



**Consolidated Edison Company of New York, Inc.
Orange and Rockland Utilities, Inc.**

**Smart Home Rate REV Demonstration Project
Implementation Plan**

August 24, 2018

Table of Contents

Introduction.....	3
Section 1: Demonstration Design	5
A) Test Statements	5
B) Test Population	6
C. Test Scenarios	7
D) Check Points and Evaluation	8
Section 2: Project Structure & Governance	12
A) Project Team	12
B) Project Staffing	13
C) Roles and Responsibilities	15
D) Governance.....	17
Section 3: Work Plan & Budget	18
A) Project Plan	18
B) Project Budget.....	22
Section 4: Reporting Structure.....	23
A) Reporting Expectations	23
Appendix A: Smart Home Rate Design Methodology	24

Introduction

New York's Reforming the Energy Vision (REV)¹ initiative envisions utilities more fully engaging with customers in order to better integrate distributed energy resources (DER) into utility business practices and operations, and to provide customers with increased ability to manage energy use.

In the New York State Public Service Commission's (Commission or PSC) *Order Adopting Ratemaking and Utility Revenue Model Policy Framework* (REV Track Two Order),² the Commission directed utilities to explore alternative rate structures that would provide more granular price signals to consumers and developed the concept of a "Smart Home Rate" defined as "combin[ing] highly granular time-based rates with location-and-time-based compensation for DER [distributed energy resources], in a manner that is managed automatically to optimize value for the customer and the system" and directed the utilities to implement such rates as REV Demonstration projects.³

In response to the Commission's directive, on February 1, 2017, Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. (together "the Companies") submitted a Smart Home Rate Demonstration Project Concept (SHR Demo). The SHR Demo filing provided an initial proposal for a Smart Home Rate and indicated that the Companies would later file a more detailed implementation plan. By letter dated June 6, 2017, Department of Public Service Staff (Staff) advised the Companies that it found the SHR Demo to comply with the objectives of the *Order Adopting Regulatory Policy Framework and Implementation Plan* (Track One Order),⁴ and the Track Two Order. Thereafter, on July 5, 2018, Staff issued a Demonstration Project Assessment Report (Assessment Report). The Assessment Report indicated that Staff considered the SHR Demo to be in line with many REV goals, and also requested the Companies to provide additional information in its implementation plan. In the Assessment Report, Staff requested the Companies to consult with Staff and submit their implementation plan within thirty days.⁵ Consistent with the Assessment Report, the Companies submit this implementation plan.

The SHR Demo will provide participants with smart pricing through new, innovative rate designs that are reflective of the cost drivers of the Companies' distribution systems. The focus of the SHR Demo is to combine certain customers' enthusiasm for proactive energy management and technology with rate designs that reward customers for managing their energy profile in ways that support the system as a whole through programmed response. The SHR Demo will test and learn from the resulting actions and reactions of those customers. Some of the innovative features of these rates include: Day-Ahead hourly prices for energy supply, moving from flat volumetric (kWh) to Time-of-Use Demand-based (kW) charges to

¹ Case 14-M-0101, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision (REV Proceeding).

² REV Proceeding (issued May 19, 2016).

³ REV Track Two Order, page 157

⁴ REV Proceeding, (issued February 27, 2015).

⁵ Staff agreed to allow the Companies to submit the plan beyond the 30 days specified in the assessment report following consultation.

recover delivery costs, and incorporating event-based critical peak charges to recover forward transmission and distribution (T&D) and generation capacity costs. While these cost-reflective rates are more complex than traditional residential rates, participants will be provided with smart home technologies to help manage that complexity in a seamless manner that minimizes impacts to customer comfort and convenience.

The Companies have partnered with Tendril and Sunverge to develop and provide price-responsive home energy management technology platforms in two demonstration tracks. In the first track, Tendril's Orchestrated Energy platform will be deployed to optimize and automate central air conditioning (AC) loads in participants' homes and provide the interface for customer participation through a mobile application. In the second track, Sunverge's platform will be deployed to optimize and automate home battery systems coupled with rooftop photovoltaic (PV) systems. The Companies have partnered with ICF to implement the program's recruitment campaign, manage customer enrolment and equipment installation processes, and administer customer support.

The SHR Demo is constructed as a research study that will test and measure customers' responses and behavior changes, willingness to use technologies, and level of satisfaction with their experience, all important indicators that will inform the future direction of rate reforms as well as future development of the smart home energy management market.

In response to the Assessment Report the companies have included details around Staff's identified areas for development.

- **Hold Harmless Provision:** The Companies will provide the enabling technologies proposed through the SHR demo to customers at no cost. The technologies will be theirs to keep at the completion of the SHR Demo. Additionally, customers will be given the option to return to their current rate upon completion of the SHR Demo.
- **Customer Access to Data:** The Companies are making usage data available to all customers via the My Account experiences on coned.com and oru.com. Customers are currently able to download their historical usage data via Green Button Download My Data. Additional messaging regarding this feature will be included as part of the overall messaging plan within the SHR Demo.
- **Rate Design:** The methodology used by the Companies to create the Smart Home Rates is included in Appendix A.

Section 1: Demonstration Design

In the SHR Demo, the Companies will test two different rate designs, Rate A and Rate B, both enabled by price-responsive automation technology.⁶ For more detail of the methodology used to design the Smart Home Rate, please refer to Appendix A. The SHR Demo will also test two different technology platforms in separate demonstration tracks. With data gathered from the implementation of the SHR Demo, the Companies will seek to answer research questions in three strategic areas: rate design, technology, and the customer/market (Table 1). The Companies have retained an evaluation vendor to analyze participants' meter data and perform customer research to address the research questions and provide comprehensive evaluation reports in the later phases of the SHR Demo.

A) Test Statements

Table 1: SHR Demo Test Statements and Research Questions

Test Statement	Hypothesis
<p>Rate design: We believe...an unbundled rate, assessed on a time-differentiated, demand basis will create the potential to achieve greater system efficiency.</p>	<p>If... price components are properly designed to align with system cost drivers Then... Customer behavior, inclusive of allowing enabling technology to work as designed, will lead to a shift in usage to better support the needs of the energy system</p>
<p>Technology: We believe...home energy management technology platforms (such as those of Tendril and Sunverge) can be adopted to respond to sophisticated price signals and to optimally manage home energy usage while preserving customers' preferences for comfort and convenience.</p>	<p>If... Home Energy Management System (HEMS) technologies are adopted by customers in conjunction with unbundled, time-varying, demand-based rates Then... Customer bill impacts will be neutral or benefit the customer Then... Customer comfort will be maintained Then... Customers will have a convenient and overall positive experience</p>
<p>Customer / market: We believe... understanding customers' perception of the rates, willingness to use technologies, and level of satisfaction with their experience would help gauge the market opportunity and inform its future growth and development.</p>	<p>If... Customer perception of the SHR is positive Then... A larger customer base will be interested in the SHR on a going-forward basis Then... rate components can be adjusted to reflect lessons learned and considering customer preference parameters</p>

⁶ Detailed descriptions of SHR demo rates can be found in the tariff filings : CECONY Matter # 18-02038 Case # 18-E-0548; ORU Matter # 18-02039 Case # 18-E-0549

B) Test Population

The SHR Demo is designed for the residential prosumer customer segment. Technically savvy customers, or proactive consumers, often referred to as “prosumers,” are on the cutting edge of technology; they are increasingly adopting new home technologies including solar generation, electric vehicles, battery storage, home automation systems, and other new DER technologies that offer customers the opportunity to reduce their impact on the electricity grid. These customers are becoming more aware of their energy needs and are most likely to engage technology to manage their needs. Participants in the SHR Demo must reside in single-family homes with smart meters installed before June 1, 2018,⁷ so that the usage profiles will be present in the sample population and the data necessary for evaluating key research questions will be available.

The SHR Demo is structured to include two research tracks, Track 1 and Track 2, corresponding to two different technology treatments and requiring different test population characteristics, outlined in Table 2. Track 1 will test both SHR Demo Rates A and B with a home energy management system to automate Central AC (CAC) loads, while Track 2 will test SHR Demo Rate A with home battery storage coupled with participants’ existing rooftop PV systems.

Table 2: Test Population and Selection

Test Population Description	Selection Method
<p>Track 1: Residential customers in single family homes with CAC and with smart meters installed before 6/1/18</p>	<p>The presence of smart meters and building type (single family home) will be identified using utility data and known smart meter rollouts. CAC propensity analysis⁸ along with customer segmentation analysis (i.e., to identify prosumers) will be used for targeted recruiting. Screening questions will be used during recruitment to confirm customer eligibility.</p>
<p>Track 2: Residential customers in single family homes with rooftop PV and with smart meters installed before Summer 6/1/18</p>	<p>The presence of smart meters and building type (single family home) will be identified using utility data and known smart meter rollouts. Interconnection data will be used to identify homes with rooftop solar. Customer segmentation analysis will be used to target prosumers within this eligible population.</p>

Because the demo is targeted at prosumers, participants will be identified and recruited on an opt-in basis for both research tracks. However, Track 1 will be conducted as a randomized control trial (RCT) once customers opt-in to participating in the SHR Demo. Customers who

⁷ Smart meter deployment in the Companies’ service territories in this timeframe will cover portions of Staten Island (or Richmond County) and Westchester County in Con Edison territory and Rockland County in Orange & Rockland territory.

⁸ A propensity model will be developed using load data to assess the shape and weather sensitivity of hourly loads. An out of sample approach using CAC data from energy efficiency program participation will be used to validate the propensity model.

volunteer for a treatment in Track 1 will be randomly assigned to one of the two rate options being investigated or to a control group (which would leave them on the standard “otherwise applicable tariff”). Sample sizes are calculated so that that research questions can be assessed with statistical validity and may be updated with the availability of smart meter data from the summer of 2018.

C. Test Scenarios

As mentioned above, the SHR Demo will test two different rate designs through two different tracks and platforms. Figure 1 lays out in detail both eligibility requirements and treatments for each track. Table 3 describes each test cell and the treatment the customers in that cell will receive. Each test scenario involves the enabling technologies optimizing the customers’ in-home usage in response to the price signals specific to the rate within that scenario. Within all scenarios, the Companies will measure customer engagement, response, and satisfaction. For Track 1, participant responses to the optimization will be compared between scenarios as well as comparison against the control group.

Figure 1: Research Design Overview

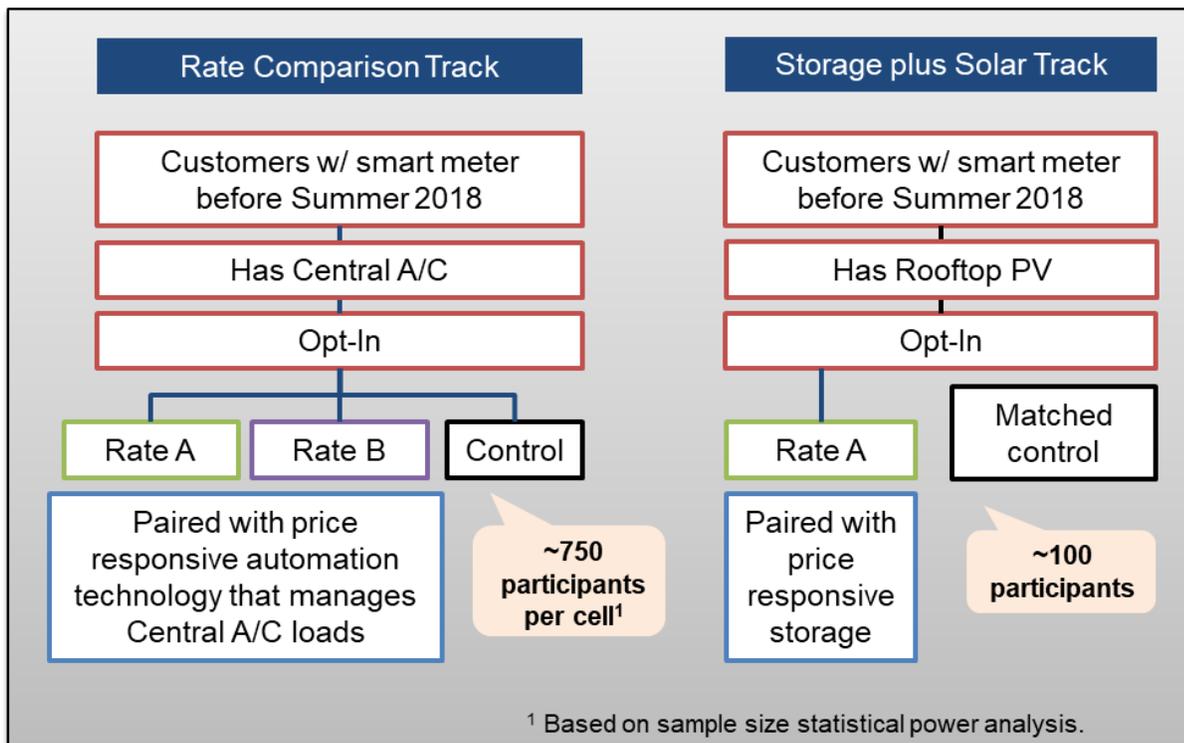


Table 3: Test Scenarios / Research Test Cells

Scenario	Description of Test Cells
Track 1 Rate A	750 customers, or one third of Track 1 participants, drawn from eligible single-family homes with CAC and a smart meter, will be randomly assigned to Rate A, a dynamic multi-part rate including a daily demand charge and critical peak event charges. Participants will be provided with a new smart thermostat device or be able to use an existing smart thermostat device that will be connected to Tendril’s Orchestrated Energy platform and its accompanying mobile application.
Track 1 Rate B	750 customers, or one third of Track 1 participants, drawn from eligible single-family homes with CAC and a smart meter, will be randomly assigned to Rate B, a dynamic multi-part rate including a monthly delivery subscription and critical peak event overage charges for usage above the subscription level. Participants will be provided with a new smart thermostat device or be able to use an existing smart thermostat device that will be connected to Tendril’s Orchestrated Energy platform and its accompanying mobile application.
Track 1 Control	750 customers, or one third of Track 1 participants, drawn from eligible single-family homes with CAC and a smart meter, will be randomly assigned to a control group and will not be assigned to a rate or receive technology. Demo evaluation metrics for the Rate A and Rate B groups including measurement of satisfaction and load impacts will be evaluated as an RCT relative to this control group.
Track 2 Rate A	100 customers, or all Track 2 participants, drawn from eligible single-family homes with rooftop PV and a smart meter, will be placed on Rate A, a dynamic multi-part rate including a daily demand charge and critical peak event charges. Participants will be provided with a Sunverge home battery system that will be connected to Sunverge’s platform.

D) Check Points and Evaluation

Several elements are needed so that the SHR Demo is set up to run smoothly for participants and so that it will produce the desired data for research evaluation. Check points will be established to assess status of key metrics during the market launch phase and allow for adjustments in project execution strategy to account for new learnings.

Table 4: Check Points to assess technology, recruitment, and engagement efforts

Area of Test	Check Point Element	Description
<p style="text-align: center;">Rate Design</p>	<p style="text-align: center;">Bill impacts</p>	<ul style="list-style-type: none"> • What: Measure participants’ bill impacts relative to the participants’ previous rate • Measure: Average annual customer bill is equal or less than it would have been on their previously selected rate • How: Calculate and compare bill impacts from the first few months of the pilot, identify patterns and causes of any large or significant variance. • Solutions/strategies: Plan to adjust messaging to enhance participants’ understanding of bill impacts, such as providing them with a mid-program assessment report. • When: Checkpoint in Q2 2020, between the first summer season and the second summer season of the demo.
<p>Technology</p>	<p>Technology installation</p>	<ul style="list-style-type: none"> • What: Complete technology installations at sufficient levels to meet enrollment targets. • Measure: Achieve 25% of installations by end of 2018 • How: Monitor technology installation success rate among participants who are eligible and accept. • Solutions/strategies: Prior to deployment, conduct thorough testing of technology systems in the field. During deployment, adjust installation and customer support processes as required. • When: Q1 2019.
	<p>Technology performance</p>	<ul style="list-style-type: none"> • What: Monitor price communication and response capability of technology platforms. • Measure: Track 1 – 80% of customers do not override optimization, Track 2 – 95% optimization responsiveness • How: Track metrics such as percent of devices connected/online and collect device data during events. • Solutions/strategies: Plan for continuous iteration and improvements to technology platforms in response to performance tracking.

		<ul style="list-style-type: none"> When: Continuous. Bi-weekly status updates during live demo measurement period plus reporting before and after events to assess success.
Customer/Market	Recruiting and enrollment	<ul style="list-style-type: none"> What: Obtain enrollment levels are sufficient to answer key research questions. Measure: Track 1 – 2250 participants; Track 2 – minimum of 100 participants. How: Monitor progress towards enrollment targets as well as eligibility rates among targeted customers and connection / installation rates among customers who accept to participate. Track eligibility rate (e.g., of those targeted and contacted, how many drop off because targeting or eligibility screening was not precise). Solutions/strategies: Adjust recruitment approaches and onboarding support as necessary, and track improvements from new approaches. As a last resort, narrow research objectives. For example, sample size requirements would be less if it is not necessary to assess the significance of load impact differences between rates. Inform any reductions in enrollment targets by statistical power analysis so the experimental power of the sample is known. When: April 2019 Weekly status updates during recruitment campaign. Checkpoint in early 2019 to assess enrollment progress and any implications for enrollment targets.
	Customer Satisfaction	<ul style="list-style-type: none"> What: Assess customer satisfaction with the program and technology Measure: >60% How: Develop plan for ongoing messaging to enhance the customer experience. Solutions/strategies: Develop survey questions to derive the root cause of customer satisfaction ratings and adjust as needed. When: Bi-weekly status updates during live demo measurement period plus reporting before and after events to assess successful execution. Checkpoint after first summer season to assess adjustments to improve engagement approaches in the second summer season.

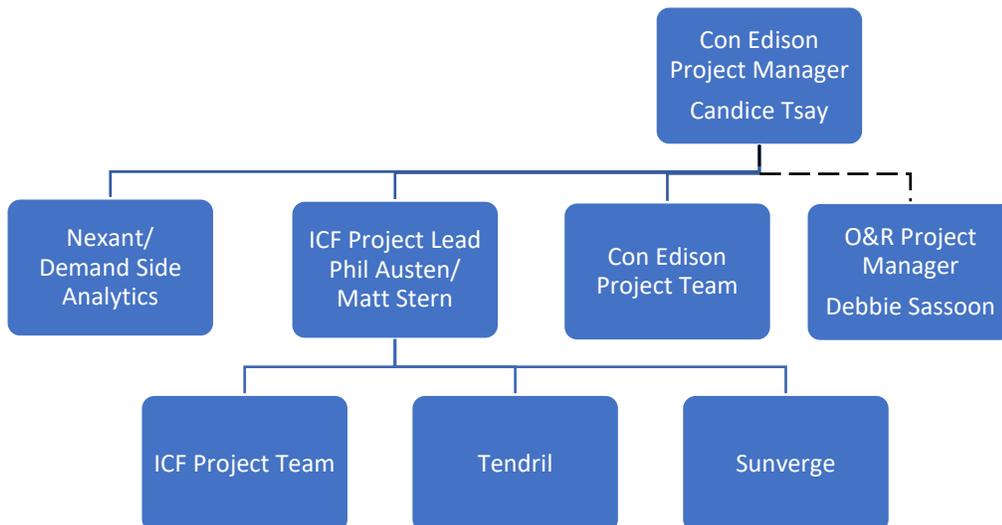
Beyond these check points, the SHR Demo is primarily constructed as a means of collecting data which will be used by an independent evaluation vendor to evaluate the research questions in the Test Statements section after each summer season. The comprehensive evaluation results are to be used to inform future rate and program design.

Section 2: Project Structure & Governance

A) Project Team

The Project is a partnership between the Companies and ICF. In addition, Tendril and Sunverge will serve as key knowledge and product partners. Nexant and Demand Side Analytics will serve as research and data analytics partners to assist with designing and maintaining the research objectives of the project. Nexant will also evaluate the demo outcomes. Each partner will provide key skillsets and be responsible for certain project functions in order to achieve a successful demonstration project. Con Edison will maintain overall responsibility for project execution; ICF is a key contributing partner. The high-level project team makeup and alignment are depicted in Figure 2.

Figure 2: Team Leadership/ Organization



The Companies will apply skillsets and expertise to the project aligned with their roles and knowledge bases. The Con Edison 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 demonstration. Similarly, the Companies' partner, ICF will apply key skillsets that are unique to its focus. The technology partners, Tendril and Sunverge, will provide products and capabilities aligned to their roles and responsibilities.

Table 5: Utility and Partner Skillsets

Utilities Team Key Skillsets	Partner Team Key Skillsets
Program Management	Project Management
Regulatory	Customer Outreach and Community Engagement
T&D Operations and Maintenance	Installer Outreach
Information Resources	Customer Education
Research Design Oversight	Technology Configuration
Customer & Billing Operations	Research Design
Rate Design	Data Analytics
Measurement & Verification (M&V) Oversight	Results Measurement and Reporting

B) Project Staffing

Con Edison has created a REV demonstration projects team within its Customer Energy Solutions organization, dedicated to identifying, developing, and implementing new projects related to REV. Orange and Rockland’s demonstration Project Management team resides within the Utility of the Future group, which provides coordination, planning, progress tracking, and governance support to all REV initiatives, including the SHR Demo. From these teams, a project manager has been identified to lead the Project. In addition, the Companies 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. Team members are listed in Table 6 along with their functional areas and current duty titles.

Table 6: SHR Demo Project Team

Team Member	Title	Functional Area
Candice Tsay*	Project Manager, Smart Home Rate	REV Project Management
Debbie Sassoon	Project Manager, Smart Home Rate (O&R)	Project Management
Margarett Jolly	Director , Demonstration Projects	Project Governance
Alex Trautner	Section (Program) Manager, Demonstration Projects	Project Oversight (REV Demonstration Program)
Matt Casey	Project Specialist, Demonstration Projects	Project Design/ Execution

* Project Leader

Additional Project team members will be identified and recruited as necessary during the course of Project execution.

ICF is a partner for the Project. ICF and technology partners, Tendril and Sunverge, will provide the Companies with functional expertise (e.g., engineering and design, operations and maintenance, and measurement/testing) to execute demonstration tasks and activities. Table 7 is a list of key individuals from ICF and its partners, Tendril and Sunverge, who, along with their respective teams, will support this demonstration. ICF will be responsible for overall program management including deliverables tracking and periodic reporting, customer acquisition, ongoing customer communications, and data tracking.

Table 7: Vendor Project Team

Team Member (Name)	Title	Functional Area
Phillip Austen (ICF)*	Project Manager	Project Management
Patty Cook (ICF)	Executive Sponsor	Project Management
Matthew Stern (ICF)	Deputy Project Manager	Project Management
Madeline Kostic (ICF)	Operations Lead	Project Management
Laura Orfanedes (ICF)	Customer Acquisition Lead	Customer Acquisition & Marketing
Linda Dethman (RIA)	Customer Research Lead	Customer Acquisition & Marketing
Timothy Hillman (ICF)	Customer Analytics/Targeting Lead	Customer Acquisition & Marketing
Becky Cambre (ICF)	Customer Support Lead	Customer Communications
Robyn Link (ICF)	Customer Enrollment and Participant Tracking Lead; and Technology Implementation Lead	Customer Communications Technology Implementation
Eric Martin (Tendril)	Sr. Technology Account Manager (Track 1)	Technology Implementation
Tammy Sinesky (Tendril)	Technology Account Manager (Track 1)	Technology Implementation
Larry Goldstein (Sunverge)	Technology Project Manager (Track 2)	Technology Implementation
Alana Lemarchand (Demand Side Analytics)	Demo and Rate Design Consultant	Analysis and Reporting
Stephen George (Nexant)	Demo and Rate Design Consultant	Analysis and Reporting

* Team Leader

C) Roles and Responsibilities

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

Phase 0 – Demonstration Planning

The initial stages of the demonstration will be focused on obtaining implementation approval from Staff and finalizing the agreements between the Companies and ICF.

Table 8: Phase 0 – Roles and Responsibilities

Lead Responsibilities	Companies	Partners
Partnership Agreement		
Companies will enter into an agreement with ICF to delineate roles and responsibilities with respect to the Project execution.	X	
Project Plan		
ICF will develop a Project Plan Companies will support this activity	X	X

Phase 1 – Demonstration Project Development & Testing

In Phase 1, ICF and the technology partners will work with the Companies to draft a Project Plan. The Companies will support these activities as needed. Phase 1 will be complete once ICF demonstrates that the customer acquisition and customer engagement plans have been developed.

Table 9: Phase 1 – Roles and Responsibilities

Lead Responsibilities	Companies	Partners
Recruitment, Marketing and Communications Plan		
ICF will design a recruitment, marketing and customer engagement plan Companies will support this activity	X	X
Target Identification and Propensity Analysis		
ICF will identify, analyze, and index participants for the pilot Companies will support this activity	X	X
Sightline Setup/ Configuration		
ICF will set-up and utilize Sightline Analytics to assist with customer segmentation		X
Pilot Website		
ICF will work to create a website for marketing the project Companies will support website development.	X	X
Enrollment Portal and Randomization Capability		

ICF will develop an enrollment portal for interested participants to become involved in pilot Companies will support this activity	X	X
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Phase 2 – Market Launch

In Phase 2, ICF will enroll customers and provide continued support and education materials to participants. ICF, Tendril and Sunverge will develop and test the new software that will manage in-home energy usage in response to pricing signals. ICF and partners will facilitate technology interconnection and installation. The Smart Home rates and technology will be tested in this phase.

Table 10: Phase 2 – Roles and Responsibilities

Lead Responsibilities	Companies	Partners
Enrollment		
ICF will enroll customers and provide customer support Companies will support customer enrollment.	X	X
Customer Engagement		
ICF will produce ongoing communications and provide customer education and outreach to maintain customer engagement Companies will oversee direct-to-customer outreach	X	X
Software		
Tendril and Sunverge will develop and test software that will manage in-home energy usage		X
Operator Training		
Tendril and Sunverge will establish an operator user Interface and provide training for the Companies’ operators Companies will enroll operators for operator training	X	X
Hardware		
Tendril and Sunverge will assist with procurement, commissioning and interconnection support Companies will support this activity	X	X
Technology Installation		
ICF, Tendril, Sunverge, and Installers will coordinate and facilitate installer training, installation scheduling, in-unit installation and permitting Companies will assist in generating installer list and engage permitting	X	X

Phase 3 – Demonstration Project Evaluation

In Phase 3, analysis will be conducted to estimate the change in usage by rate period made in response to SHR pricing and technology. The impact of the rate/technology on customers’ bills will also be determined. Customer surveys will be conducted to assess customer satisfaction

with and perceptions about the SHR rate/technology, determine customer understanding of key rate components and to obtain insights into how the rate/technology might be improved. ICF will gather customer information from surveys and Sightline Analytics to monitor customer progress. Nexant will be responsible for estimating load and bill impacts and will provide input to survey design and analysis.

Table 11: Phase 3 – Roles and Responsibilities

Lead Responsibilities	Companies	ICF/Sunverge	Nexant
Data Monitoring			
ICF will utilize Sightline Analytics to monitor and provide regular updates to the Companies on customer progress		X	
Companies will identify the complete list of data points to be tracked during the demo so ICF can configure Sightline Tracking to include them	X		
Evaluation			
ICF and Sunverge will provide data extracts and supporting documentation as required to support M&V processes		X	
ICF will conduct surveys and provide data to Con Edison and Nexant for analysis		X	
Nexant will estimate load and bill impacts and incorporate survey data into analysis as appropriate	X		
Companies will identify M&V needs and ensure the corresponding data are collected and tracked	X		
Reporting			
Nexant will summarize all key findings in interim and final evaluation reports			X
Companies will review reports and work with ICF and Nexant to develop key findings and recommendations	X		

D) Governance

The Companies will have overall responsibility for execution of the Project, detailed in the following paragraph. The governance structure will encompass the Project management team, detailed in Sections 2A and 2B and depicted in Table 6.

The Con Edison Project Manager and 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 communication means. The project team will be responsible for coordination and execution of quarterly reports. Con Edison’s Senior Vice President, Customer Energy Solutions will have final governance oversight of all team activities and will be kept apprised of progress through regular team meetings.

A dedicated O&R Project Manager will oversee the SHR Demo as it relates to Orange and Rockland SHR design and implementation. The Project falls under the O&R Vice President, Operations, which reports to O&R’s President. Additionally, the O&R Utility of the Future group

("UotF"), reporting to the O&R Vice President, Operations, provides coordination, planning, progress tracking, and governance support to all REV initiatives, including the SHR Demonstration Project.

Partner Governance Structure

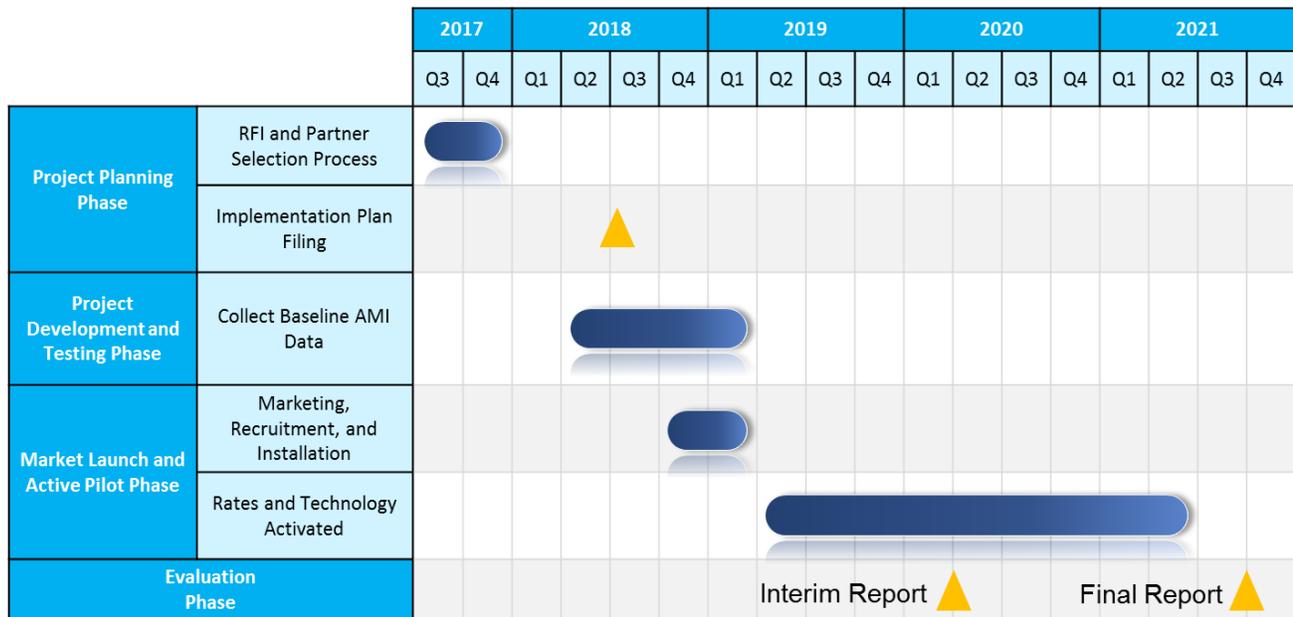
ICF, as a partner to the Companies, will enter into a contractual arrangement with the Companies to provide services to execute the project. The governance structure follows the Vendor Project Team structure established above.

Section 3: Work Plan & Budget

A) Project Plan

As described above, the SHR Demo implementation can be organized into four phases. The four implementation phases and timeline are summarized in Figure 3.

Figure 3: High level demo implementation timeline



Phase 0 – Project Planning

- Develop rates and demo design
- File: Project filing and implementation plan

Phase 1 – Project development and testing

- Technology: Develop and test price signal communication interfaces, customer interfaces, customer billing systems and price-responsive technology.
- Recruitment: Perform customer research. Perform qualification and targeting analysis. Create a recruiting plan including marketing, education and outreach materials. Develop enrollment portal.
- Demo Operations: Develop process and rules for event selection. Develop and test meter data and billing solutions. Build processes for managing customer inquiries.
- Customer engagement and communications: Develop an ongoing communications plan. Design recruitment and engagement materials. Utilize focus groups to test these materials.
- Bill Protection: Offer bill protection to all Track 1 recruited customers as a means of encouraging enrollment
- Evaluation: Update power analysis. Perform sample design.
- File quarterly reports.

Phase 2 – Market Launch and Active Pilot

- Recruitment Communications: Send all eligible customers a communication via direct mail in October 2018. Send an email within 30 days to customers who do not respond as a result of the direct mailer. Send a postcard in November 2018 to any remaining customers who have not yet responded.
- Recruiting: enroll customers via the Smart Home Demo Project web portal into each of the two technology tracks. SHR Demo recruitment will occur after the summer 2018 period to allow for collection of pretreatment data (from summer 2018) for impact evaluation purposes. If necessary, recruiting may continue into early 2019.
- Hold Harmless: Customers will be provided with the enabling technology at no cost
- Installations and testing: installation of end use automation technology at participant residences.
- Enrollment into rates
- Billing go-live: The go-live date (4/1/19) is the date by which all new technology and billing processes are installed and functioning for all participants.
- Ongoing customer engagement, communications and support: Prior to the April go-live date, participants will receive an email reminding them of their enrollment and alerting them to the start of Demo Project billing. Customer service will be available via phone and email to provide support. Semiannual newsletters will then be sent to all

participants for the duration of the project, and surveys will be deployed to gauge customer satisfaction. Additionally, participants will receive information via the Con Edison website and mobile application. Email will be utilized to communicate information about called events.

- Customer Usage Data: Provide customers with information regarding their ability to download their usage data via Green Button Download My Data.
- File quarterly reports

Phase 3 – Evaluation

The evaluation of the SHR Demo will include:

- Load impact analysis to estimate load reductions during peak demand events and load reductions sustained over the summer peak period for each rate option
- Billing impact analysis to determine bill savings.
- Comparisons of load impacts across the two rate options (where possible to detect statistically significant effects).
- Hold Harmless: Customers will be given the option to return to their previous prevailing rate.
- Participant surveys and possibly focus groups to understand customer satisfaction, perceptions, and behavior.
- Sample size permitting, cross analysis of survey responses and impact analysis to assess whether certain reported behaviors or levels of understanding are correlated with higher or lower savings and to segment impacts by demographics and participation criteria (e.g., number or type of end uses).⁹

The Companies' evaluation of the qualitative and quantitative results of the SHR Demo will be used to provide answers to the research questions outlined in the Test Statements section.

⁹ Such an analysis could only be done at a very high level and may require grouping Rate A and Rate B together. For example, while there will not be enough sample to assess impact differences by rate and by segment, there may be enough to investigate differences by simple segments (e.g. above vs below average income, above vs below average age, etc.), pooled across the two rates.

Figure 4: Detailed Timeline

Act no	Activity Description	Lead	2017				2018				2019				2020				2021			
			Q1	Q2	Q3	Q4																
1	Phase 0: Demonstration Planning	Con Edison																				
1.1	Partnership Agreement	Con Edison																				
1.2	Project Plan	Con Edison/ ICF																				
2	Phase 1: Project Development & Testing	ICF																				
2.1	Recruitment, Marketing and Communications Plan	ICF																				
2.2	Target Identification and Propensity Analysis	ICF																				
2.3	Sightline Setup/ Configuration	ICF																				
2.4	Enrollment Portal	ICF																				
3	Phase 2: Market Launch	Sunverge/ ICF/ Tendril																				
3.1	Operator Training	Tendril/ Sunverge																				
3.2	Hardware	Tendril/ Sunverge																				
3.3	Software	Tendril/ Sunverge																				
3.4	Enrollment	ICF																				
3.4	Technology Installation	Tendril/ Sunverge																				
3.6	Customer Engagement	ICF																				
4	Phase 3: Evaluation	ICF/Nexant																				
4.1	Data Monitoring & Reporting	ICF/Nexant																				

B) Project Budget

The budget can be segmented into the following categories:

- **Technology platforms:** development and operation of technology platform required for price-responsive automation of customer end uses and customer interfaces as detailed in a system requirements document;
- **Customer education, outreach and recruitment:** development of customer education and recruiting materials, incentives, mailings, and outbound calling or door-to-door recruiting;
- **Equipment plus installation:** equipment including smart thermostats and battery storage systems, and installation costs;
- **Project management and administration:** labor for administering the SHR Demo project;
- **Billing:** development and implementation of a billing solution for the SHR Demo and digital presentation of bills;
- **Evaluation, measurement and verification:** includes pre- and post-SHR Demo evaluation activities (sample development / randomization, participant surveys, load and bill impact analysis);

The budget detail below reflects the draft budget for the SHR Demo.

Figure 5: Project Budget

	2018	2019	2020	2021
Expected Cash- Out:	\$6.3M	\$5.2M	\$1.4M	\$1.2M

All project costs with the exception of company-specific billing system upgrades will be split between the Companies according to the prevailing shared services ratio. The indicative ratio used here is 93% for CECONY and 7% for Orange and Rockland. Table 12 provides a cost breakdown by major category and between the Companies.

Table 12: Cost Breakdown

	T1 CECONY	T1 O&R	T2 CECONY	T2 O&R	Total Project
Tech Platforms	\$ 2,325,000	\$ 175,000	\$ 1,209,000	\$ 91,000	
Customer Outreach/Recruitment	\$ 1,488,000	\$ 112,000	\$ 1,097,400	\$ 82,600	
Equipment/Installation	\$ 651,000	\$ 49,000	\$ 1,860,000	\$ 140,000	
PM	\$ 1,302,000	\$ 238,000	\$ 837,000	\$ 203,000	
EM&V	\$ 465,000	\$ 35,000	\$ 399,900	\$ 30,100	
Billing CECONY					\$ 1,700,000
Billing O&R*					\$ 500,000
CECONY TOTALS	\$ 6,231,000		\$ 5,403,300		\$ 13,334,300
O&R TOTALS		\$ 609,000		\$ 546,700	\$ 1,155,700
Project Totals					\$ 14,490,000

*O&M

Section 4: Reporting Structure

A) Reporting Expectations

The Companies will provide quarterly reports to the Commission on key SHR Demo metrics, which will allow the Companies and the Commission to track the progress of this demonstration project according to the work plan and budget. The reports will provide key project information as follows:

Project progress and budget

- Tracking of SHR Demo progress relative to schedule and budget;
- Issues encountered and solutions proposed or implemented;
- Summary of lessons learned from project experience to date;

Enrollments and installations

- Number of customers enrolled and active in the SHR Demo project;
- Opt-out rates (both active drop outs and move outs, separately);
- Technology installation success/failure rates;

Operations and monitoring

- Monitoring of event day triggers (forecast and to date);
- Number of events/peak-price days planned and called;
- Customer complaints.

Once the SHR Demo is fully enrolled, additional metrics will be reported as they become available (likely on an annual basis), including bill impacts, load impacts, and survey responses.

The quarterly report will focus on the phases occurring within the previous quarter or scheduled to occur within the next two quarters. Checkpoint, milestone, and activity progress tables will provide detailed status information and highlight issues, such as changes in scope, incremental cost, or shifts in the timeline (example shown in Figure 6).

Figure 6: Checkpoint/Milestone/Activity Progress Example

Checkpoint:	
Progress status:	
Budget impact:	(Yes/On-Target/No Impact)
Incremental cost incurred:	
Previous Quarter updates:	
Future Quarter impacts:	

Appendix A: Smart Home Rate Design Methodology

Introduction

In designing the Smart Home Rates, the Companies developed various mechanisms to demonstrate innovative ways in which costs could be recovered. In recognizing that the Companies sought to design revenue neutral rates, no additional marginal component was added to the revenue requirement. That said, both Smart Home Rates include Critical Peak Pricing (“CPP”) event charges to mimic the addition of a marginal component to the revenue requirement. The addition of such a marginal cost component would collect for costs related to future load growth-driven system expansion.

Critical Peak Pricing

CPP event charges were incorporated into the Smart Home Rate designs to demonstrate how price signals indicating the relative value of attenuating system-expansion related capital investment, combined with price-responsive automation technology could facilitate load reductions at times of constraint at different levels of the electric power system (e.g. Generation, Transmission and Distribution).

With both Rate I and Rate II, a portion of transmission and distribution (“T&D”)-related revenue was allocated to be recovered through T&D event charges. That revenue was then assigned to be recovered through transmission events and distribution events in a way that mirrors the overall T&D proportional allocations in the revenue requirement.

For Rate I, all generation capacity related costs were allocated to be recovered through these events while for Rate II, only a portion of these costs were allocated to be recovered through events, the remainder was assigned to the Generation Capacity subscription charge.

Delivery Charges

The customer charge was maintained at its current level for both Rate I and Rate II so that any customer behavioral modifications reflect only the impacts of changes in T&D and supply cost recovery and the introduction of CPP event charges.

For Rate I, the delivery revenue that is not recovered through the customer charge¹⁰ and is not designed to be recovered through T&D event charges was assigned to be recovered through daily demand charges.

For Rate II, the delivery revenue that is not recovered through the customer charge and is not designed to be recovered through T&D event charges was assigned to be recovered through a T&D subscription charge.

Supply Charges

Both Rate I and Rate II collect energy supply costs by passing through day-ahead hourly NYISO energy prices.

For Rate I, all generation capacity costs are designed to be recovered through generation capacity event charges.

¹⁰ The Con Edison and O&R embedded cost of service (“ECOS”) studies filed in Cases 16-E-0060 and 18-E-0067, respectively, identified shortfalls in the amount of revenue expected to be recovered through customer charges (when compared to actual customer-related costs).

For Rate II, the majority of generation capacity costs are designed to be recovered through generation capacity subscription charges, while the remainder are designed to be recovered through generation capacity event charges, which are assessed during generation capacity events, based on demands exceeding customers' subscribed levels.

Rate Components ¹¹	Rate Components (<i>billing determinants in italics</i>)			
	Rate I		Rate II	
Supply Charge	Hourly NYISO Day-ahead LMP Prices (kWh consumed each hour). Credits for export allowed.		Hourly NYISO Day-ahead LMP Prices (kWh consumed each hour)	
Supply Surcharges	\$xx.xx/kWh consumed (includes ancillary, NTAC & CES surcharge)			
Embedded Delivery Charge	\$xx.xx/max daily kW	<i>Daily charge based on 60-min. interval with highest demand between 12 pm and 8 pm</i>	\$xx.x/kW subscribed	<i>Monthly charge based on subscribed kW preselected by customer</i>
Generation Capacity Subscription	N/A	N/A	\$xx.xx/kW subscribed, Load Zone	<i>Monthly charge based on same subscribed kW as above</i>
Coincident Generation Event	\$xx.xx/max event kW, Load Zone	<i>Incremental to daily demand charge. Event charge based on 60-min. interval with highest demand during event hours. 24-hour advance notice provided for events, hours may vary by event and by event type. Credits for export allowed.</i>	\$xx.xx/kW over subscribed demand, Load Zone	<i>Incremental to subscription charges. Overage based on 60-min. interval with highest demand during event hours. Overage only charged on demand above subscribed kW. 24-hour advance notice provided for events, hours may vary by event and by event type.</i>
Coincident Transmission Delivery Event	\$xx.xx/max event kW		\$xx.xx/kW over subscribed demand	
Coincident Distribution Delivery Event	\$xx.xx/max event kW		\$xx.xx/kW over subscribed demand	
Fixed Monthly Customer Charge	\$xx.xx per month			
Delivery Surcharges	\$xx.xx/kWh consumed (varies, includes System Benefits Charge, MFC, RDM, etc.)			

¹¹ Detailed descriptions of SHR demo rates can be found in the tariff filings : CECONY Matter # 18-02038 Case # 18-E-0548; ORU Matter # 18-02039 Case # 18-E-0549