></p> <ul style="list-style-type: none"> <li>• Finalize O&amp;R-Sunrun agreement(s) within three months of submitting the Project Implementation Plan to DPS Staff.</li> <li>• Complete target marketing design and identification of initial high-value customers within six months of the effective date of the finalized O&amp;R-Sunrun agreement(s).</li> </ul> <p><b>Impact:</b></p> <ul style="list-style-type: none"> <li>• Inability to identify and/or engage with host customers will prove Hypothesis 1 to be untrue.</li> <li>• Inability to execute Phase 0 tasks in a timely and cost-effective manner challenges the practicality of scaling this model.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• O&amp;R and Sunrun may expand the residential customer candidate pool who are willing to host a Brightbox.</li> <li>• Sunrun and O&amp;R will continually evaluate progress to identify any issues in advance.</li> <li>• Sunrun and O&amp;R may engage authorities having jurisdiction in the O&amp;R service territory to support and make changes for permitting approvals.</li> </ul>
<p><b>Operational Control and Optimization (Phase 1 through 3)</b></p>	<p><b>Measure:</b> Monitoring and Control of the portfolio of VPPs both individually and in aggregate as they participate in multiple value streams.</p> <p><b>When:</b> Midpoint of Phase 2.</p> <p><b>How:</b> Performance metrics to be included in quarterly Commission reports.</p> <p><b>Expected Target:</b></p> <ul style="list-style-type: none"> <li>• Phase 2 Middle: Sunrun successfully dispatched battery aggregation to provide local services/optimization and support grid needs. <ul style="list-style-type: none"> <li>◦ Sunrun was able to dispatch the battery at least 98% of the time when called on by O&amp;R</li> </ul> </li> <li>• Phase 3 End: Sunrun and O&amp;R continue to collaborate to dispatch aggregation for grid services and incorporate lessons learned to improve operational efficiency.</li> </ul>

	<ul style="list-style-type: none"> <li>○ If aggregated storage availability is less than 98%, Sunrun and O&amp;R will work together to address any deficiencies.</li> </ul> <p><b>Impact:</b></p> <ul style="list-style-type: none"> <li>● Inability to use VPP assets to reduce Participant charges and/or provide back-up storage will prove Hypothesis 1 to be untrue.</li> <li>● Inability to leverage VPP assets for distribution needs will prove Hypothesis 2 to be untrue.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>● Sunrun and O&amp;R will continually evaluate progress to identify any issues.</li> <li>● O&amp;R and Sunrun will meet on a bi-weekly basis to assess progress, identify hurdles, and adjust the Project plan, as needed.</li> </ul>
<p><b>Wholesale Market Participation (Phase 3)</b></p>	<p><b>Measure:</b> Earn revenues through participation in the NYISO wholesale market.</p> <p><b>When:</b> Midpoint of Phase 3.</p> <p><b>How:</b> Gather and analyze settlement data from O&amp;R’s Energy Management group.</p> <p><b>Expected Milestones:</b></p> <ul style="list-style-type: none"> <li>● Phase 2 End: Confirm registration and ability to participate in NYISO wholesale market.</li> <li>● Phase 3 Midpoint: Ability to dispatch in accordance with various competitive market participation models.</li> </ul> <p><b>Impact:</b></p> <ul style="list-style-type: none"> <li>● If assets are unable to realize wholesale revenues, Hypothesis 3 may be untrue.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>● O&amp;R has engaged with the NYSIO, Sunrun, and relevant internal resources to identify applicable wholesale market participation models.</li> <li>● O&amp;R has begun coordinating internally so that processes and resources are available to perform operational checks and to bid Project assets into the wholesale market.</li> <li>● As NYISO participation models evolve, O&amp;R and Sunrun will adjust the optimization model accordingly.</li> </ul>

Table 2.5: Project Checkpoints Note: The project checkpoints in Table 2.5 will be evaluated and modified, as necessary, to adapt to the effects of the ongoing COVID-19 pandemic.

## 1.6 Project Metrics

### 1.6.1 Primary Metrics

Project success will be measured using the multiple metrics agreed to by O&R and Sunrun. The proposed metrics set forth in Table 2.6.1 below are subject to change based on Project final agreements between O&R and Sunrun. At that time, metric targets will be set, and metrics will be measured and calculated as described in the table and reported to the Commission on a quarterly basis.

**Table 2.6.1: Primary Metrics**

Primary Metric	Reporting Begins	Description
<b>Customer Adoption</b>	<b>Phase 1</b>	<ul style="list-style-type: none"> <li>• <b>Description:</b> To assess the ability of VPP assets to operate to reduce the cost of BTM energy storage for host customers and provide back-up benefits</li> <li>• <b>Calculation:</b> Participant cost savings = Cost of Brightbox solar plus storage system provided through the Project – revenues earned by Brightbox from various markets – resiliency benefits to customers</li> </ul>
<b>Distribution System Benefit</b>	<b>Phase 1</b>	<ul style="list-style-type: none"> <li>• <b>Description:</b> To assess the ability of VPP assets to operate to meet distribution system needs.</li> <li>• <b>Calculation:</b>  <math display="block">\text{Distribution System Benefit} = \text{VPP Capacity} * (\text{Marginal D Cost}) * (\text{D Coincidence Factor})]</math> </li> </ul>
<b>Wholesale Market Revenue</b>	<b>Phase 3</b>	<ul style="list-style-type: none"> <li>• <b>Description:</b> To assess the ability of the Scheduling Coordinator to coordinate dispatching and bidding, and the ability of the system to participate in the NYISO wholesale market.</li> <li>• <b>Calculation:</b> Sum of various potential revenue streams.</li> </ul>
<b>Capacity Factor</b>	<b>Phase 3</b>	<ul style="list-style-type: none"> <li>• <b>Description:</b> To assess utilization of the overall VPP.</li> <li>• <b>Calculation:</b> <math>\text{Capacity Factor} = \frac{\text{Actual Output}}{\text{Maximum Output}}</math></li> </ul>

**Table 2.6.2 – Host VPP Customer Test Metrics**

Host VPP Customer Test Metrics	
<b>Host Customer Potential</b>	<ul style="list-style-type: none"> <li>• <b>Description:</b> To assess pool of candidate customers within the Company’s service territory.</li> <li>• <b>Calculation:</b> This metric will be measured by counting the number of customers who meet the following criteria within the geographical areas identified by O&amp;R: (a) credit (FICO) score, (b) homeownership, (c) sufficient roof installation, and (d) sufficient energy spending (to be determined) in O&amp;R’s 10 high-value locations. These customers will be called “Potential Participants.”</li> </ul>
<b>Host Customer Adoption</b>	<ul style="list-style-type: none"> <li>• <b>Description:</b> To assess customer adoption in siting VPP and partnering with Sunrun and the Company.</li> <li>• <b>Calculation:</b> Number of customers who commit to adopting Brightboxes. These customers will be called “Participants.”</li> </ul>
<b>Host Customer Adoption Rate</b>	<ul style="list-style-type: none"> <li>• <b>Description:</b> To assess customer adoption in siting VPP and collaborating with Sunrun and the Company.</li> <li>• <b>Calculation:</b> (Number of Potential Participants) / (Number of Participants).</li> </ul>
Operational Metrics	
<b>Utilization</b>	<ul style="list-style-type: none"> <li>• <b>Description:</b> To assess utilization of VPP assets.</li> <li>• <b>Calculation:</b> (VPP operational time) / (total time).</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>• <b>Description:</b> To test system ability to respond to operational needs, when called upon.</li> </ul>

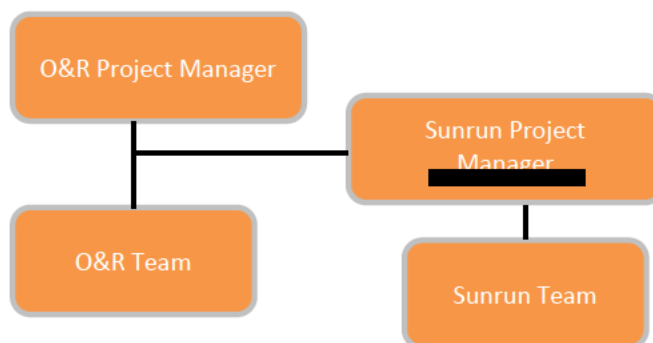
	<ul style="list-style-type: none"> <li>• <b>Calculation:</b> (# of times system is called upon and responds) / (# of times system is called upon).</li> </ul>
<b>Distribution Usage</b>	<ul style="list-style-type: none"> <li>• <b>Description:</b> To assess VPP usage for distribution deferral needs.</li> <li>• <b>Calculation:</b> (# of times VPP is called upon for distribution needs) / (# of times VPP was dispatched).</li> </ul>
<b>Customer Outage Usage</b>	<ul style="list-style-type: none"> <li>• <b>Description:</b> To assess VPP usage for customer outage needs.</li> <li>• <b>Calculation:</b> (# of times VPP is called upon in response to a customer outage) / (# of times VPP was dispatched).</li> </ul>
<b>Response Time</b>	<ul style="list-style-type: none"> <li>• <b>Description:</b> To assess and understand lag between O&amp;R providing Sunrun with requested near real-time operational change, and when the operational change is actually made.</li> <li>• <b>Calculation:</b> Time O&amp;R requests the operational change – Time Sunrun makes the operational change.</li> </ul>

## 2 Project Structure and Governance

### 2.1 Project Team

The Project is a collaboration between O&R and Sunrun. Each party will provide key skillsets and be responsible for certain Project functions in order to execute a successful demonstration project. O&R will maintain overall responsibility for Project execution; Sunrun is a key contributor. The high-level Project team makeup and alignment are depicted in Figure 3.13.1.1.

**Figure 3.1.1: Team Leadership/Organization**



O&R will facilitate interaction through its existing residential customers and apply the skillsets of its team aligned with its roles and knowledge base as a utility. O&R will collaborate with Sunrun to identify Potential Participants. O&R’s Project Manager will have overall responsibility for the success of the Project and will plan, coordinate, and manage activities for the scope and duration of the demonstration. O&R and Sunrun Skillsets are outlined in Table 3.1.2, below.

**Table 3.1.2: O&R and Sunrun Skillsets**

O&R Team Key Skillsets	Sunrun Team Key Skillsets
<ul style="list-style-type: none"> <li>• Program Management</li> <li>• Marketing               <ul style="list-style-type: none"> <li>○ Initial co-ordination with Potential Participants</li> </ul> </li> <li>• Local Distribution Expertise</li> <li>• Technology Engineering</li> <li>• Customer Data (<i>e.g.</i>, peak loading)</li> <li>• Legal</li> <li>• NYISO Market Expertise</li> </ul>	<ul style="list-style-type: none"> <li>• Sales and Marketing</li> <li>• Project Installation Management</li> <li>• Legal/Permitting</li> <li>• Engineering</li> <li>• Solar and Storage Technology</li> <li>• Operations and Maintenance</li> <li>• Systems Integration</li> <li>• Software Communication and Controls</li> </ul>

	<ul style="list-style-type: none"> <li>• Project Finance</li> <li>• Contracting/Financing</li> <li>• Customer Relationship, Offer, and Service</li> </ul>
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Sunrun develops, finances, designs, installs, operates, and maintains solar PV and energy storage in residential settings. It has a proven history collaborating with utilities around the country in expanding DER awareness and introducing DER into the grid. Sunrun will provide its skills and knowledge in solar PV and energy storage, matching its product to the market and ability to engage customers.

## 2.2 Project Staffing

O&R has assembled a REV demonstration program team within its Utility of the Future (“UotF”) department dedicated to identifying, developing, and implementing new projects related to REV. From this team, a Project Manager has been selected to lead the Project. In addition, O&R will provide the necessary internal and external resources in key areas (e.g., marketing, information resources, legal, procurement, and engineering) to augment and support demonstration activities and objectives. O&R’s team members are listed in Table 3.2.1 along with their functional areas and current duty titles.

**Table 3.2.1: O&R’s Project Team**

Team Member	Title	Functional Area
<ul style="list-style-type: none"> <li>• Roberta Scerbo</li> <li>• Vinny Galligan III</li> <li>• MD Sakib</li> <li>• Jeff Peifer</li> </ul>	<ul style="list-style-type: none"> <li>• Director</li> <li>• Project Manager</li> <li>• Section Manager</li> <li>• Project Manager</li> </ul>	<ul style="list-style-type: none"> <li>• Utility of the Future</li> <li>• Utility of the Future</li> <li>• Utility of the Future</li> <li>• Utility of the Future</li> </ul>

Sunrun is committed to the Project and will assign a Project Manager who will lead the management and integration of Sunrun’s activities into the overall Project scope and plan. In addition, Sunrun will provide the Company with functional expertise (e.g., product marketing, operations and maintenance, and engineering and design) to execute demonstration tasks and activities. Table 3.2.2 below lists the key individuals from Sunrun, along with a description of their titles and functional areas.

**Table 3.2.2: Sunrun’s Project Team**

Team Member	Title	Functional Area
<ul style="list-style-type: none"> <li>• Audrey Lee</li> <li>• Gregory Thompson</li> <li>• Chris McCellan</li> <li>• Aaron Semliatschenko</li> <li>• Carla Stewart</li> <li>• Chris Sommerfield</li> <li>• Alex Sherman</li> <li>• Chelsea Watkins</li> </ul>	<ul style="list-style-type: none"> <li>• VP, Energy Services</li> <li>• Director, Energy Services Platform</li> <li>• Senior Director, Regional Sales</li> <li>• Director Regional Operations</li> <li>• VP, Customer Operations</li> <li>• Director, Fleet</li> <li>• Director, Energy Services Program Management</li> <li>• Senior Manager, Energy Services</li> </ul>	<ul style="list-style-type: none"> <li>• Grid Services</li> <li>• Software development</li> <li>• Sales</li> <li>• Installation</li> <li>• Customer Care, Operations and Maintenance</li> <li>• Battery Management</li> <li>• Project Management</li> </ul>

## 2.3 Roles and Responsibilities

The Project team has developed a work plan, outlined in Section 5.1 below, with specific tasks and activities aligned to the Project timeline and overall success. The breakdown of roles and responsibilities is provided in this Section 2.3.

### 2.3.1 Phase 0 – Demonstration Planning, Customer Adoption, and Site Selection

The initial stages of the demonstration will focus on obtaining implementation approval from DPS Staff and finalizing the agreements between O&R and Sunrun. Co-marketing will also begin at this phase, and O&R will work with Sunrun on customer adoption and site selection.

**Table 3.3.1: Phase 0 – Roles and Responsibilities**

Lead Responsibilities	O&R	Sunrun
<b>Partnership Agreement</b>		
<b>O&amp;R and Sunrun</b> will enter into an agreement to delineate roles and responsibilities with respect to the Innovative Storage Business Models Demonstration project execution.	X	X
<b>C&amp;I Customer Contract Development</b>		
<b>Sunrun</b> will develop the residential customer zero-down 25-year solar plus storage PPA.		X
<b>Customer Engagement</b>		
<b>O&amp;R</b> will collaborate with <b>Sunrun</b> to identify customers in potential load areas that are well-suited for the services that solar plus storage can provide while also providing load relief to the grid	X	X
<b>O&amp;R</b> will collaborate with <b>Sunrun</b> to conduct customer marketing to introduce customers to the opportunity to participate in the Project	X	X
<b>Sunrun</b> will leverage its existing customer relationships and deployment experiences to procure the BTM customers as per guidance from O&R and also reduce risk to the Project.		X
<b>Site Selection</b>		
<b>O&amp;R</b> will identify distribution load areas that would offer the highest value opportunities for congestion relief, outage protection, and infrastructure upgrade avoidance or deferral.	X	
<b>Sunrun</b> will identify residential customers within the aforementioned identified locations; in the absence of viable customers or sites, Sunrun may make use of customers or sites elsewhere in the service territory, subject to O&R approval.		X
<b>Installation and Commissioning</b>		
<b>Sunrun</b> will use its vertically integrated network to deliver potentially in excess of 4.7MWh of distributed energy storage in O&R's service territory at the completion of Phase 3.		X
<b>Engineering and Design</b>		
<b>Sunrun</b> will lead the solar PV and storage engineering design for safe installation meeting all Project requirements and demonstrate dispatchability.		X

### 2.3.2 Phases 1 through 3 – Operational Control and Optimization

In Phases 1 through 3, Sunrun will be responsible for commissioning and maintaining the Brightbox VPPs at the chosen site locations. Throughout the phases, O&R will continue evaluating system dispatch and reliability and test alternative dispatch approaches to manage optimally distributed storage systems in order to maximize revenue (or system cost savings).

**Table 3.3.2: Phases 1 through 3 – Roles and Responsibilities**

Lead Responsibilities	O&R	Sunrun
<b>Cybersecurity</b>		
<b>O&amp;R</b> will outline cybersecurity requirements.	X	
<b>Sunrun</b> will deploy the system to meet O&R's requirements.		X
<b>System Engineering and Optimization</b>		

Lead Responsibilities	O&R	Sunrun
O&R will suggest potential integrations of O&R's distribution control centers with Sunrun's operation systems.	X	
Sunrun is responsible for interoperability with the energy storage systems.		X
Dispatch Testing		
Sunrun will design and build protocols that enable the multi-use coordination and operational control/dispatch architecture of the aggregation.		X
O&R is responsible for integrating with Sunrun software and executing testing to demonstrate system reliability.	X	

### 2.3.3 Phase 3 – Wholesale Market Participation

In Phase 3, O&R will explore wholesale market conditions best suited to its participation.

Table 3.3.3: Phase 3 – Roles and Responsibilities

Lead Responsibilities	O&R	Sunrun
Market Participation		
O&R will lead exploration of opportunities for aggregated energy storage participation in existing and future competitive markets.	X	
Sunrun will provide communication, optimization functions, and architecture for multi-use dispatch for the energy storage aggregation.		X
Scheduling Coordinator		
O&R will serve as the scheduling coordinator.	X	

## 2.4 Governance

O&R will have overall responsibility for execution of the Project. The governance structure will encompass the Project management team, as detailed in Table 3.2.1. The Project management team will have day-to-day execution responsibility for managing the Project, coordinating tasks and activities, and conducting overall Project management. The team will continuously coordinate activities throughout the Project. Team meetings will be held in-person, via conference calls, WebEx, or other means of communication. The Project team will be responsible for coordination and preparation of quarterly reports.

A dedicated O&R Project Manager will oversee the Project. The Project falls under the O&R Vice President, Operations, which reports to O&R's President. The O&R UotF, reporting to the O&R Vice President, Operations, provides coordination, planning, progress tracking, and governance support to all REV initiatives, including the Project.

The Project team will consist of an O&R Project Manager and UotF project team within the organization described above. In addition, Sunrun will maintain an internal project team managed by a Sunrun Project Manager who will report to the O&R Project Manager. Subject matter experts from both O&R and Sunrun will participate in the Project, as necessary.

The Project will be managed using commonly accepted project management standards and tools, such as an issues log, risk register, change log, and project schedule, in order to meet project milestones on time and within budget. Risks, both internal and external, will be identified and managed according to documented risk management procedures including the identification, mitigation, and reporting of risks to Project and Company leadership.

UotF leadership holds weekly coordination meetings to review progress, provide coordination, and help resolve critical issues as they arise. Demonstration Projects are a standing item on the weekly meeting to review progress made and escalate issues such as resourcing, changes in scope, or externalities impacting the Project. In addition, regular Project

meetings will be held between stakeholders so that Project tasks are completed on schedule and any potential complications or project risks are resolved as they arise.

## 2.5 Risks

Potential risks that could materialize during the Project are outlined in Table 3.5, below.

**Table 3.5 – Risks and Mitigation**

Risk	Reasoning	Mitigation
<b>Co-Marketing</b>	Insufficient enrollment of assets due to unsuccessful co-marketing campaign.	Mitigated by the multi-year project implementation ramp, Sunrun’s industry-leading sales capability, and years of experience successfully enrolling diverse DERs in granular, time-based dispatch programs.
<b>Operations</b>	Inability of VPP platform/Sunrun NOC to relay and execute dispatch commands successfully.	Mitigated by the multi-year project implementation ramp, Sunrun’s preferred VPP platform providers/partnerships, and years of experience successfully enrolling diverse DERs in granular, time-based dispatch programs.
<b>Interconnection</b>	Inability to scale Brightbox deployment at pace due to customer acquisition challenges.	Mitigated by O&R working closely with Sunrun to understand and implement remedies in areas where there are interconnection constraints and low customer adoption to allow for timely installations.
<b>Regulation</b>	Lack of clarity of how Energy Storage Resources will be valued in the future and with regard to dual participation in retail and wholesale markets.	Mitigated by being at the forefront of industry discussions to help influence how DERs are valued and the benefits they bring to the grid/customers in the future by regulators.
<b>Fire Safety &amp; Building Code</b>	New York State’s fire prevention and building code, implemented in O&R territory, which restricts installations.	Monitor evolution of policy. At the time of this plan, issues in installing storage solutions are not foreseen.

## 3 Project Budget

O&R’s Project Manager will be responsible for managing and tracking the Project’s costs and overall budget. The quarterly reports to the Commission will provide budget updates and align with the Project Phases in Table 2.2. Sunrun will provide updates to the O&R Project Manager for inclusion in any regulatory reporting.

Project implementation costs will include the energy storage systems, balance of system components, installation and associated operations and services, sales, marketing, customer acquisition and education, fees for development and implementation of the program, project management (Full Time Equivalent time), and scheduling coordinator fees. The budget estimates provided in Table 4 below calculated estimates over the course of the Project and are not adjusted for inflation. Changing budget estimates will be reflected in the quarterly reports to the Commission.

The Project will examine several potential revenue streams that may not be monetized over the timeframe of the Project due to wholesale market restrictions and the timing for O&R’s next base rate filing. However, detailed operational data



and potential project revenue will be tracked and analyzed to be presented in quarterly reports. Changes in Project scope, outcomes of the REV proceedings, and subsequent Commission orders may impact revenue estimates.

**Table 4: Innovative Storage Business Models Project Budget (\$000)**

	Year 1	Year 2	Year 3
<b>O&amp;R Contribution</b>			

Table 4: Project Budget Note: The project budget in Table 4 will be evaluated and modified, as necessary, to adapt to the effects of the ongoing COVID-19 pandemic.

[Redacted text block]


### 4 Reporting Expectations

The Company will provide quarterly reports to the Commission during the Project. The reports will provide an update on implementation progress according to the work plan and budget, detailing deviations, and noting task and activity progress. In addition, each quarterly report will capture, to the extent available, critical project information, such as in-service dates, incremental costs incurred, operating results, and market lessons, as well as other observed project benefits.

The quarterly report will focus on the phase(s) occurring within the previous quarter and scheduled to occur within the next two quarters, providing a focus on current progress while providing the Commission with insight into the near future. The governance structure and program management team will maintain oversight over all Project progress and include any impacts on the implementation execution that may extend beyond the report's timeline.

Checkpoint, milestone, and activity progress will provide detailed status information to inform the Commission of implementation progress and highlight issues, such as changes in scope, incremental cost, or shifts in timeline. A chart will be used to detail progress for activities in the quarterly reports. O&R will provide narrative information to support the progress report. Sunrun-related data will be provided confidentially to the Commission. The quarterly report template will be as follows:

**Table 6: Quarterly Report**

1.0 Executive Summary
2.0 Demonstration Highlights
2.1 Since Previous Quarter
2.1.1 Major Tasks Completion
2.1.2 Activities Overview
2.1.3 Sub-Activities Overview
2.2 Next Quarter Forecast
2.2.1 Checkpoints/Milestone Progress
2.2.2 Planned Activities
2.2.3 Expected Changes
2.3 Issues
3.0 Work Plan and Budget Review
3.1 Phase Review
3.1.1 Activity 1.0
• Progress Assessment
• Issues
3.2 Work Plan
3.2.1 Table 3.2.A – Updated Work Plan
3.2.2 Table 3.2.B – Updated Budget
4.0 Conclusion
4.1 Lessons Learned
4.2 Recommendations