



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

REV Demonstration Project: Smart Home Rate
Request for Information

Track 1: Implementation of Price-Responsive Home Automation Systems

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1. Overview

Consolidated Edison Company of New York, Inc., and Orange and Rockland Utilities, Inc. (Companies) are requesting information from qualified parties to partner with the Companies in implementing a Reforming the Energy Vision (REV) Demonstration project that allows participating residential customers to efficiently manage their home energy usage using technology systems that interact with sophisticated price signals from the utility and automate loads.

The Smart Home Rate Demonstration Project (SHR Demo) is part of a larger statewide initiative by the New York Public Service Commission (NYPSC) to enact more cost-reflective, transparent rates that can be a platform for unlocking greater Distributed Energy Resource (DER) value and aligning demand-side resources to achieve greater system efficiency. The NYPSC put forward steps to enact rate reform for residential customers, singling out residential prosumers, i.e., early adopters of technology and those most engaged with DERs, as targets for more tailored and accelerated rate alternatives. Through the SHR Demo, the Companies will advance this concept by:

- 1) Issuing sophisticated rates that accurately reflect cost causation in a technology agnostic manner, allowing more efficient cost recovery and decision-making,
- 2) Forming partnerships to provide customers with implementable, understandable technology choices for price-responsive home automation technologies, and
- 3) Implementing a pilot test to collect empirical data about participant responses and answer key research questions that will gauge the market opportunity and inform its future growth and development.

The Companies laid out the project concept and objectives in its filing,¹ and Department of Public Service Staff issued a Letter of Approval on June 5, 2017.²

The Companies are continuing the approach and timeline laid out in the initial filing, summarized in Section 2 of this RFI. The project timeline includes a project planning phase, followed by a technology and project development phase and an active pilot phase (i.e., the implementation phases of the SHR Demo). See Figure 1.

¹ <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B2F247C08-2258-4C39-A84C-CEBF1F4405B7%7D>

² <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={31C3E084-3589-4C06-AC38-336793C85DB4}>

Figure 1: SHR Demo timeline

SHR Demo phases	2017		2018				2019				2020				2021			
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Project planning phase																		
RFI and partner selection process	■																	
Implementation plan filing		▲																
Technology and project development phase																		
			■	■	■	■												
Active pilot phase																		
Marketing, recruitment, and installation							■	■	■									
Rates and technology activated										■	■	■	■	■	■	■	■	■

This RFI is intended to select partners for the implementation phase of the SHR Demo. The implementation partner selection process includes two separate tracks of focus:

1. Implementation of price-responsive home automation systems (Track 1)
2. Implementation of home battery storage systems paired with solar (Track 2)

This Request for Information (RFI) seeks respondents only for Track 1. A partner for Track 2 will be selected through a separate RFI process.³ Respondents may respond to both tracks, but must submit separate responses to each RFI.

(a) Background on Con Edison and O&R

Consolidated Edison Inc., the parent company of Con Edison and O&R, is one of the nation’s largest investor-owned energy companies, with approximately \$13 billion in annual revenues and approximately \$45 billion in assets. Consolidated Edison Inc. provides a wide range of energy-related products and services to its customers through its two regulated subsidiaries: Consolidated Edison Company of New York, Inc. (CECONY or Con Edison), which provides electric, gas and steam service to New York City and Westchester County and is regulated by the New York State Public Service Commission (NYSPSC); and Orange and Rockland Utilities, Inc. (“O&R”), which provides electric and gas service to Orange County, NY and Rockland County, NY and parts of Bergen, NJ and Pike County, PA. O&R is regulated by the NYSPSC and the regulatory commissions of New Jersey and Pennsylvania. Consolidated Edison Inc. also has three unregulated businesses: Con Edison Solutions, a retail services company; Con Edison Energy, a wholesale energy supply company; and Con Edison Development, an infrastructure development company. Consolidated Edison, Inc. recently created a new subsidiary, Con Edison Transmission, Inc., to invest in electric and gas transmission projects. This Request for Information (RFI) is led by CECONY and O&R only and does not involve the unregulated businesses of Consolidated Edison, Inc.

³ <https://www.coned.com/en/business-partners/business-opportunities/smart-home-rate-demo>

(b) Important statement regarding confidentiality

The Companies recognize that a respondent may wish to include information in its response to this RFI that the respondent considers proprietary, trade secret, or confidential to the respondent. If, in any response or information (initial or supplemental) that you provide to the Companies in connection with this RFI, you include information that you consider proprietary, trade secret or confidential, please identify such information by clearly marking both the top and bottom of each page that contains such information as “CONFIDENTIAL.” The Companies will deem any such designated information as submitted to the Companies and its designees, including, any third party advisors retained by the Companies to assist the Companies in the RFI evaluation process, with the express understanding that, subject to any legally mandated disclosure requirements, such designated information will be held in confidence and will not be disclosed or used for any purpose other than the review and evaluation of the applicable respondent’s response to this RFI or otherwise in connection with any resulting proposal from the respondent or any resulting contract between one or more of the Companies and the respondent.

(c) General guidelines

By responding to this RFI, respondents are deemed to accept and agree to these general guidelines. By submitting a response to this RFI, the respondent acknowledges and accepts the Companies’ rights as set forth in this RFI, includes these general guidelines.

The Companies each reserve the right (a) to reject any respondent submission, (b) to request clarifications or additional information from a respondent regarding its submission, (c) to revise and re-issue this RFI or to revise any requirements of this RFI, (d) to extend any deadlines applicable to this RFI, (e) to hold discussions with any Respondent and to correct any deficient responses which do not conform fully with the instructions set forth in this RFI, and/or (f) to file and implement REV demonstration projects without initiating an RFI process and on topics other than the topic that is the subject of this RFI. The Companies may exercise the foregoing rights at any time, without notice and without any liability to a respondent or any other party for expenses such respondent or other party incurred in the preparation of responses to this RFI. All costs and expenses associated with the submission of any initial or supplemental response to this RFI will be borne solely by the applicable respondent.

The Companies may ask any or all respondents to elaborate or clarify specific points or portions of their submission. Clarification may take the form of written responses to questions or phone calls or in-person meetings for the purpose of discussing the RFI, the responses thereto, or both.

It is the sole responsibility of each respondent to ensure that all pertinent and required information is included in its submission to this RFI. The Companies reserve the right to determine, in their sole discretion, whether a submission is incomplete or non-responsive.

Respondents should clearly state all assumptions they make about the meaning or accuracy of information contained in this RFI. If a respondent does not ask questions or clarify any assumptions, the Companies will assume that the respondent agrees with and understands the requirements of this RFI. While the Companies have endeavored to provide, and will endeavor to provide, accurate information to respondent firms, the Companies make no representations or warranties of accuracy.

In evaluating a respondent's submission, the Companies may utilize any and all information available (including information not provided by the respondent).

The issuance of this RFI and the submission or a response by any person or entity does not obligate the Companies to qualify the person or entity in any manner whatsoever. A legal obligation on the part of Con Edison and/or O&R to engage in any business transaction with a respondent will only arise if and when a formal written contract is entered into between or among Con Edison and/or O&R and such respondent.

If a business transaction between a respondent and Con Edison and/or O&R were to be entered into in connection with this RFI, there are a number of terms and conditions and special conditions that may be applicable to any such transaction, depending on the nature of the respondents' response. Current examples of the Companies' disclosure form, standard terms and conditions and special conditions can be found using the following link:

<https://apps.coned.com/supplychain/APL/tc.aspx?lnk=terms%20and%20conditions>. These forms and documents are subject to change by the Companies at any time after the date of this RFI.

By responding to this RFI, respondents are deemed to agree to keep confidential all information that is directly or indirectly provided by Con Edison or O&R to a respondent in connection with this RFI, provided that the foregoing confidentiality obligation shall not apply to any information that Con Edison or O&R has previously made generally available to the public.

(d) RFI objectives

This RFI is designed to select partners to provide turnkey project implementation and recruiting services and price-responsive home automation technology solutions for the implementation phases of Track 1 of the SHR Demo, including the following activity areas:

- **Technology:** developing and testing communications protocols, technology system and platform, user interfaces; performing installations;
- **Customer acquisition:** conducting preparatory customer research, preparing education/outreach materials, and performing participant targeting and recruitment.
- **Customer communications:** Managing customer enrollments, managing customer inquiries.

This array of activities falls under two major areas of responsibilities, that of a technology provider and that of a turnkey project implementation and recruitment partner. Table 1 shows how these areas of responsibilities map to the array of activities and how they are divided between the partner and the Companies.

Table 1: Roles and responsibilities for Partner(s) and the Companies

	Areas of responsibilities for Track 1 partners		Companies' responsibilities
	Technology provider	Turnkey project implementation and recruitment	
Technology	<ul style="list-style-type: none"> • Provide price communication interface • Provide price responsive technology platform (including device communication interface, customer (user) interface, platform architecture) • Establish partnerships with device OEMs • Develop and test platform 	<ul style="list-style-type: none"> • Project management 	<ul style="list-style-type: none"> • Provide design support and approval • Day to day operations to develop and transfer and integrate daily pricing information and CPP events
Customer acquisition	<ul style="list-style-type: none"> • Provide info to implementation contractor 	<ul style="list-style-type: none"> • Provide customer education, outreach, and messaging materials (including market research) • Responsible for customer acquisition (including targets – analytics, recruiting, marketing) 	<ul style="list-style-type: none"> • Provide utility branding and support • Provide information on sample from which to recruit⁴
Customer communications	<ul style="list-style-type: none"> • Provide technology support 	<ul style="list-style-type: none"> • Manage enrollment process • Perform installations / Provide installation support • Manage recurring participant communications (outbound) • Manage inbound customer inquiries (route technology inquiries, billing inquiries to right place) 	<ul style="list-style-type: none"> • Implement customer billing • Provide billing-related support
Data evaluation	<ul style="list-style-type: none"> • Provide pertinent data required for M+V 	<ul style="list-style-type: none"> • Track and report enrollment, dropout, inquiries 	<ul style="list-style-type: none"> • Conduct research evaluation

⁴ The companies have some data on residence type (e.g. Single- or multi-family home), but lack data on central AC presence in individual homes. Other data sources, such as energy efficiency program data, monthly usage data, and limited amounts of AMI data, may be available for the purpose of CAC propensity analytics to reduce marketing costs.

This RFI seeks solutions for both areas of responsibilities in Track 1. Responses may be submitted for one area of responsibility (independent response) or for both areas of responsibility (comprehensive response). Comprehensive responses are preferable; however independent responses are welcome because the Companies are seeking the strongest response in each area. To this end, the Companies may choose to pair components from different responses (i.e., a turnkey project management and recruiting vendor from one response and a technology provider from another). The RFI response guidelines in the following sections ask potential partners to indicate openness to being paired with components of other bids. This is relevant for both independent and comprehensive responses as the Companies may prefer to select one of the two components in a comprehensive response and pair it with a component from a different response. The feasibility of and openness to such an arrangement may be explored and discussed with shortlisted respondents during the RFI response evaluation period.

(e) RFI process and schedule

The Companies’ schedule for the RFI response submittal and evaluation process is shown in Table 2.

Table 2: RFI Schedule

RFI Milestones	Completion Dates
RFI issued	July 10, 2017
Last day to submit clarification questions	July 21, 2017 by 5:00pm EDT
Answers to clarification questions posted	Aug. 4, 2017
Bidders’ webinar	Aug. 8, 2017 (tentative)
Response submission deadline	Aug. 25, 2017 by 5:00pm EDT

All submissions made in response to this RFI will be evaluated by a committee consisting of representatives of the Companies and other committee members designated by the Companies. The Companies may seek third party subject-matter experts and advisors to assist with the review and evaluation of the submissions received in response to this RFI.

The Companies’ evaluation process will include a screening process to select a shortlist of prospects for the next stage of consideration. Once the shortlist is selected the Companies may interview prospects and their references.

For those responses in which it is interested, the Companies will provide details on next steps and timelines when it notifies respondents of its interest.

(f) Response evaluation criteria

Responses will be evaluated on the extent to which they demonstrate the project team’s ability to deliver on the following major evaluation criteria:

- **Delivery capabilities of team:** Respondent's capabilities/skills/experience, track record in delivering positive outcomes in the areas of: project management and program administration, participant acquisition and marketing, technology testing, setup, and installation, developing technology for pilots of similar scale; Composition of team and team members' qualifications;
- **Customer experience:** Quality of the technology package; quality of the technology's user interface (supported by research, detailed screenshots of the customer interface, and possibly a live demonstration to the Companies); approach to accounting for users' comfort and convenience; approach to user interface training, education, and technical support;
- **Technology capability and scalability:** Capability of the technology to perform price response and demand optimization based on the presented SHR rates (see Section2(c)); approach to price signal communication; features of thermostat automation, automation of other end uses, and platform architecture; ease of installation; readiness of technology; feasibility of technology development proposal;
- **Cost, funding, and contracting flexibility:** Cost of services and technology; inclusion of other sources of funding; comprehensiveness of response (versus independent response); and openness to being paired by the Companies with another partner;
- **Overall approach:** Thoughtfulness of approaches outlined for different elements of project; integration of overall approach; alignment with goals of project.

2. Background

(a) Research Objectives

In the SHR Demo, the Companies will conduct a research study with two tracks. The track addressed by this RFI (Track 1) is designed to test two different rate designs side by side, both enabled by price-responsive home automation technology controlled by participants or the participant's service provider.⁵ The two rates will reflect two structural approaches to rate design. A primary research goal of Track 1 is to test and compare how these two rates perform in conjunction with price responsive automation technology (See Section2(c) for detailed description on the rates).

With data gathered from Track 1 of the SHR Demo, the Companies will seek to answer research questions, including:

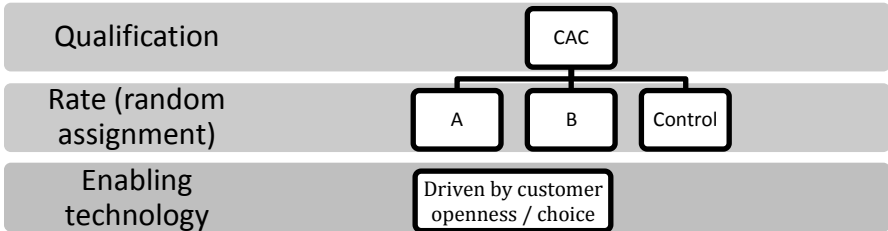
⁵ This is in contrast to traditional demand response programs in which loads are called by the utility on event days.

- What are the load and bill impacts of each granular, time-varying Smart Home Rate compared to a customer’s previous rate? What are the impacts for the Smart Home rates compared to each other?
- Does the technology developed reliably enable customers to automate loads to their own satisfaction?
- Are customers satisfied with their rate experience and with the enabling technology?
- How do customers perceive the various rate components and accompanying education materials?
- What end uses do customers choose to automate? What other behavior changes or rate related choices will customers report?

(b) Research design

The research under the track addressed by this RFI will be conducted using a randomized control trial (RCT⁶), where customers who volunteer for a treatment (in this case, volunteer to go onto a Smart Home Rate) are 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”). As depicted in Figure 2, recruits among this population will be randomly assigned to one of three test cells: Rate A, Rate B, or the Control group.

Figure 2: Rate Comparison Randomized Encouragement Design



Participants in the two rate test cells will be put on the corresponding rate option and will be required to allow the partner to install enabling technology, or to leverage existing enabling technology in the home. The enabling technology will allow electrical end uses to automatically respond to the dynamic price signals from the rate. **The technology must, at a minimum, provide price responsive automation to the participant’s central AC (CAC).** Platform capabilities which permit automation of other end uses will be encouraged but not required. If these capabilities exist,

⁶ Each recruited participant will be randomly assigned to one of the three test cells, a key component of an RCT design. However, technology may not be successfully implemented for all recruits in test cells A or B, thereby diluting the impacts. Because of this impacts will be analyzed similar to a Randomized Encouragement Design (RED).

the participant may also choose to connect and automate additional large electric loads, such as electric water heaters, pool pumps, or electric vehicle chargers.

Initial estimates have been developed for the sample sizes required to reliably detect load impacts and differences in load impacts between the two rates. These initial estimates suggest that about 750 participants should be recruited into each of the three test cells, or 2,250 total.⁷

(c) Rate designs

The Companies have designed two rates with a common framework which reflects temporal and locational granularity separately for various unbundled cost components (including delineation between energy supply and energy capacity, and between future marginal, and past embedded, transmission and distribution (T&D) delivery costs). However, each rate will take a different structural approach to reflecting capacity costs; one rate (Rate A) uses a daily demand charge with a flat event charge while the other (Rate B) will use a demand subscription coupled with a variable overage charge.

Both rates include three classes of charges: time-variant supply charges, embedded delivery charges, and event-based coincident demand charges. These charges are described in more detail below.

Time-Variant Supply Charges

In Con Edison service territory, both rates will reflect Hourly NYISO LMP prices in Zone J in Staten Island and Zones H and I in Westchester County. In O&R service territory, both rates will reflect Hourly NYISO LMP prices in Zone G.

For both rates, NYISO capacity costs will be recovered separately through event-based coincident demand charges.

Embedded Delivery Charges

The daily demand charge of Rate A and the monthly demand subscription of Rate B are structured to recover embedded costs for past infrastructure investments.

The daily demand charge in Rate A collects the customer's maximum demand intervals recorded during the on-peak period of each day of the billing period, including weekdays and weekends.

The subscription charge in Rate B can be thought of as a reservation payment for coincident demand subject to overage charges when the customer's coincident demand exceeds the

⁷ When using a RED analysis, sample sizes must also be based on an assumption regarding the percent of customers who stay on the rates despite unsuccessful technology installation. This estimate assumes technology is successfully installed for about 80-85% of recruits.

reservation level. The customer will be allowed to select an annual subscription level. Default subscription levels (if the customer makes no selection) will be set to cover 85% of the eligible event hours.⁸ Subscription levels will at minimum be required to cover no fewer than 50% of the eligible event hours.

Event-Based Coincident Demand Charges

The event charges of Rate A and the overage charges of Rate B are intended to avoid or attenuate future generation, transmission and distribution (T&D) capacity investments by decreasing coincident customer demand and reducing the peak loads that drive these investments. NYISO generation capacity costs are reflected in the Coincident Generation Event charges, while marginal T&D delivery costs are reflected in the Coincident Transmission Delivery Event and Coincident Distribution Delivery Event charges.

There will be on average per year 10 generation events, 10 system level transmission events, and 10 distribution events, meant to reflect periods of constraint at each level of the system⁹. Most of these events will be called for a duration of 4 hours. For testing purposes, some events may be shorter or longer than 4 hours and different types of events (generation, transmission, distribution) may be stacked, staggered, or sequenced. Generation and T&D events may or may not be called on the same days or during the same hours. This variation is intended to reflect and simulate the temporal differences between bulk generation peaks, system peaks, and distribution peaks, and locational differences between distribution networks or groups of networks. In this respect the coincident nature of the event charges means they apply to loads which occur within the same days, hours, and applicable geographic footprint as a generation, transmission, distribution peak. In the case of the variable overage charges in Rate B, the amount of the overage charge per kW will also vary to reflect the relative severity of capacity constraints on one day versus another in a given location (i.e., moderate days vs. extreme days¹⁰).

Tariff details

Table 3 (for Con Edison) and Table 4 (for O&R) lay out in detail the two rates—referred to as Rates A and B—that the Companies will test in their respective service territories. During the planning phase

⁸ For example, if there are 40 event hours (10 events, each with a 4 hour duration), the subscription level would be defaulted to the customer's estimated maximum daily demand on the 85th percentile of a customer's individual load duration curve during those 40 event hours. The demand estimates for each customer will be based on that customer's demand from the prior year.

⁹ A fully developed and deployed SHR rate could be constructed to be purely reflective of the peaking conditions at each level. However, for the purposes of the demonstration event dispatch may also include operations considerations to ensure the mix and combination of events is conducive to evaluate impacts for individual and for combined events.

¹⁰ Event extremity will be determined based on loads in the relevant geographic footprint. Event days will be roughly evenly split between moderate and extreme events

of the SHR Demo, the rate structures below will likely be refined to incorporate adaptations upon further analysis. The specific tariff sheets that will comprise Rate A and Rate B will be finalized for the SHR Demo implementation plan to be filed by the end of 2017.

These tables describe the billing determinant for each rate component (in italics) and highlight the similarities and differences between Rate A and Rate B. Rate components that are identical for both rates are shown in cells that span both rates. Note that the SHR Demo rates will be revenue neutral within each rate class for each respective company.

Note that several billing determinants are kW-based. Since AMI data will be collected in 15-minute intervals, these billing determinants will be taken from the average of 4 consecutive 15-minute intervals on a rolling basis.

Table 3: SHR Demo Rates (CECONY)

Rate components	Rate components (<i>billing determinants in italics</i>)			
	Rate A		Rate B	
Supply Charge	Hourly NYISO LMP prices, Zone H , I, J (<i>kWh consumed each hour</i>)			
Embedded Delivery Charge	\$1.096 / max daily kW	<i>Daily charge based on interval with highest demand between 12 pm and 8 pm</i>	\$33.999 per kW subscribed	<i>Monthly charge based on subscribed kW preselected by customer (default level to cover 85% of eligible hours)</i>
Coincident Generation Event	\$11.344 / max event kW	<i>Incremental to daily demand charge. Event charge based on interval with highest demand during event hours. 24 hour advance notice provided for events, hours may vary by event and by event type.</i>	\$3.638 / kW (moderate days) \$7.051 / kW (extreme days)	<i>Event charge based on interval with highest demand during event hours. 24 hour advance notice provided for events, hours may vary by event.</i>
Coincident Transmission Delivery Event	\$1.145 / max event kW		\$1.748 / kW over (moderate days) \$3.029 / kW over (extreme days)	<i>Incremental to subscription. Overage based on interval with highest demand during event hours. Overage penalty 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 Distribution Delivery Event	\$4.608 / max event kW		\$7.010 / kW over (moderate days) \$12.216 / kW over (extreme days)	
Fixed Monthly Customer Charge	\$15.76 per month			
Adjustments and Surcharges	\$0.XX (<i>kWh consumed</i>); varies, includes System Benefit Charges, MAC, RDM, etc.			

Table 4: SHR Demo Rates (O&R)

Rate components	Rate components (<i>billing determinants in italics</i>)			
	Rate A		Rate B	
Supply Charge	Hourly NYISO supply prices, Zone G (<i>kWh consumed each hour</i>)			
Embedded Delivery Charge	\$0.881 / max daily kW	<i>Daily charge based on interval with highest demand between 12 pm and 8 pm</i>	\$23.133 per kW subscribed	<i>Monthly charge based on subscribed kW preselected by customer (default level to cover 85% of eligible hours)</i>
Coincident Generation Event	\$7.700 / max event kW	<i>Incremental to daily demand charge. Event charge based on interval with highest demand during event hours. 24 hour advance notice provided for events, hours may vary by event and by event type.</i>	\$2.041 / kW (moderate days) \$4.436 / kW (extreme days)	<i>Event charge based on interval with highest demand during event hours. 24 hour advance notice provided for events, hours may vary by event.</i>
Coincident Transmission Delivery Event	\$0.954 / max event kW		\$2.117 / kW over (moderate days) \$2.403 / kW over (extreme days)	<i>Incremental to subscription. Overage based on interval with highest demand during event hours. Overage penalty 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 Distribution Delivery Event	\$3.771 / max event kW		\$7.721 / kW over (moderate days) \$9.682 / kW over (extreme days)	
Fixed Monthly Customer Charge	\$20.00 per month			
Adjustments and Surcharges	\$0.XX (<i>kWh consumed</i>); varies, includes System Benefit Charges, MAC, RDM, etc.			

(d) Participant Pool

Targeting the optimal customer segment to participate in SHR Demo Track 1 is based on two primary criteria: (1) availability of Advanced Metering Infrastructure (AMI), and (2) the presence of large, discretionary end use loads that may be shifted in response to price. The first criterion narrows prospective participants to three counties that are among the first in the Companies’ AMI deployment plans to receive a significant number of AMI installations by summer 2018 (the start of the SHR Demo’s baseline data collection period). These are: the Borough of Staten Island (or Richmond County) and Westchester County in Con Edison territory, and Rockland County in O&R territory. The second criterion narrows the focus to single-family homes with central AC, as these are a segment of residential customers with relatively large discretionary end use loads during the summer when peak events are likely to occur. Both of these characteristics increase the likelihood that SHR Demo participation will result in larger load impacts and that these impacts will be detectable. In addition, customers with existing solar PV installations will be excluded from Track 1. This will help to avoid obscuring measurable load impacts, as could happen if solar PV customers were included in the same participant pool as more traditional customers.

Con Edison’s end use saturation data suggest that the vast majority of single family homes with central AC likely have multiple large electric end uses, especially laundry appliances and dishwashers. In addition, a smaller number may also have other large electric end uses such as electric water heating, pool pumps, and electric vehicles. Depending on the capabilities of the technology to be provided, participants may be given the option to connect additional end uses, but this decision will ultimately be made by each participant based on their openness to allowing these end uses to be connected.

Table 5 provides an estimate in each target county of the number of customers that meet the criteria outlined above, assuming 37% to 50% of single-family residences will have central AC in 2018. In total, the Companies estimate that just under 70,000 accounts will be eligible for the SHR Demo. Because the Companies assume that a 5% penetration rate will be achievable within this population and because the recruiting target is 2,250 for Track 1, up to 24,000 of the total target population may be withheld from SHR Demo recruiting for other research purposes. The Companies will provide the selected partner with a list of at least 45,000 single family home accounts¹¹ with some propensity of owning CAC in the target areas (based on analytics performed by the companies). While the Companies estimate that some of these accounts have CAC, it is unknown at which accounts CAC is actually present so some of the accounts on the list will not be qualified for the SHR Demo. It will be the responsibility of the partner to identify and recruit qualified accounts, so this should be incorporated into the partner’s recruitment strategy.

Table 5: Estimated Participant Pool for Track 1¹²

County	SC-1 accounts	SC-1 Single Family Home accounts	SC-1 Single Family Home accounts with AMI by May 2018	Central AC saturation among Single Family Homes ¹³	Estimated target population
Staten Island	164,517	82,133	77,630	50%	38,815
Westchester	311,743	146,056	17,679	37%	6,541
Rockland	103,292	91,517	48,013	50%	24,007
Total	579,552	319,706	143,322		69,363

¹¹ The subset of the estimated target population not withheld for other research purposes.

¹² These figures have been updated since the original SHR Demo proposal was filed on February 1, 2017.

¹³ Based on saturation surveys and internal estimates.

3. RFI response outline

Below is the outline RFI responses should follow. The Approach, Capabilities, and Experience section should follow the sequence and structure found in the RFI Questions by Capability Area in Section 4, addressing each capability area and its related questions.

- I. **Executive Summary** — Respondents should provide a brief summary of their proposal. This summary should include a brief description of the company(ies) proposing.
- II. **Approach, Capabilities, and Experience** — Respondents should follow the sequence and structure laid out in the RFI Questions by Capability Area.
 - a. Turnkey project management and recruiting
 - b. Price responsive automation technology
 - c. Technology installation (optional, if not included explain why not)
- III. **Project team description** — Respondents should list all key team members. Include any partnerships and describe the relationships and roles of all parties involved in the proposal. Describe any ways the proposed team structure and roles deviate from the responsibilities laid out in Table 1. If forming partnerships to provide a comprehensive response, provide examples of past work with full project team.
- IV. **Costs**
 - a. Required resources & cost — Respondents should provide an estimated budget for the proposed solution. This budget should include key cost categories, incurred by quarter, and should clearly identify any underlying budgeting assumptions in detail. Any options on top of the base solution (e.g., options may include the integration of multiple end use loads into the technology system) should be clearly identified. Costs for options should be listed separately from those of the base solution.
 - b. Sources of funding — Respondents should clearly identify the sources of funding for the proposed solution. Describe any secondary revenue streams or any third-party funding sources, if applicable. The Companies are interested in proposals that utilize other funding streams (i.e., Federal, State, City) to mitigate the overall project cost.
- V. **References**— Respondents should list prior experience and references and include the information listed in Section 5.
 - a. Turnkey project management and recruiting (up to 5 projects)
 - b. Price responsive automation technology (up to 5 projects)
 - c. Technology installation (up to 2 projects)
- VI. **Attachments**
 - a. Attach CVs of each team member listed in the project team description as a separate file.

4. RFI Questions by Capability Area

The response's Approach, Capabilities, and Experience section should follow the structure and address the questions laid out below.

(a) Turnkey project management and recruiting

Evaluation Criteria	Capability area	Related questions
Delivery capabilities of team	Project management and program administration	Provide a high level implementation schedule given the timeline provided in Section 1 of the RFI. Include roles and responsibilities for project team members and for the Companies. Describe your approach to delivering a well-integrated and executed project for this demonstration. Provide examples of prior experience managing multiple teams and organizations. Describe how you would deliver the enrollment, call center, installation support, management of recurring customer communication requirements of this demonstration project. Provide examples of prior experience deploying these capabilities.
	Experience w/ technology projects	Describe your experience with smart thermostat projects. Describe your experience with device automation or HAN / HEMS projects. Describe your field installation capabilities, if applicable. Do you have these capabilities on your team? Is it the capability of the primary team or of a subcontractor? As this may be relevant to potential pairing with other partners, please address regardless of whether or not your response includes a technology which requires field installation.
	Participant acquisition	Describe your recruiting plan for Track 1 of the SHR Demo. Which recruiting channels will you use? What would your targeting approach be? Address specifically how you plan to convert 5% of the target population. Do you have concerns about achieving this conversion target? If so, describe your concerns and how you plan to address them. Provide an example where you delivered on high penetration targets. Describe your local presence in Con Edison and O&R territories.
	Marketing	Describe your approach to marketing content development including collaboration with the Companies' marketing teams and resources. Explain any specific considerations for a technology heavy demo with a specific target population, such as the SHR Demo.
	Partnership	Would you be open to partnering with technology vendor of Con Edison's choosing?

(b) Price responsive automation technology

Evaluation Criteria	Capability area	Related questions
Technology capability and scalability	Price response and demand optimization ¹⁴	Describe how the technology would provide optimization of end use loads against Rates A and B as described in the Background section. What optimization approaches are used to respond to dynamic pricing (hourly day ahead, event-based CPP) and demand charges (i.e., describe optimization logic)? Does the technology take user preferences (comfort, bill impact, simplicity) into account? How are these balanced with the price optimization function?

¹⁴ minimizing bill impacts of demand charges by controlling demand

Evaluation Criteria	Capability area	Related questions
		<p>Describe any specific challenges you anticipate with implementing price response against Rates A and B. Provide examples where the technology has been deployed with time-variant rate and demand rate optimization. Please characterize as prototype or field pilot.</p>
	Thermostat automation	<p>What thermostats have been integrated with the technology? Provide acknowledgement from device manufacturers or otherwise demonstrate. How would central AC loads be modulated (i.e., through cycling, price dependent temperature set-points, pre-cooling)? What are the installation requirements? Are customers able to install the technology themselves? What is the provisioning process? If direct install is required, do you have the capabilities to do installation and commissioning?</p>
	Automation of other end uses	<p>(Note: Complementary automation of other end uses are encouraged but not required.) Describe your approach to integrating other end uses with the technology. What types of end uses would be targeted? If participants were to have these end uses, is the price-responsive technology capable of integrating them? What additional installation requirements are required for this integration? Is control differentiated or modulated by device (i.e., can different devices be configured to respond differently to the same price signal or level and can a given device be configured to respond differently to different price signals or levels)? For which end uses has automation been tested in the field (vs. a lab prototype)? Describe these field pilots / experiences.</p>
	Platform	<p>Describe the platform architecture. Does it utilize cloud-based control or a physical in-home gateway or other? Describe how your technology platform communicates with end use devices. Which communication protocols are used? What signals are sent / received? Please describe what protocols your technology could support receiving and using price signals from Con Edison/O&R. If you cannot support an open communication protocol for this please explain why not. (Note: Integration with Con Edison/O&R's AMI network is neither necessary nor encouraged.) What is your approach for addressing communication / internet outages? What factors reduce the reliability of connectivity to the devices and can this be mitigated? What approaches are taken to ensure cyber security?</p>
Delivery capabilities of team	Technology development	<p>Is the technology capable of meeting the SHR Demo requirements today? If not, what, if any, new functionalities would have to be built for this project? Describe development cycle and testing process / timeline. Note that the technology needs to be fully tested and ready for deployment by early 2018 for the purposes of the SHR Demo.</p>
	Partnership	<p>Would you be open to partnering with PM / recruiting / installation vendors of Con Edison's choosing?</p>
Customer experience	User Interface	<p>Describe any device automation user interface you have already developed or incorporated into your technology. Describe any market /</p>

Evaluation Criteria	Capability area	Related questions
		<p>customer research used in development of the interface. What decisions does it require users to make? How do you educate users to use it? If possible, include screenshots of key interface screens. Indicate if you would be able to provide a live demonstration of the technology. What mobile options / applications are there for the interface? If you do not have an existing interface, describe the process you would use to develop one. Do you propose using a Con Edison/O&R branded interface or other?</p>

(c) Technology installation

Evaluation Criteria	Capability area	Related questions
Delivery capabilities of team	Smart thermostat installation	Describe your team’s experience with residential installations of smart thermostats.
	HAN / gateway installation	Describe your team’s experience with residential installations of HAN if applicable to the proposed technology.
	Cloud / device API setup	Describe your team’s experience with residential installations which involved set up of device APIs if applicable to the proposed technology.
	Technology testing	Describe the testing protocols and phases you would recommend for SHR Demo technologies. Provide examples where you have implemented similar protocols.
Customer experience	User interface training, education, and support	<p>Describe your approach to user interface training and education. What key components are necessary to avoid most issues? Describe the level of post-installation support you would recommend and could provide.</p>

5. References template

Respondents should make an effort to supply references that correspond to prior experience cited in the responses to RFI Questions by Capability Area. Up to 12 references can be submitted depending on which capability areas are included in the response.

- i. Turnkey project management and recruiting (list up to 5 projects)
- ii. Price responsive automation technology (list up to 5 projects)
- iii. Technology installation (list up to 2 projects)

Each reference should include the following information.

- Relevant capability area(s) (e.g. correspondence to areas and sub areas laid out in the RFI Questions section)
- Brief description

- Technologies deployed
- Number of customers / participants
- Partners
- Client
- Name and title of client reference
- Contact information (direct phone, email) for reference

6. Response and submittal instructions

A complete submittal includes a cover letter (see below), the response as described in the outline in Section 3, and an attachment of key team members' CVs. Responses should be provided in PDF format and each file should be clearly labeled.

A cover letter is required with the response. The cover letter must include the following:

- The legal name and address of respondent
- The name, title and telephone number of the individual authorized to submit information
- A statement that the respondent has read, understands, and agrees to all provisions of the RFI

Responses will be submitted by email to: SHRDemo@coned.com. Please format the email subject line as follows: "Company Name – SHR Track 1 Demonstration Proposal."

Responses delivered by hand, fax, regular mail, or any other method will not be accepted. The Companies will not be responsible for late, lost, illegible, or misdirected submissions.

The Companies may, at its option, contact respondents with additional questions or information requests.

Any questions or clarifications concerning this RFI should be directed to the Companies at SHRDemo@coned.com. The deadline to submit questions via email is 5:00 pm EDT on July 21, 2017. Emailed questions received after this date will not receive a response. The Companies will not respond to any questions received in-person, by mail, by fax, or by phone. A summary of all questions submitted and the corresponding answers will be posted online at <https://www.coned.com/en/business-partners/business-opportunities/smart-home-rate-demo> on Aug. 4, 2017.