2024-2026 System Reliability Procurement (SRP) Three-Year Plan

For action by the Rhode Island Energy Efficiency and Resource Management Council on October 19, 2023

To be filed on/by November 21, 2023, with:

Rhode Island Public Utilities Commission in RIPUC Docket No. 23-XX-EE

Prepared by:

The Narragansett Electric Company d/b/a Rhode Island Energy

Rhode Island Energy™

a PPL company

Contents

Pre-Filed Testimony

[Forthcoming at time of filing]

Executive Summary

System Reliability Procurement (SRP) encompasses the activities conducted by The Narragansett Electric Company d/b/a Rhode Island Energy to meet or mitigate a gas or electric system need or optimization that provides the need or optimization by employing diverse energy resources, distributed generation, or demand response.[1] In this *2024-2026 SRP Three-Year Plan* ("Plan"), Rhode Island Energy summarizes its proposed implementation plan for system reliability procurement. This Executive Summary is intended to provide a high-level overview.

How does Rhode Island Energy identify opportunities for system reliability procurement?

Rhode Island Energy's system planners identify opportunities for system reliability procurement as they identify and screen system needs. The figure below describes the entire system reliability procurement process from identifying system needs to implementing system reliability procurement solutions. Section 2 describes this process in detail, and Sections 3 and 4 identify opportunities for system reliability procurement solutions in the queue.

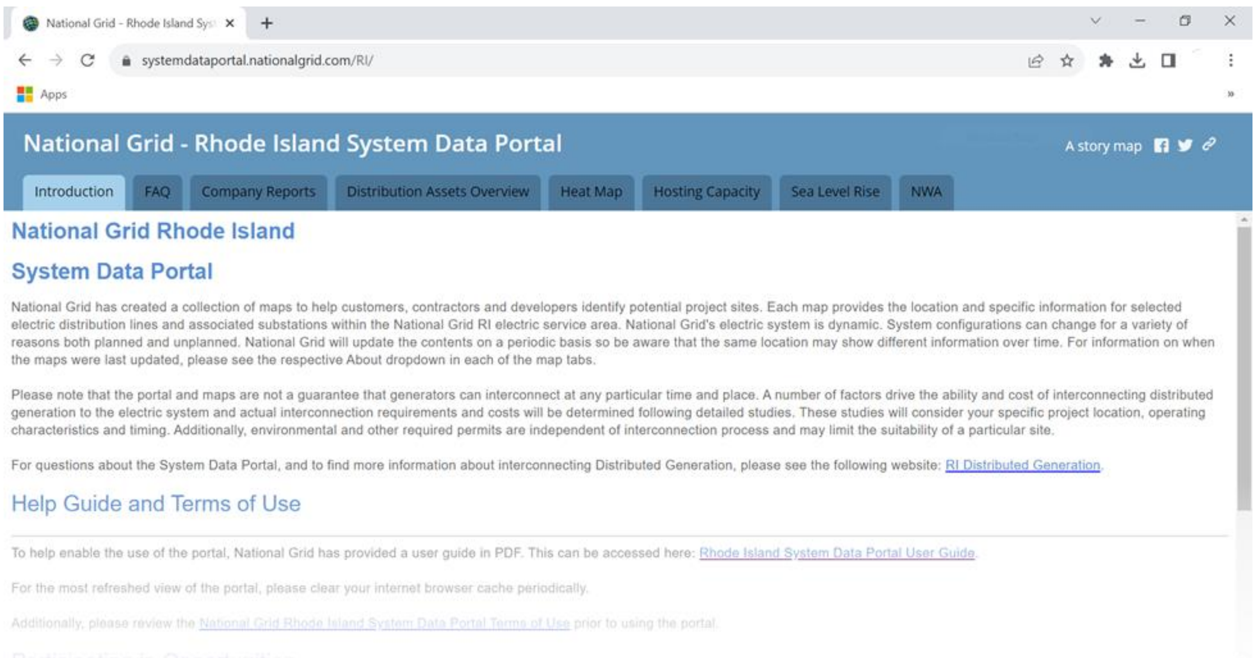
Figure ES-1. Overview of System Reliability Procurement Process

Identify system needs	Engineers use forecasts about energy demand and distributed energy resources alongside information like asset age to model the electric and gas systems. These models help engineers pinpoint system needs that should be resolved soon.
Screen for possible solutions	Engineers apply screening criteria to understand which types of solutions are potentially feasible. Possible solutions include infrastructure investment, utility-run programs, and system reliability procurement.
Scope best alternative URP solution	Engineers scope the best alternative utility reliability procurement (URP) solution for the system need or optimization. Possible solutions are utility owned and operated by definition.
Solicit proposals	If system reliability procurement is a potential feasible solution, then engineers will work with the procurement team to develop a competitive bid process for third-party vendors to propose their solutions.
Evaluate proposals	Representatives from throughout Rhode Island Energy will help evaluate proposals from third-party vendors using pre-defined evaluation criteria that assess technical and economic viability.
Request regulatory approval	If a proposal is successful, then Rhode Island Energy will formally submit the solution for regulatory approval through an "SRP Investment Proposal."
Implement solution	If the SRP Investment Proposal is approved, Rhode Island Energy will work with the third-party vendor to implement the solution in time to resolve the system need.

[1] Per the Rhode Island Public Utilities Commission's Least-Cost Procurement Standards, 2023 version.

How can third-party solution providers find opportunities to propose solutions?

Third-party solution providers can find opportunities for system reliability procurement via Rhode Island Energy's System Data Portal, available here: https://systemdataportal.nationalgrid.com/RI/.[2] Specifically, third-party solution providers can access open solicitations for system reliability procurement solutions using the *NWA* tab and can follow along with Rhode Island Energy's system planning by viewing the area studies; system reliability procurement plans; and infrastructure, safety, and reliability plans in the *Company Reports* tab. Section 5 includes additional discussion of planned updates and improvements to the System Data Portal. Appendix 5 contains a helpful user guide to assist users in getting the most out of the System Data Portal.



How can stakeholders engage?

In the spirit of transparency and continuous improvement, Rhode Island Energy welcomes stakeholder engagement through the following channels:

- ✓ Third-party solution providers can add their contact information to Rhode Island Energy's distribution lists for solicitations; these distribution lists may also be used for other communications to solicit feedback from third parties on system reliability procurement processes (email cagill@rienergy.com to be added to distribution lists).
- ✓ Stakeholders representing customer, third party, or other interests can engage directly with Rhode Island Energy (email cagill@rienergy.com to discuss the most productive way to engage).

[2] Please note that Rhode Island Energy is in the process of transitioning the System Data Portal from prior parent company National Grid; users should expect branding and company identification to transition during 2023-2024.

- ✓ Anyone (third-party solution providers, stakeholder groups, customers, etc.) can follow along with and engage via the Rhode Island Energy Efficiency and Resource Management Council (EERMC); visit the EERMC's website to learn more about the EERMC's oversight role in system reliability procurement and identify meetings to attend and ways to engage: www.rieermc.ri.gov.
- ✓ Anyone (third-party solution providers, stakeholder groups, customers, etc.) can follow along with and engage as appropriate in regulatory proceedings; visit the Rhode Island Public Utilities Commission's website to access dockets related to system reliability procurement: www.ripuc.ri.gov.
- ✓ Just have a general question or thought? Email Carrie Gill at cagill@rienergy.com to discuss.

How is SRP coordinated across other distribution system planning and investment activities?

Rhode Island Energy conducts a number of business activities in the pursuit of delivering safe, affordable, reliable, and sustainable energy to our customers. As such, teams throughout Rhode Island Energy coordinate to make sure all investments and customer programs are aligned to make the most effective impacts. The table below provides some detail about how Rhode Island Energy coordinates between system reliability procurement and other distribution system planning and investment activities.

Infrastructure, Safety, and Reliability Planning	All distribution system planning, whether it results in utility reliability procurement that proceeds through *Infrastructure, Safety, and Reliability Plans* or system reliability procurement, begins with identifying system needs using forecasts about energy demand and distributed energy resources alongside information like asset age to model the electric and gas systems. Coordination between utility reliability procurement and system reliability procurement is inherent to Rhode Island Energy's internal structure of identifying system needs and ensures no duplication of efforts.
Energy Efficiency	System reliability procurement and energy efficiency are both authorized through Rhode Island's Least-Cost Procurement Statute and further stipulated through regulatory standards. Rhode Island Energy's energy efficiency team will propose the viability of targeted energy efficiency in response to open solicitations for system reliability procurement, to be evaluated alongside proposals third-party solution providers. In particular, demand response programs (conducted as system reliability procurement) overlay performance incentives on purchase and financing incentives accessed through energy efficiency programs. Staff are fully coordinated on leveraging both incentive streams to maximize demand response program impacts.
Customer Communications	Rhode Island Energy's customer communications team is fully integrated into outreach and engagement for system reliability procurement during the 2024-2026 period. Outreach and engagement could include open solicitations for system reliability procurement, awareness of the System Data Portal, education and volunteer peak demand reduction for ConnectedSolutions, and other information related to system reliability procurement activities, as appropriate.

Grid Modernization and Advanced Metering	Rhode Island Energy has filed proposals with the Rhode Island Public Utilities Commission to transition to advanced metering (Docket No. 22-49-EL) and modernize the electric grid (Docket No. 22-56-EL), both of which are ongoing proceedings as of September 1, 2023. Regardless of the outcomes of either proceeding, system reliability procurement will continue and Rhode Island Energy will continue to screen system needs for the possibility of having system reliability procurement solutions, for which Rhode Island Energy would solicit proposals. Indeed, enhanced visibility, communications, and control achieved through advanced metering and grid modernization would benefit Rhode Island Energy's ability to forecast system needs and employ system reliability procurement solutions.
Last Resort Service Supply Procurement	Through a RI PUC approved procurement process, Rhode Island Energy procures energy supply on behalf of all customers who have chosen not to receive supply from an alternate supplier (i.e. retail or competitive supplier). Rhode Island Energy's procurement team is involved in informing decisions about the scale of peak reduction targeted through demand response activities within system reliability procurement.

For more information…

The following *2024-2026 SRP Three-Year Plan* describes Rhode Island Energy's vision for system reliability procurement throughout 2024-2026. Interested stakeholders, third-party solution providers, and energy system enthusiasts are encouraged to read on to learn more about Rhode Island Energy's system reliability procurement processes, upcoming activities and programs, regulatory compliance, and additional technical and conceptual details.

Section 1. Introduction

System Reliability Procurement (SRP) encompasses the activities conducted by The Narragansett Electric Company d/b/a Rhode Island Energy to meet or mitigate a gas or electric system need or optimization by employing diverse energy resources, distributed generation, or demand response.[3] In this *2024-2026 SRP Three-Year Plan ("Plan")*, Rhode Island Energy summarizes its proposed implementation plan for system reliability procurement.

The Rhode Island Public Utilities Commission provides principles for the design of each Three-Year Plan in their Least-Cost Procurement Standards, shown in Figure 1.

In designing this Plan, Rhode Island Energy translated the principles in Figure 1 to a set of four objectives and strategized how to build these objectives into the Plan. Figure 2, next page, connects principles A through C from Figure 1 to these objectives and actions. This figure was discussed with the SRP Technical Working Group on May 17, 2023, and the Energy Efficiency and Resource Management Council on May 18, 2023.[4]

Throughout this Plan, we include several figures and tables to aid in understanding and clarity. Figures with a blue background apply generally to the electric and gas systems. Figures with a yellow background provide definitions or other regulatory, statutory, or policy citations. Figures with a teal background are specific to the electric system. Figures with a purple background are specific to the gas system. The objective of this color coding is to assist readers in navigating this Plan.

Figure 1: General Plan Design and Principles

A. In order to meet Rhode Island's gas and electric energy system needs and policy goals in a manner consistent with R.I. Gen. Laws §39-1-27.7, Three-Year SRP Plans should include both a broad consideration of needs and goals and broad consideration of solutions to these needs and goals in order to encourage optimal investment by the distribution company.

B. The Three-Year SRP Plan should be integrated with the distribution company's distribution planning process and be designed, where possible, to complement the objectives of Rhode Island's energy policies and programs as described in Section 3.2.A.

C. The Three-Year SRP Plan should be designed so that potential non-utility solution providers can understand how and when the distribution company makes decisions to implement System Reliability Procurement in lieu of Utility Reliability Procurement.

Source: Least-Cost Procurement Standards, Section 4.3 (Docket No. 23-07-EE)

[3] Rhode Island Public Utilities Commission's Least-Cost Procurement Standards (Docket 23-07-EE).
[4] For more information about the SRP Technical Working Group, see Section 5. To date, the *2024-2026 SRP Three-Year Plan* was discussed with the SRP TWG on May 17 and July 19, and with the Energy Efficiency and Resource Management Council on May 18.

Figure 2. RIE Priorities for the 2024-2026 SRP Three-Year Plan

A	B	C	Objectives	How
		√	**Readable**: Easy to navigate and understand by any reader, including third-party solution providers	• Restructuring sections and content to be more responsive to the LCP Standards Chapter 4 • Organizational discipline • Concise writing, figures
√	√		**Useful**: Demonstrate clear alignment and integration with other business functions and investment proposals	• Links to overarching business objectives • Cross references • Calling out contingencies if/when they exist
√		√	**Actionable**: Where we identify areas of innovation or improvement, provide clear and actionable workplans	• Work/research/discussions needed • Milestones • Interim and end deliverables • Eval process for internal EE/DR/etc efforts
√	√	√	**Compelling**: Clear proposals for PUC ruling with well-supported justification and reasoning	• Screening requirements and implementation plans for non-wires and non-pipes solutions • Annual reporting requirements • Performance metrics and incentive plan • Other proposals, as appropriate

<u>Contents</u>

This Plan is organized into sections aligned with required content as described in Chapter 4.4 of the Least-Cost Procurement Standards. Non-wires solutions and non-pipes solutions are each addressed throughout each of the sections of this Plan. The appendices to this Plan provide additional details to aid in understanding of the Report and to comply with legal and regulatory reporting requirements.

Appendices

Section 2. System Reliability Procurement Process

Overview

In this Section, Rhode Island Energy describes the system planning process, from identification of system needs, screening for system reliability procurement, and procuring, evaluating, and implementing solutions.

We describe each step in detail. Although many steps are the same regardless of whether the system need or optimization is for the electric or gas system, there are some steps in which we handle electric system needs differently from gas system needs. We take care in pointing out these differences and explain why these differences are appropriate within our pre-filed testimony.

Figure 3 summarizes the system reliability procurement process as a sequence of high-level steps. These high-level steps are fully integrated into the overall electric and gas system planning processes. We walk through each of these steps in order in the following subsections, and discuss report-outs on the results of each step within Section 7: Annual Reporting.

Figure 3. Overview of System Reliability Procurement Process

Identify system needs	Engineers use forecasts about energy demand and distributed energy resources alongside information like asset age to model the electric and gas systems. These models help engineers pinpoint system needs that should be resolved soon.
Screen for possible solutions	Engineers apply screening criteria to understand which types of solutions are potentially feasible. Possible solutions include infrastructure investment, utility-run programs, and system reliability procurement.
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Step 1. Identify System Needs and Optimization

The Rhode Island Energy team identifies system needs and opportunities to optimize system performance through routine distribution system planning studies, through annual distribution system planning processes, and through annual consideration of supply-related needs and opportunities.

Electric System

Engineers use electrical models to simulate conditions on the electric system, given inputs like forecasted load growth, forecasted penetration of distributed energy resources, and characteristics of electric assets, like age. These models help engineers pinpoint system issues and when they need to be addressed. Engineers do this type of planning every several years for geographical electrical areas (called area studies) and annually for targeted immediate system needs.

Engineers and supply procurement team members will also discuss potential supply constraints or needs on an annual basis. Rhode Island and the region typically experience peak supply demand on hot summer evenings, which can result in higher supply costs for customers. The team considers high supply costs as an opportunity for optimization of system performance.

Figure 4. Definitions

Electric System Needs

Needs to serve both customer load and customer generation, including, but not limited to, system capacity (normal and emergency), voltage performance, reliability performance, protection coordination, fault current management, reactive power compensation, asset condition assessment, distributed generation constraints, operational considerations, and customer requests.

Gas System Needs

Needs to serve customers, including, but not limited to, system capacity (normal and emergency), pressure management, asset condition assessment, gas service that supports electric distributed generation, and operational considerations.

Optimization of System Performance

Improvement of the performance and efficiency of the gas or electric system that includes enhanced reliability, peak load reduction, improved utilization of both utility and non-utility assets, optimization of operations, and reduced system losses.

Source: Least-Cost Procurement Standards (2023 version)

Gas System

The process of identifying gas system needs and opportunities to optimize performance is very similar to that followed for electric system planning. Engineers use gas supply and distribution system models to perform a detailed analysis of facilities and system performance within identified geographic gas areas as well as for targeted immediate system needs. Gas engineers and the gas procurement team discuss potential supply constraints and needs as part of the system assessment. This process prioritizes the identification of capacity-constrained areas – i.e., locations on the gas system where forecasted peak demand exceeds the amount of pipeline capacity we can rely on to be available on the coldest winter days.

Step 2. Screen for Possibility of System Reliability Procurement Solution

Once a system need or opportunity for system optimization is identified, the Rhode Island Energy team screens for the possibility that a system reliability procurement solution may be technically and economically viable.

Figure 5, below, defines the two categories of possible solutions to a system need or optimization: system reliability procurement solutions with utility reliability procurement solutions.

Figure 5. Definitions

Utility Reliability Procurement
Procurement to meet or mitigate a gas or electric distribution system need or optimization that is not System Reliability Procurement and thus represents a utility-only investment or expenditure.*

* For example, many such Utility Reliability Procurement investments and operations are proposed in annual Infrastructure, Safety, and Reliability Plans filed pursuant to R.I. Gen. Laws § 39-1-27.7.1(c)(2).

System Reliability Procurement
Procurement to meet or mitigate a gas or electric distribution system need or optimization from a party other than the gas or electric utility** that provides the need or optimization by employing diverse energy resources, distributed generation, or demand response.***

** A utility proposal to own and operate non-traditional investment or new operations and maintenance services, such as new voltage-regulation equipment, battery storage, or vegetation management, and any vendor services associated with such investment or service, shall not be considered System Reliability Procurement per this definition. Such investments and services are, however, still subject to the Guidance Document issued in Docket No. 4600A.

*** Including, but not limited to, the resources named in R.I. Gen. Laws § 39-1-27.7(a)(1)(i)-(iii).

Source: Least-Cost Procurement Standards (2023 version)

Figure 6, below, compares and contrasts key terminology that describes various possible solutions to assist with understanding.

System reliability procurement encompasses solutions proposed by third-party vendors and solutions operated by Rhode Island Energy. However, utility reliability procurement is limited to solutions owned and operated by Rhode Island Energy.

System reliability procurement only encompasses non-wires and non-pipes solutions. Utility reliability procurement can encompass both wires/pipes solutions and non-wires/non-pipes solutions.

Note that this step is technology agnostic; screening criteria for the possibility of a system reliability procurement solution to a system need or optimization are silent on technology alternatives.

Figure 6. Examples of Solutions and Relevant Terminology

	Wires/Pipes Solutions	**Non-Wires/ Non-Pipes Solutions**
Utility Reliability Procurement (URP)	Reconductoring Upsize transformers Pipe replacement	Utility-owned and operated battery storage CVR/VVO
System Reliability Procurement (SRP)	Not applicable	***Utility-run*** or ***third-party*** demand response or targeted energy efficiency ***Third-party*** owned and operated battery storage

Electric System Screening Criteria

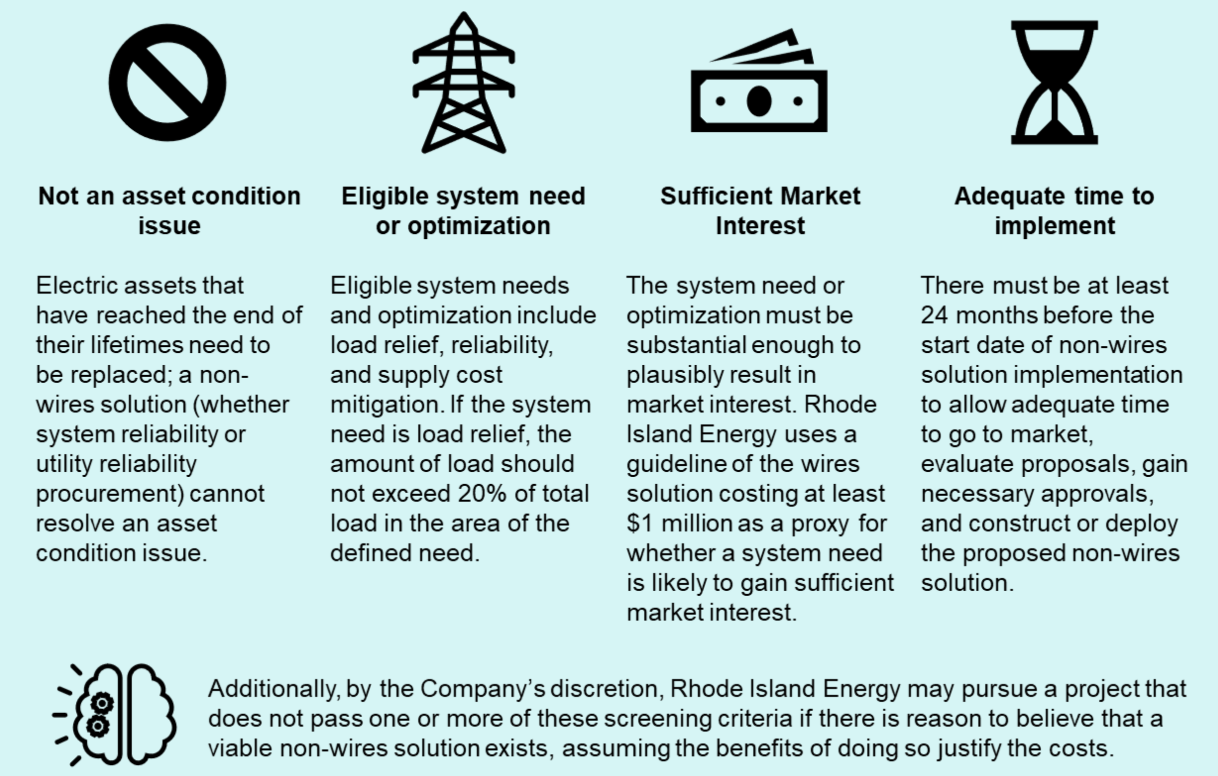
Engineers screen system needs for the potential viability of a system reliability procurement solution. This screening is fully integrated into the planning process and is part of the normal course of business.

Screening criteria are described in Figure 7, below. These screening criteria are applied by the engineering team to all electric system needs and opportunities for optimizing system performance that arise during Step 1.

System needs that fail any of the screening criteria will be proposed as "wires solutions" through Rhode Island Energy's annual *Electric Infrastructure, Safety, and Reliability ("ISR") Plan* at the appropriate time.

System needs that pass the screening then advance through the following steps to solicit and evaluate the viability of system reliability procurement solutions.

Figure 7. Screening Criteria for Non-Wires Solutions through System Reliability Procurement



Gas System Screening Criteria

Gas system reliability procurement is a nascent program and process, requiring ongoing development so that full integration into the gas planning process and normal course of business can be achieved. As with the electric system, the objective is for gas engineers to screen system needs for the potential viability of a system reliability procurement solution. Given the emergent nature of the program, we anticipate the screening process and criteria may evolve, informed by experience and learnings. Any proposed changes will be submitted for regulatory approval per LCP Standards at the appropriate time.

Once embedded in the gas planning process, screening criteria will be applied by the engineering team to system needs and opportunities for optimizing system performance that arise during Step 1. Screening criteria for the gas system are described in Figure 8, below.

System needs that fail any of the screening criteria will be proposed as "pipes solutions" through Rhode Island Energy's annual *Gas Infrastructure, Safety, and Reliability ("ISR") Plan* at the appropriate time.

System needs that pass the screening then advance through the following steps to solicit and evaluate the viability of system reliability procurement solutions. Projects that meet the screening criteria will be prioritized in consideration of capacity-constrained areas on the gas system.

Figure 8. Screening Criteria for Non-Pipes Solutions through System Reliability Procurement

Not an asset replacement investment

Gas assets that pose immediate, local, and system-wide safety and/or reliability impacts must be replaced; a non-pipes solution (whether system reliability or utility reliability procurement) cannot resolve a critical safety or reliability issue.

Eligible system need or optimization

Eligible system needs and optimization include load reduction, load removal, and supply constraint mitigation.

Sufficient Market Interest

The system need or optimization must be substantial enough to plausibly result in market interest. Rhode Island Energy uses a guideline of the pipes solution costing at least $0.5 million as a proxy for whether a system need is likely to gain sufficient market interest.

Adequate time to implement

There must be at least 24 months before the start date of non-pipes solution implementation to allow adequate time to go to market, evaluate proposals, gain necessary approvals, and construct or deploy the proposed non-pipes solution.

Additionally, by the Company's discretion, Rhode Island Energy may pursue a project that does not pass one or more of these screening criteria if there is reason to believe that a viable non-pipes solution exists, assuming the benefits of doing so justify the costs.

<u>Step 3. Scope the Best Alternative Utility Reliability Procurement Solution</u>

Least-Cost Procurement Standards require "System Reliability Procurement shall be lower than the cost of the best alternative Utility Reliability Procurement" (Section 1.3.A). Therefore, we first must understand what the best alternative utility reliability procurement solution is.

System engineers always develop their recommendation for the best utility reliability procurement solution. These solutions are described in area studies and annual *Infrastructure, Safety, and Reliability ("ISR") Plans*.

For any system need or optimization that passes the screening criteria in Step 2 of the system reliability procurement process, the cost of the best alternative utility reliability procurement solution will be denoted as the cost against which to compare system reliability procurement proposals.

Step 4. Solicit Proposals

Rhode Island Energy will solicit proposals for all possible solutions identified, whether from a third-party vendor or an internal business functional team (i.e., utility-run non-wires/non-pipes solutions).

Solicitation will occur via a competitive Request for Proposals ("RFP"). Internally, a procurement specialist will work with engineers and others to develop the RFP, which will fully detail the scope of the system need or opportunity for optimization. The RFP will include all technical specifications required to design a solution. Each RFP will have a period during which potential bidders can ask additional questions.

Rhode Island Energy may require a two-stage proposal process, where the first stage requires a letter of intent describing the proposed concept prior to the second stage proposal with complete technical and financial detail. The objective of this two-stage proposal process is to reduce workload and improve proposals by providing an opportunity for Rhode Island Energy to give feedback and express interest (non-interest) in technically viable (non-viable) proposals.

Results of solicitations – including information about third-party and internally-sourced proposals received – will be reported annually; see Section 7 for more information.

Proposals for Third-Party Solutions

Third-party solution providers may submit proposals for non-wires and non-pipes solutions. RFPs will be posted publicly and can be found by navigating to Rhode Island Energy's System Data Portal.[5] Rhode Island Energy will conduct outreach for each RFP to engage the market in the objective of obtaining a robust set of competitive proposals. Rhode Island Energy will include comprehensive instructions for how potential bidders can submit questions and proposals.

Notice to Third-Party Bidders

To aid in transparent processes, the following will be included in each RFP:

> *"All proposals received by Rhode Island Energy ("RIE") in connection with this Request for Proposals ("RFP") are subject to public disclosure, specifically through filings made by RIE with the Rhode Island Public Utilities Commission ("PUC"). Filings with the PUC are subject to the Rhode Island Access to Public Records Act ("APRA"), R.I. Gen. Laws §38-2-1, et. seq. When making filings with the PUC, RIE will consider all proposals to be public unless RIE, in its discretion, finds that certain portions of information contained within the proposals are exempt from public disclosure pursuant to R.I. Gen. Laws §38- 2-2(4), in which case, RIE may seek confidential treatment from the PUC. Offerors are advised to clearly mark or label "confidential" any portions of information within their proposals that they believe are "[t]rade secrets and commercial or financial information obtained from a person, firm, or corporation which is of a*

[5] See Section 5 for more information about Rhode Island Energy's System Data Portal.

> *privileged or confidential nature." When making a filing with the PUC, RIE will take into consideration any information marked by the offeror as confidential. However, broad disclaimers that label the entire proposal as confidential will not help RIE in its APRA analysis and may not be considered."*

Proposals for Utility-Run Solutions

Program leads representing possibly viable utility-run solutions (i.e., energy efficiency, demand response, renewable energy programs, and energy storage) will be asked to develop proposals in response to the same RFP used to solicit proposals from third-party vendors, subject to the same deadlines, processes, and transparency standards.

Step 5. Evaluate Proposals

With the objective of comparing possible solutions on a level playing field, all possible solutions – whether utility-run or third-party provided – are pursued and evaluated in parallel.

First, the procurement specialist will review all proposals to ensure their completeness. On a case-by-case basis, the procurement specialist may notify bidders of incomplete proposals and allow time for bidders to remedy their proposals. Bidders who do not or cannot submit complete proposals will be notified of their disqualification from the procurement process. The procurement specialist will share all complete proposals with members of the Rhode Island Energy evaluation committee, who will be determined prior to issuing the RFP.

All proposals will be evaluated by all members of the evaluation committee using the same evaluation sequence, evaluation criteria, and weighting. Each member will score each proposal; all member scores will be averaged to obtain the final score. The proposal with the highest score will be tentatively selected; all other bidders will be notified of non-selection.

Evaluation criteria is defined and described in the Least-Cost Procurement Standards, Section 1.3.A:

> *"Least-Cost Procurement shall be cost-effective, reliable, prudent, and environmentally responsible. ... System Reliability Procurement shall be lower than the cost of the best alternative Utility Reliability Procurement."*

Rhode Island Energy adopts these criteria in its evaluation rubric, shown in Figure 8, below. As a threshold step, any proposal that costs more than the best alternative utility reliability procurement solution identified in Step 3 will be removed from consideration. Rhode Island Energy will conduct its comparison of costs using the stipulations defined in Least-Cost Procurement Standards Section 1.3.H.[6]

[6] "Lower than the cost of the best alternative Utility Reliability Procurement i. The distribution company shall compare the cost of System Reliability Procurement measures, programs, and/or portfolios to the cost of the best alternative Utility Reliability Procurement option using all applicable costs enumerated in the RI Framework. The

The evaluation committee will review all remaining proposals and score them based on the extent to which they are cost-effective, reliable, prudent, and environmentally responsible. Rhode Island Energy will conduct its evaluation consistent with the requirements provided by the Least-Cost Procurement Standards in Section 1.3, including adherence to the principles for cost tests and resource assessments in Standards Section 1.3.B.[7] Using the stipulations defined in Least-Cost Procurement Standards Sections 1.3.C, 1.3.D, 1.3.E, and 1.3.F, any proposal that is found to be not cost-effective, reliable, prudent, or environmentally responsible will be removed from consideration.[8]

Figure 8. System Reliability Procurement Evaluation Rubric

Criteria	Description	Weight
Cost	Total project cost is less than or equal to cost of best alternative Utility Reliability Procurement	Go/No-Go
Cost-Effective	Using the Docket 4600 Benefit-Cost Framework, to what extent do benefits outweigh costs?	25; No-Go if BCR- < 1.0
Reliable	To what extent can the proposal reliably resolve the system need?	25; No-Go if deemed not reliable
Prudent	To what extent would advancing the proposal be considered a prudent decision?	25; No-Go if deemed not prudent
Environ-mentally Respon-sible	To what extent is the proposal environmentally responsible?	25; No-Go if not environ-mentally responsible
	Total	**100**

Of all remaining proposals, Rhode Island Energy will tentatively select the proposal with the highest score for continuation in the system reliability procurement process. Outcomes of evaluations – including evaluations of third-party and internally-sourced proposals – will be reported annually; see Section 7 for more information.

distribution company shall provide specific costs included in the Cost of System Reliability Procurement. ii. At a minimum, the comparison shall include the applicable cost categories in a Total Resources Cost Test. iii. The distribution company shall describe which costs in the RI Framework were included in the cost of System Reliability Procurement and which costs are included in the alternative Utility Reliability Procurement. For any categories that are not included in either, the distribution company shall describe why these categories are not included."

[7] Least-Cost Procurement Standards Section 1.3.B: "When preparing any cost test or resource assessment, including the RI Test, the following principles will be applied: i. Supply-side and demand-side alternative energy resources shall be compared in a consistent and comprehensive manner. ii. Cost tests shall be created using the RI Framework and account for applicable policy goals, as articulated in legislation, PUC orders, regulations, guidelines, and other policy directives. iii. Cost tests shall account for all relevant, important impacts, even those that are difficult to quantify and monetize. Where applicable cost or benefit categories cannot be quantified, such categories shall be qualitatively assessed.8 iv. Cost tests shall be symmetrical, for example, by including both costs and benefits for each relevant type of impact. v. Analyses of the impacts of investments shall be forward-looking, capturing the difference between costs and benefits that would occur over the life of the investments with those that would occur absent the investments. Sunk costs and benefits are not relevant to a cost-effectiveness analysis. vi. Cost tests shall be completely transparent and should fully document and reveal all relevant inputs, assumptions, methodologies, and results."

[8] The full reference to Least-Cost Procurement Standards Section 1.3 is included in Appendix 3 for easy reference.

Expected Value

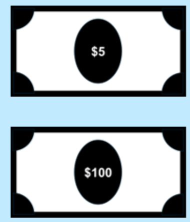
Beginning in 2024, Rhode Island Energy will begin exploring how to apply the concept of expected value to its evaluation of proposals for system reliability procurement.

What is expected value?

Expected valuation is a common practice for accounting for probabilities of different outcomes. In essence, the expected value of an action is the sum of its probability-weighted values (see Figure 9).

Expected value may be applied when there are multiple possible outcomes that may result from an action. By applying expected value, we can appropriately internalize the range of likely outcomes; not applying expected value may result in over-emphasizing (under-emphasizing) a particular outcome because of the implicit assumption that outcome will result with 100% (0%) certainty.[9]

Figure 9. Simple illustration of expected value



99% probability of winning $5
(0.99 X $5.00 = $4.95)

PLUS

1% probability of winning $100
(0.01 X $100.00 = $1.00)

EQUALS

Expected Value of $5.75

If you were to assume winning $5 were the only outcome, then you'd be implicitly assuming 100% probability of winning $5 and 0% probability of winning $100, for an expected value of $5.

If you had to buy a lottery ticket to access these winnings, an economically rational person would be willing to pay up to $5.75 to take the bet that recognizes the small, but non-zero chance of winning $100; up to $0.75 more than an economically rational person who considers only 100% chance of winning $5.

When to apply expected value?

Generally, in the short-term, Rhode Island Energy will apply expected value as a sensitivity analysis in situations where Rhode Island Energy conducts a benefit-cost assessment for investment choices between two alternatives, and for which it is feasible to identify potential outcomes and estimate the probabilities of those outcomes occurring. Rhode Island Energy recognizes that there may be unforeseen complexities that prevent full application of expected value and considers the next few years to be an exploratory, learning experience.

As a first step in this learning experience, Rhode Island Energy will first apply expected value to investment decisions regarding non-wires (non-pipes) solutions relative to wires (pipes) solutions, where the potential outcomes differ in the length of the deferral term of the wires (pipes) solution.

In the longer-term, Rhode Island Energy can potentially apply expected value to more complex decisions, including but not limited to decisions between more than two alternatives and decisions with more than two potential outcomes.

9 For more information about expected valuation, see Appendix 10.

Whenever Rhode Island Energy applies expected value, Rhode Island Energy will document the exact method for each step contained in the methodology, all assumptions, and all justifications or underlying evidence required for a reader to understand and replicate the calculations.[10]

Step 6. Request Regulatory Approval

If the evaluation in Step 5 results in a proposal that is less costly than the best alternative utility reliability procurement and is cost-effective, reliable, prudent, and environmentally responsible, then Rhode Island Energy will file for regulatory approval of the system reliability procurement solution.

Figure 10 provides examples of which regulatory avenues Rhode Island Energy may pursue for approval for various solutions, where the wires or pipes solution (yellow row) represents the best alternative utility reliability procurement solution and subsequent rows (gray) represent system reliability procurement. Please note that Figure 10 is not intended to be comprehensive or deterministic; Rhode Island Energy will consider all appropriate regulatory avenues for each system reliability procurement solution.

Figure 10. Examples of filings through which regulatory approval may be requested for an incomplete set of potential solutions to system needs or optimization

Solution Description	Regulatory Filing	Timing of Filing
Wires or Pipes Solution	Electric or Gas Infrastructure, Safety, and Reliability ("ISR") Plan	Annual filing each December
Third-Party Solution (Technology Agnostic)	SRP Investment Proposal	December, alongside ISR Plan
Utility-Administered Energy Efficiency	SRP Investment Proposal	December, alongside ISR Plan
Utility-Administered Demand Response	SRP Investment Proposal	December, alongside ISR Plan
Utility Owned and Operated Energy Storage	Electric ISR Plan	Annual filing each December
Renewable Energy Incentives	Renewable Energy Growth Program (zonal incentive)	Annual filing each November

Step 7. Implement Solution

Pending regulatory approval, Rhode Island Energy will proceed expeditiously with the system reliability procurement solution. Any third-party solution will require an executed contract between the third party and Rhode Island Energy.

[10] Subject to protection of confidential data and sources.

Contracts for third-party system reliability procurement solutions may include terms and conditions covering performance expectations, penalties for non-performance, and data sharing and transparency. An example of such language is below for reference:

> *"[Vendor] acknowledges that the Rhode Island System Reliability Procurement Program ("Program") is funded by Rhode Island customers through the energy efficiency surcharge on their bills [or other rate mechanism]. [Vendor] agrees to cooperate with Rhode Island Energy ("RIE") and provide any documentation and/or data related to the Program in its possession to RIE for purposes of ensuring that RIE can (i) comply with any directives issued by the Rhode Island Public Utilities Commission ("PUC") or other authorized governmental agency and (ii) respond to any data requests made by the PUC or other governmental agency. [Vendor] also agrees that such documentation and/or data as well as this Agreement may be publicly filed by RIE in regulatory proceedings related to the Program. [Vendor] further agrees to comply with all requirements as reasonably deemed necessary by RIE to ensure that [Vendor] is qualified to serve as a vendor within the Program."*

Reporting and Continuous Improvement

Rhode Island Energy is committed to robust procurement and evaluation of system reliability procurement solutions.

To promote transparency, Rhode Island Energy will report results of all procurements, including assessments of the viability of utility-administered solutions. Such reporting will be included within *System Reliability Procurement Annual Reports*. For more information, see Section 7 of this *2024-2026 SRP Three-Year Plan*.

In the spirit of continuous improvement, Rhode Island Energy always encourages and accepts feedback from third-party solution providers, including both bidders and non-bidders. To provide feedback, please email Carrie Gill, Head of Electric Regulatory Strategy: cagill@rienergy.com.

Section 3. Electric System Needs and Optimization

Reducing Supply Costs through Electric Demand Response

System Need or Optimization

Electricity supply costs are partially driven by the high cost of electricity during the few hours of the year when we use the most electricity. During these "peak periods," the most expensive generators are needed to supply enough electricity to meet demand, and their cost is factored into the supply rates customers incur.

Although Rhode Island Energy is an electricity delivery company (akin to FedEx or UPS for delivering packages), we are obliged to help customers who choose not to buy supply from a third-party supplier by buying electricity in bulk on the wholesale market. Rhode Island Energy cares about helping customers access the most affordable electricity and, as such, has identified an opportunity to reduce supply costs by incentivizing demand reductions during peak periods.

System Reliability Procurement – Electric System Screening Criteria

This optimization meets all four electric system screening criteria and is, therefore, an opportunity for system reliability procurement:

1. The optimization is not related to an asset condition issue;
2. The optimization is eligible because the optimization requires load relief;
3. The opportunity for system reliability procurement is likely to garner sufficient market interest; and
4. There is adequate time to implement a system reliability procurement solution.

Best Alternative Utility Reliability Procurement Solution

Demand response proposed for this system need is specifically to reduce system-level peak demand. There is no best alternative utility reliability procurement solution at this time.[11,12]

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[11] Rhode Island General Laws 39-1-27.7.b(1)(iii) establishes "demand response, including, but not limited to, distributed generation, back-up generation, and on-demand usage reduction, that shall be designed to facilitate electric customer participation in regional demand response programs, including those administered by the independent service operator of New England ("ISO-NE"), and/or are designed to provide local system reliability benefits through load control or using on-site generating capability" as an eligible activity within system reliability procurement.

[12] The current demand response program is not capable of managing loads in response to circuit peaks because the current demand response program does not have the necessary inputs, including localized data, to sufficiently manage the distribution system with the existing software/systems. Rhode Island Energy's Grid Modernization Plan analysis identified a need to dispatch demand response resources with an understanding of both localized resource characteristics and system topology. The current system is incapable of doing this for two reasons. First, the current electric system does not have the requisite equipment (sensors, meters, etc.) to provide the data required to understand system topology. Second, the current demand response management system does not have the functionality to pair these two attributes (resource characteristics and system topology). The proposed grid modernization investments include the requisite equipment to provide the data required to understand the system

Solicit and Evaluate System Reliability Procurement Proposals

This system reliability procurement opportunity has been addressed since 2019 through the Company's demand response program, branded ConnectedSolutions.[13] As of July 2023, approximately 8,000 customers are participating in ConnectedSolutions through their connected thermostats, battery energy storage systems, and production process curtailments. In aggregate, the participation of these customers has led to a meaningful reduction in peak load resulting in $74 million in costs avoided for our customers. To leverage the value of program continuity, Rhode Island Energy proposes to maintain ConnectedSolutions through 2026.[14]

To administer ConnectedSolutions, Rhode Island Energy partners with a number of curtailment service providers, contracts with a residential demand response vendor, and collaborates with major distribution utilities throughout the region to coordinate demand response events. Rhode Island Energy will continue to coordinate with and grow this ecosystem of third-parties, participants, and partner utilities to increase collective demand reduction and resulting benefits. In the last quarter of 2023, Rhode Island Energy will solicit proposals for a third-party vendor to work with us to achieve a certain level of peak reduction annually for the 2024-2026 period.

Request Regulatory Approval

Rhode Island Energy will request regulatory approval for ConnectedSolutions via a *System Reliability Procurement ("SRP") Investment Proposal* to be filed in December alongside, but separately from, the *Electric Infrastructure, Safety, and Reliability ("ISR") Plan*.[15] The *SRP Investment Proposal* will include program design specifications, budget, and anticipated participation and impacts. Additional discussion and details about the proposed trajectory of ConnectedSolutions is in Appendix 4.

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topology and associated limitations on a granular basis. This understanding will provide incremental benefits, such as having the ability to provide localized solutions to address system needs, which will increase the impact of the existing demand response programs. Rhode Island Energy recognizes circuit-focused peak load management is an important functionality for achieving the State's climate and clean energy mandates safely, reliably, and affordably. Rhode Island Energy notes that its proposed grid modernization, our demand response program can be improved to (1) be tied not only to peak load reduction, but also to peak generation management; (2) be tied to distribution system constraints for better infrastructure avoidance; and (3) be integrated and scaled to levels commensurate with State policy drivers. Furthermore, Rhode Island Energy's proposed advanced metering functionality will (i) provide more granular and timely meter data; (ii) improve the Company's ability to dispatch resources; and (iii) allow for more accurate measurement and evaluation of performance. The granular data provided by these investments would be used with the grid modernization investments to provide system-wide real time visibility.

[13] ConnectedSolutions had previously been housed within filings related to energy efficiency (e.g., *2021-2023 Energy Efficiency Three-Year Plan*, *2023 Energy Efficiency Annual Plan*). Beginning in 2024, Rhode Island Energy will include ConnectedSolutions within filings related to system reliability procurement instead.

[14] Although this *2024-2026 SRP Three-Year Plan* only pertains to activities through 2026, Rhode Island Energy does envision the continuation of a demand response program past 2026, subject to future design modification and appropriate regulatory review.

[15] As is recommended by the Least-Cost Procurement Standards (2023 version) Section 5.5.A.

Implement Solution
Pending regulatory approval, Rhode Island Energy will reopen ConnectedSolutions for the 2024 peak demand season, beginning in Spring 2024. Rhode Island Energy will report the resulting impacts in its *SRP Annual Report*.[16]

Improving Reliability in Woonsocket

System Need or Optimization
In the Blackstone Valley South Area Study, Rhode Island Energy identifies a system need on a feeder in Woonsocket (excerpt below).[17]

Feeder 112W43 Reconductoring Options 1

Reliability can be improved by reconductoring ~5,340' of cross arm and armless to spacer cable along West Wrentham Road from pole #35 to pole #82. Refer to Appendix 7.6 for detailed plan development drawings. The wires solution should be further investigated. An infrared scan of the OH distribution equipment was completed in May 2021 and the issues have been resolved. Tree trimming was performed in FY20.

Spend	Cost ($M)
CapEx	$ 1.000
OpEx	$ 0.020
Removal	$ 0.080
Total	$ 1.100

Feeder 112W43 Non-wire Alternative Option 2

There is approximately 94% of total feeder connected kVA and 93% of total feeder customers past the reconductored section mentioned in Option 1. Based on the assessment of applicability of non-wires alternatives, the preferred solution may be a good candidate to go to market for an NWA solution. The NWA solution is currently being evaluated internally. Due to the ongoing NWA review, the wires solution cost identified above will not be included in the cost summary table below and in section 7.

Electric System Screening Criteria
This optimization meets all four electric system screening criteria and is, therefore, an opportunity for system reliability procurement:

1. The optimization is not related to an asset condition issue;
2. The optimization is eligible because the optimization requires load relief;

[16] For more information on annual reporting, see Section 7.
[17] See page 34, available here: https://systemdataportal.nationalgrid.com/RI/documents/Blackstone_Valley_South_Area_Study_Report_Rev1_final_signed_redacted.pdf

3. The opportunity for system reliability procurement is likely to garner sufficient market interest; and
4. There is adequate time to implement a system reliability procurement solution.

Best Alternative Utility Reliability Procurement Solution

As discussed in the Area Study, above, the best alternative utility reliability procurement solution involves reconductoring approximately one mile of cable. This solution is anticipated to cost $1.1 million.

Next Step: Solicit System Reliability Procurement Proposals

Rhode Island Energy plans to develop and issue an RFP for this system reliability procurement opportunity in 2024.

Section 4. Gas System Needs and Optimization

<u>Gas Demand Response</u>

System Need or Optimization

During the coldest days of the year when our system is near daily or hourly peak demand, upstream or on-system constraints may result in demand exceeding available pipeline capacity in certain areas on the system. Historically, Aquidneck Island has been a capacity constrained area that is closely evaluated by Rhode Island Energy with respect to gas procurement and system planning.

System Reliability Procurement – Gas System Screening Criteria

This system need is not related to an asset replacement investment. It qualifies as an eligible system need or optimization, is likely to garner sufficient market interest, and there is adequate time to implement a system reliability procurement solution. Therefore, this system need passes the gas system screening criteria and is a system reliability procurement opportunity.

Best Alternative Utility Reliability Procurement Solution

Gas demand response is a pilot program. We are trying to understand the scalability of the program and the degree to which it might offset a utility reliability procurement. Hence, it is not appropriate to evaluate the pilot program against a utility reliability procurement solution at this time.

Solicit System Reliability Procurement Proposals

For this system need, Rhode Island Energy administers a demand response pilot program for large, firm commercial and industrial customers, specifically those customers with gas equipment that can be curtailed without compromising safety.

The demand response pilot program incentivizes the deferral or avoidance of gas use during peak periods through adjusting thermostat settings or by temporarily switching to an alternative, back-up heating source. Testing the efficacy of gas demand response will allow Rhode Island Energy to understand gas demand response's impact on gas system needs and optimization, customer interest, effectiveness of incentive levels, and scalability of the program, as well as its potential applicability to other customer classes.

Because the gas demand response program is in the pilot stage and designed to test the benefits of reducing gas system peak demand, customer adoption of gas demand response, the incentive levels required drive participation, and RI Energy's role in influencing market adoption, it is, by nature of its design and goals, necessary for the Company to administer the program. Following the Gas DR Pilot, Rhode Island Energy will evaluate whether there is value in launching a full-scale demand response program.

Evaluate Possible Solutions

Gas demand response may have the potential for many system benefits and value streams, such as alleviating local distribution system constraints, increasing system flexibility, delaying infrastructure investments, and providing revenue to participants. The gas demand response pilot program will target 40-50 dekatherms ("Dth") of hourly peak demand reduction in the winter of 2023/2024. While gas demand response does not directly address climate change, greenhouse gas emissions may be reduced due to participation during peak demand events and may help avoid gas infrastructure investments.

Request Regulatory Approval

Rhode Island Energy will request regulatory approval for its gas demand response pilot program via a *System Reliability Procurement Investment Proposal* to be filed in November, separate from the *Gas Infrastructure, Safety, and Reliability ("ISR") Plan* to be filed in December. The *SRP Investment Proposal* will include program design specifications, budget, and anticipated participation and impacts. We discuss further details about the trajectory of the demand response program in Appendix 4.

Implement Solution

In its *SRP Investment Proposal*, Rhode Island Energy will propose the continuation of – and potential expansion to include residential and small-business customers with hybrid gas-electric heating systems – its gas demand response pilot program during peak gas demand season beginning in winter 2024. However, gas demand response hasn't provided the level of relief anticipated due to lack of performance during called events and low customer interest so enhancements are needed to create a more effective program. The learnings for the pilot program going forward will focus on how to increase program enrollment, participation during call events, and potential expansion of the program beyond large commercial and industrial customers. Aquidneck Island will continue to be a particular focus, but other areas with similar capacity constraints will be evaluated. Rhode Island Energy will report the resulting impacts of its demand response program in its SRP Annual Reports.[18]

[18] See Section 7 for more information about annual reporting.

Section 5. Market and Stakeholder Engagement

<u>Engagement for Solicitations</u>

In service to the objective of evaluating all possible solutions on a level playing field, Rhode Island Energy is interested in ensuring all competitive proposals are presented. To mitigate risk of an otherwise viable solution not being proposed due to lack of awareness about an RFP, Rhode Island Energy will conduct outreach for its system reliability procurement RFPs in the following ways:

1. Rhode Island Energy will post all RFPs for system reliability procurement publicly on the System Data Portal website.
2. Rhode Island Energy will email its list of third-party vendors when the RFP is issued and in reminder prior to the due date.
3. Rhode Island Energy will notify the System Reliability Procurement Technical Working Group so that members may conduct outreach to their constituents and colleagues.
4. Rhode Island Energy will notify the Energy Efficiency Technical Working Group so that members may conduct outreach to their constituents and colleagues.
5. Rhode Island Energy will make announcements at meetings of the Energy Efficiency and Resource Management Council and the Distributed Generation Board.

Rhode Island Energy welcomes ideas from potential bidders for other avenues of outreach that would be beneficial.

<u>System Data Portal</u>

Rhode Island Energy maintains an interactive website where third parties can access information about the electric distribution system, called the "System Data Portal." The primary objective of the System Data Portal is to use information to nudge development of distributed energy resources to locations on the grid that provide relatively more operational value. An ancillary benefit is that developers can gain insight into potential development locations that may result in relatively low interconnection costs and/or relatively quick interconnection times. Appendix 3 contains more information about how to use the System Data Portal, including specific use cases for various stakeholders including distributed generation developers, electric vehicle charging infrastructure developers, and building developers.

Rhode Island Energy is in the process of migrating the System Data Portal from National Grid's servers to PPL's servers, expected to be complete by May 2024. This migration will preserve all key components of the System Data Portal, including Company Reports, Distribution System Data Map, Heat Map, and Hosting Capacity Map, all of which will be updated by the end of the first quarter of each year on an ongoing basis.

Rhode Island Energy will make the following changes and improvements to the System Data Portal:

- Solicitations for System Reliability Procurement will be housed within the Company Reports tab instead of the tab currently titled “NWA.” By housing all relevant materials together (i.e., solicitations, area studies, and the *2024-2026 SRP Three-Year Plan*), we hope third-party solution providers and potential bidders can more easily access pertinent information for beneficial development of distributed energy resources and successful proposals for non-wires solutions.
- Equivalent materials for the gas distribution system and solicitations for non-pipes solutions will be added to the Company Reports tab.
- Rhode Island Energy will remove the fleets layer from the heat map, but add a map showing loading hosting capacity. The original objective of this layer was to help third parties identify fleets that could potentially be electrified. However, there is no compelling evidence that the fleet layer is actively used and there are administrative challenges with updating the layer. Instead, we will add a full map tab showing loading hosting capacity on each feeder. This layer will provide third parties information about which feeders may have the capacity to accommodate electric vehicle charging infrastructure with relatively low interconnection cost.
- Rhode Island Energy will remove the tab “SLR,” which shows projections of sea level rise using data sourced from the National Oceanic and Atmospheric Administration. To aid third parties in developing distributed energy resources in locations with lower climate risk, Rhode Island Energy will add layers to each map tab that allow users to toggle on/off map layers from Rhode Island’s STORM TOOLS, a suite of maps that show coastal flooding for various levels of storm and sea level rise that is used by the Coastal Resources Management Council. Rhode Island Energy recognizes the importance of climate resilience and climate adaptation for our energy resources and welcomes suggestions for other useful map overlays on an ongoing basis.

<u>System Reliability Procurement Technical Working Group</u>
The SRP Technical Working Group (TWG) is an external stakeholder group convened and administered by Rhode Island Energy for the sole purpose of advising Rhode Island Energy on matters related to System Reliability Procurement, as defined by Least-Cost Procurement Statute under RIGL 39-1-27.7. The SRP TWG is not a statutory or regulatory requirement, nor is the group public. Members of the SRP TWG include the Rhode Island Division of Public Utilities and Carriers, Rhode Island Office of Energy Resources, Energy Efficiency and Resource Management Council, Acadia Center, Green Energy Consumers Alliance, Northeast Clean Energy Coalition, and Conservation Law Foundation.[19] Rhode Island Energy will continue to convene the SRP TWG throughout 2024-2026. Topics of discussion for this time period may include but are not limited to process improvements for system reliability procurement solicitations and evaluations, review of *SRP Investment Proposals* and *SRP Annual Reports*,

[19] While Commerce RI, Rhode Island Office of the Attorney General, and Rhode Island Infrastructure Bank have been members and are welcome to continue to participate, there are currently no representatives from these organizations who are active in the SRP TWG.

improvements for the System Data Portal, and other topics to be identified. For more information about the SRP TWG, please email Carrie Gill at cagill@rienergy.com.

Section 6. Performance Incentive Plan

Rhode Island Energy proposes performance incentive structures for (i) demand response and (ii) implementation of a system reliability procurement solution. Both incentives are structured as shared savings, where the demand response performance incentive shares avoided supply costs and system reliability procurement shares avoided distribution costs.

Through system reliability procurement, Rhode Island Energy is creating value. The Company proposes to share this value between customers and shareholders, thereby accomplishing the Company's dual mission of delivering safe, affordable, reliable, sustainable energy to customers and long-term value to shareholders.

Please note that the incentive structures below are conceptual; Rhode Island Energy will propose specific performance incentives aligned with this structure in each of its SRP Investment Proposals.

<u>Demand Response Performance Incentive</u>

Rhode Island Energy proposes a dollar per megawatt peak reduction performance incentive for its demand response achievements.[20] The level of incremental incentive is tied to quantitative net benefits, as described below. The objective is to share quantifiable cash savings with customers.

Quantitative net benefits

- Electric Savings: Energy
- Electric Savings: Capacity
- Resource Benefits: Electric Energy
- Resource Benefits: Electric Energy DRIPE
- Resource Benefits: Electric Capacity
- Less: Program Costs

<u>System Reliability Procurement Performance Incentive</u>

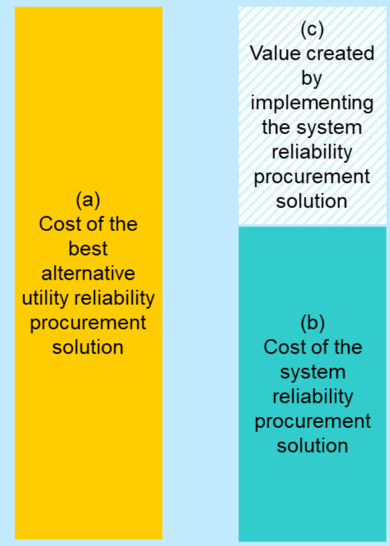
Rhode Island Energy proposes a shared savings mechanism for successfully implementing system reliability procurement solutions. Savings is defined as avoided costs between the system reliability procurement solution and the best alternative utility reliability procurement solution, where 80 percent is allocated to customers and 20 percent is earned by the Company on an annual basis.

Rhode Island Energy additionally proposes a minimum performance incentive for the successful implementation of each system reliability procurement solution, commensurate with the lost return its shareholders would have earned on the best alternative utility reliability procurement

[20] This proposal is similar to the System Efficiency Performance Incentive Mechanism developed and approved via Docket No. 4770, except that it is specific to system peak reduction achieved through demand response.

solution. This minimum ensures that there is no structural earnings incentive for one type of solution over another. Figure 10 illustrates the share value approach to a performance incentive.

Figure 10. System Reliability Procurement Performance Incentive



Performance incentive =
MAX {allowed return on best alternative utility reliability procurement solution, 80% * (c)}

When the Company files its proposed system reliability procurement solution, the filing will contain details of the best alternative reliability procurement solution, including annual financials, for full regulatory scrutiny. The same details will be provided for the proposed system reliability solution. The Company will request regulatory approval of the performance incentive, implying regulatory review and approval of the specific financials of the best alternative utility reliability procurement solution and the proposed system reliability procurement solution. The performance incentive will be calculated and included within each annual system reliability procurement report, using actual data of the prior year's expenses on the approved system reliability procurement solution relative to the best alternative utility reliability procurement solution. This performance incentive will be recovered via the same cost recovery mechanism used to fund the proposed system reliability procurement solution.

Section 7. Annual Reporting

Rhode Island Energy will submit an SRP Annual Report to the Rhode Island Public Utilities Commission by June 1 of each year covering activities completed within the prior calendar year (e.g., the 2024 SRP Annual Report will cover activities conducted January 1 through December 31, 2024, and will be submitted by June 1, 2025). With the dual objectives of transparently reporting activities to interested stakeholders and holding the Company accountable, each annual report will include the following information:

- Results of each step included in the SRP process described in Section 2;
    - Where results of screening for electric and gas system reliability procurement opportunities, with any opportunities added to a comprehensive listing of opportunities with summary information about system needs or optimization and next step/date of next step (akin to the descriptions provided in Sections 3 and 4);
    - Results of Steps 4-5 (solicitation and evaluation) include proposals and their evaluation outcomes for internally-sources system reliability procurement solutions that did or did not advance to Step 6 (regulatory review);
    - Calculation of performance incentives, as applicable, resulting from successful implementation of system reliability procurement (Step 7)
- A summary of any major changes to the System Data Portal (beyond routine updating of data);
- A summary of engagement with the SRP Technical Working Group; and
- A description of any proposed changes to process, funding, performance incentive, annual reporting, or any other system reliability procurement activity with a justification for the proposed change and any request regulatory ruling related to the proposed change.

Section 8. Consistency with Least-Cost Procurement Standards

In this section, Rhode Island Energy discusses how the 2024-2026 SRP Three Year Plan – specifically the proposed system reliability procurement process – is consistent with the requirements of Least-Cost Procurement Standards Section 1.3. Key excerpts are copied below for easy and direct reference.

Rhode Island Energy will include detailed discussion and documentation (where appropriate) specific to each System Reliability Procurement Investment Proposal to evince its adherence to Least-Cost Procurement Standards Section 1.3.

Least-Cost Procurement Standards Section 1.3.A

"Least-Cost Procurement shall be cost-effective, reliable, prudent, and environmentally responsible. … System Reliability Procurement shall be lower than the cost of the best alternative Utility Reliability Procurement."

The evaluation step of the system reliability procurement process described in Section 2 Step 5 of this Plan is consistent with Standards Section 1.3.A because the evaluation criteria are structured such that any proposed system reliability procurement solution that is not cost-effective, reliable, prudent, environmentally responsible, and lower than the cost of the best alternative utility reliability procurement solution is removed from further consideration. The proposed system reliability procurement process and evaluation criteria guarantee consistency with Standards Section 1.3.A.

Least-Cost Procurement Standards Section 1.3.B

"When preparing any cost test or resource assessment, including the RI Test, the following principles will be applied: i. Supply-side and demand-side alternative energy resources shall be compared in a consistent and comprehensive manner. ii. Cost tests shall be created using the RI Framework and account for applicable policy goals, as articulated in legislation, PUC orders, regulations, guidelines, and other policy directives. iii. Cost tests shall account for all relevant, important impacts, even those that are difficult to quantify and monetize. Where applicable cost or benefit categories cannot be quantified, such categories shall be qualitatively assessed.[21] iv. Cost tests shall be symmetrical, for example, by including both costs and benefits for each relevant type of impact. v. Analyses of the impacts of investments shall be forward-looking, capturing the difference between costs and benefits that would occur over the life of the investments with those that would occur absent the investments. Sunk costs and benefits are not relevant to a cost-effectiveness analysis. vi. Cost tests shall be completely transparent and should fully document and reveal all relevant inputs, assumptions, methodologies, and results."

The system reliability procurement process described within Section 2 of this Plan includes a step for evaluating system reliability procurement proposals. Within this step, Rhode Island

[21] "Qualitative assessments may include relative descriptions of magnitude and direction."

Energy describes its adherence to the principles put forth in Standards Section 1.3.B. In this manner, the Plan is consistent with this requirement of the Standards.

Least-Cost Procurement Standards Sections 1.3.C-F
These sections stipulate criteria that shall or may be used in the assessment of the extent to which system reliability procurement solutions are cost-effective, reliable, prudent, and environmentally responsible.

The stipulations for determining cost-effectiveness are built into the system reliability procurement process in evaluation of system reliability procurement project proposals. Rhode Island Energy describes its adherence to the Least-Cost Procurement Standards in Section 2 Step 5.

Least-Cost Procurement Standards Sections 1.3.H
"Lower than the cost of the best alternative Utility Reliability Procurement i. The distribution company shall compare the cost of System Reliability Procurement measures, programs, and/or portfolios to the cost of the best alternative Utility Reliability Procurement option using all applicable costs enumerated in the RI Framework. The distribution company shall provide specific costs included in the Cost of System Reliability Procurement. ii. At a minimum, the comparison shall include the applicable cost categories in a Total Resources Cost Test. iii. The distribution company shall describe which costs in the RI Framework were included in the cost of System Reliability Procurement and which costs are included in the alternative Utility Reliability Procurement. For any categories that are not included in either, the distribution company shall describe why these categories are not included."

Rhode Island Energy explicitly commits to adhere to Least-Cost Procurement Section 1.3.H in its assessment of the cost of the system reliability procurement solution relative to the best alternative utility reliability procurement solution.[22]

[22] Least-Cost Procurement Section 1.3.H is the relevant section for System Reliability Procurement; Section 1.3.G is relevant for Energy Efficiency and, as such, is not included for discussion herein.

Section 9. Request for Ruling

In accordance with Least-Cost Procurement Standards (2023) Chapter 4.5 (Docket No. 23-07-EE), Rhode Island Energy respectfully requests that the Commission

A. approve screening requirements and implementation plans described in Sections 2-5;

B. approve annual reporting requirements described in Section 7; and

C. approve the performance incentive plan described in Section 6.

Please note that Rhode Island Energy is not requesting any ruling on the draft System Reliability Procurement Investment Proposals contained in Appendix 4 at this time; final versions of these proposals will be filed with the Commission for review and approval separately.

Appendices

Appendix 1. Slide Deck Format of *2024-2026 SRP Three-Year Plan*

See attachment.

Appendix 2. Notes on Terminology

Least-Cost Procurement Standards

The version of the Least-Cost Procurement Standards in effect for 2024-2026 is the version adopted by Order [TBD] in Docket No. 23-07-EE: https://ripuc.ri.gov/Docket-23-07-EE.

The following definitions are excerpted from the Least-Cost Procurement Standards for convenient reference:

> System Reliability Procurement
>
> Procurement to meet or mitigate a gas or electric system need or optimization from a party other than the gas or electric utility[23] that provides the need or optimization by employing diverse energy resources, distributed generation, or demand response.[24]
>
> Utility Reliability Procurement
>
> Procurement to meet or mitigate a gas or electric system need or optimization that is not System Reliability Procurement is a utility investment.[25]
>
> System Needs
>
> i. Electric System Needs: Needs to serve both customer load and customer generation, including, but not limited to, system capacity (normal and emergency), voltage performance, reliability performance, protection coordination, fault current management, reactive power compensation, asset condition assessment, distributed generation constraints, operational considerations, and customer requests.
> ii. Gas System Needs: Needs to serve customers, including, but not limited to, system capacity (normal and emergency), pressure management, asset condition assessment, gas service that supports electric distributed generation, and operational considerations.
>
> Optimization of System Performance
>
> Improvement of the performance and efficiency[26] of the gas or electric system that includes enhanced reliability, peak load reduction, improved utilization of both utility and non-utility assets, optimization of operations, and reduced system losses.

[23] A utility proposal to own and operate non-traditional investment or new operations and maintenance services, such as new voltage-regulation equipment, battery storage, or vegetation management, and any vendor services associated with such investment or service, shall not be considered System Reliability Procurement per this definition. Such investments and services are, however, still subject to the Guidance Document issued in Docket No. 4600A.
[24] Including, but not limited to, the resources named in R.I. Gen. Laws § 39-1-27.7(a)(1)(i)-(iii).
[25] For example, many such Utility Reliability Procurement investments and operations are proposed in annual Infrastructure, Safety, and Reliability Plans filed pursuant to R.I. Gen. Laws § 39-1-27.7.1(c)(2).
[26] Efficiency includes both long- and short-term cost efficiency.

Rhode Island Energy further annotates the following terminology to aid in understanding of this *2022 SRP Year-End Report*:

Non-Wires/Non-Pipes Alternative
Outdated terms referring to non-wires/non-pipes solution.

Non-Wires/Non-Pipes Solution
A solution that satisfies a System Need or Optimization of System Performance through means other than utility-owned infrastructure.

Non-Wires/Non-Pipes Opportunity
A System Need or Optimization of System Performance that may be satisfied via a Non-Wires/Non-Pipes Solution (i.e., the electric or gas screening criteria has been met).

Non-Wires/Non-Pipes Project Proposal
A proposal for a specific Non-Wires/Non-Pipes Solution for a specific Non-Wires/Non-Pipes Opportunity (i.e., such as a proposal submitted in response to a Request for Proposals).

Non-Wires/Non-Pipes Project
A specific Non-Wires/Non-Pipes Solution for a specific Non-Wires/Non-Pipes Opportunity (i.e., such as a project in the process of being constructed, installed, or otherwise implemented).

Non-Wires/Non-Pipes Program
The process by which Rhode Island Energy identifies non-wires/non-pipes opportunities, solicits and evaluates non-wires/non-pipes project proposals, and submits funding requests with relevant justification and documentation for non-wires/non-pipes projects.

Wires/Pipes Solution
A solution that satisfies a System Need or Optimization of System Performance through utility-owned infrastructure.

SRP Investment Proposal
A filing describing a Non-Wires/Non-Pipes Project per Chapter 5 of the Least-Cost Procurement Standards.

Utility Performance Incentive
Shared value between customers and Company shareholders.

Appendix 3. Legal and Regulatory Basis

Least-Cost Procurement Statute[27]

System reliability procurement is contemplated in Rhode Island's Least-Cost Procurement statute. Some key relevant excerpts from this statute are below for convenient reference.

"§ 39-1-27.7. System reliability and least-cost procurement.

(a) Least-cost procurement shall comprise system reliability and energy efficiency and conservation procurement, as provided for in this section, and supply procurement, as provided for in § 39-1-27.8, as complementary but distinct activities that have as common purpose meeting electrical and natural gas energy needs in Rhode Island, in a manner that is optimally cost-effective, reliable, prudent, and environmentally responsible.

(b) The commission shall establish not later than June 1, 2008, standards for system reliability and energy efficiency and conservation procurement that shall include standards and guidelines for:

(1) System reliability procurement, including but not limited to:

(i) Procurement of energy supply from diverse sources, including, but not limited to, renewable energy resources as defined in chapter 26 of this title;

(ii) Distributed generation, including, but not limited to, renewable energy resources and thermally leading combined heat and power systems, that is reliable and is cost-effective, with measurable, net system benefits;

(iii) Demand response, including, but not limited to, distributed generation, back-up generation, and on-demand usage reduction, that shall be designed to facilitate electric customer participation in regional demand response programs, including those administered by the independent service operator of New England ("ISO-NE"), and/or are designed to provide local system reliability benefits through load control or using on-site generating capability;

(iv) To effectuate the purposes of this division, the commission may establish standards and/or rates (A) For qualifying distributed generation, demand response, and renewable energy resources; (B) For net metering; (C) For back-up power and/or standby rates that reasonably facilitate the development of distributed generation; and (D) For such other matters as the commission may find necessary or appropriate.

[27] RIGL 39-1-27.7 http://webserver.rilin.state.ri.us/Statutes/TITLE39/39-1/39-1-27.7.HTM

(4) Each electrical and natural gas distribution company shall submit to the commission on or before September 1, 2008, and triennially on or before September 1 thereafter through September 1, 2028, a plan for system reliability and energy efficiency and conservation procurement…"

Least-Cost Procurement Standards – Chapter 4

Chapter 4 of the Rhode Island Public Utilities Commission's "Least-Cost Procurement Standards," approved and adopted pursuant to Order No. [TBD] in Docket No. 23-07-EE (LCP Standards), describes the intent, purpose, plan design and principles, content, orders, and timing of *SRP Three-Year Plans*. This Chapter is copied below for convenient reference.

"4.1 Intent

A. This Chapter provides standards and guidelines for System Reliability Procurement Plans filed with the PUC pursuant to R.I. Gen. Laws § 39-1-27.7(c)(4).

4.2 Purpose

A. The Three-Year System Reliability Procurement Plan (Three-Year SRP Plan) shall describe general planning principles and potential areas of focus for System Reliability Procurement for the three years of implementation, beginning with January 1 of the following year.

B. The Three-Year SRP Plan shall provide screening criteria for System Reliability Procurement opportunities that may supplant Utility Reliability Procurement and a proposal for how such screening criteria will be included in system planning.

C. The Three-Year SRP Plan will provide strategies and technologies the distribution company intends to employ or consider employing over the next three years pursuant to R.I. Gen. Laws § 39-1-27.7 and these standards.

D. The Three-Year SRP Plan will explain in summary how identical, similar, and related investments across programs contributed incrementally to the state energy policies and goals for the natural gas and electric systems.

E. The Three-Year SRP Plan will describe the procurement process for market-sourced System Reliability Procurement solutions.

F. The Three-Year SRP Plan will describe the evaluation process for System Reliability Procurement.

4.3 General Plan Design and Principles

A. In order to meet Rhode Island's gas and electric energy system needs and policy goals in a manner consistent with R.I. Gen. Laws §39-1-27.7, Three-Year SRP Plans should include both a broad consideration of needs and goals and broad consideration of solutions to these needs and goals in order to encourage optimal investment by the distribution company.

B. The Three-Year SRP Plan should be integrated with the distribution company's distribution planning process and be designed, where possible, to complement the objectives of Rhode Island's energy policies and programs as described in Section 3.2.A.

C. The Three-Year SRP Plan should be designed so that potential non-utility solution providers can understand how and when the distribution company makes decisions to implement System Reliability Procurement in lieu of Utility Reliability Procurement.

4.4 Content

A. The Three-Year Plan shall contain sections that describe how it meets the purposes described in Section 4.2, including but not limited to:

i. proposed screening criteria for System Reliability Procurement, a description of the type(s) of system need(s) that may be addressed with System Reliability Procurement (e.g., system capacity), and a proposal for how such screening criteria will be included in system planning.

ii. for each specific system need that meets the screening criteria in 4.4.A.i, the distribution company shall provide:

a. a description of the specific system need and how it was identified in the system planning process, and when the distribution company expects to need to implement the best alternative Utility Reliability Procurement investment;

b. a description of how the specific system need can be addressed or mitigated through System Reliability Procurement;

c. description of which specific System Reliability Procurement investment(s) will be pursued each year until the best alternative Utility Procurement investment needs to be implemented;

d. initial identification of, or proposal of, cost recovery mechanisms for the System Reliability Procurement investment identified pursuant to paragraph c above and, where possible, specific references to dockets or recurring program reviews,[28] including, when applicable, filings to be made pursuant to Chapter 5 of these Standards;

e. references to where other public information about the specific system need is available;

iii. proposed strategies that can help the distribution company pursue System Reliability Procurement, such as activities that animate the market or reduce market barriers;

iv. proposed general procurement processes used by the company to procure market sourced System Reliability Procurement and Utility Reliability Procurement;

v. proposed general evaluation process for choosing among System Reliability Procurement options or market-based solutions; and

B. The Three-Year SRP Plan will include an annual reporting plan on the implementation of the Three-Year SRP Plan and investments made under System Reliability Procurement during the Three-Year SRP Plan period.

C. The Three-Year SRP Plan will include a discussion of how the Plan is consistent with the requirements of Section 1.3.

D. Performance Incentive Plan Structure

i. The distribution company may propose incentive structures for System Reliability Procurement for effect during the Three-Year SRP Plan.

E. Testimony

i. To the extent applicable, the distribution company will pre-file testimony on the following:

a. Cost-Effectiveness of measures, programs, and portfolios;

b. Prudence, specifically those elements of prudence described in Section 1.3.E.i.e. Given the overlap of Section 1.3.E.e and the issues of parity described in Section 3.2.M, testimony on prudence should also address issues of parity;

c. Reliability;

[28] If a cost-recovery proposal is in the future, the docket will not be known, but the program, such as "Annual EE Plan for 2023" may be known.

d. Environmental Responsibility; and

e. Cost(s) of the best alternative Utility Reliability Procurement investment(s) compared to the System Reliability Procurement investment(s) measures, programs, and portfolios.

ii. Prefiled testimony will also state what approvals for the Three-Year SRP Plan the distribution company is requesting from the PUC.

4.5 PUC Orders

A. The PUC will approve screening requirements and implementation plans that meet the Standards herein.

B. The PUC will approve annual reporting requirements that meet the standards herein.

C. The PUC may approve a three-year performance incentive plan for System Reliability Procurement.

D. The PUC will order adoption of any other proposals supported by the Plan and consistent with Least-Cost Procurement, and all applicable statutes, rules, and policies.

4.6 Timing

A. The distribution company will file the Three-Year SRP Plan on or before November 21, 2020 and triennially thereafter."

Least-Cost Procurement Standards – Section 1.3

Section 1.3 of the Rhode Island Public Utilities Commission's "Least-Cost Procurement Standards," approved and adopted pursuant to Order No. [TBD] in Docket No. 23-07-EE (LCP Standards), establishes principles and stipulations for the assessment of cost, cost-effectiveness, reliability, prudency, and environmental responsibility of system reliability procurement solutions. This Chapter is copied below for convenient reference.

"A. Least-Cost Procurement shall be cost-effective, reliable, prudent, and environmentally responsible. Least-Cost Procurement that is Energy Efficiency and Conservation Procurement shall also be lower than the cost of additional energy supply. System Reliability Procurement shall be lower than the cost of the best alternative Utility Reliability Procurement.

B. When preparing any cost test or resource assessment, including the RI Test, the following principles will be applied:

i. Supply-side and demand-side alternative energy resources shall be compared in a consistent and comprehensive manner.

ii. Cost tests shall be created using the RI Framework and account for applicable policy goals, as articulated in legislation, PUC orders, regulations, guidelines, and other policy directives.

iii. Cost tests shall account for all relevant, important impacts, even those that are 5 difficult to quantify and monetize. Where applicable cost or benefit categories cannot be quantified, such categories shall be qualitatively assessed.[29]

iv. Cost tests shall be symmetrical, for example, by including both costs and benefits for each relevant type of impact.

v. Analyses of the impacts of investments shall be forward-looking, capturing the difference between costs and benefits that would occur over the life of the investments with those that would occur absent the investments. Sunk costs and benefits are not relevant to a cost-effectiveness analysis.

vi. Cost tests shall be completely transparent and should fully document and reveal all relevant inputs, assumptions, methodologies, and results.

C. Cost-Effective

i. The PUC shall determine cost-effectiveness in a manner consistent with the PUC's Guidance Document issued in Docket No. 4600A.

ii. The distribution company shall assess the cost-effectiveness of measures, programs, and portfolios of Least-Cost Procurement. All categories of the RI Test are applicable to cost-effectiveness, although some categories may have no or unknown value. The distribution company shall assess cost-effectiveness using, at a minimum, the following two cost-effectiveness analyses:

a. An analysis that, for categories with value or cost that is shared between Rhode Island Energy and other jurisdictions (both within the state and region), presents benefits and costs without allocating them between Rhode Island Energy and other jurisdictions;

b. An analysis that, for categories with value or cost that is shared between Rhode Island Energy and other jurisdictions (both within the state and region), presents only those benefits and costs that will be allocated to Rhode Island Energy.

iii. The distribution company shall provide the specific benefit- and cost-factors included in determining the RI Test ratios.

[29] Qualitative assessments may include relative descriptions of magnitude and direction.

iv. With respect to the value of greenhouse gas reductions, the RI Test shall include the costs of greenhouse gas emissions mitigation (measured in CO_2 equivalents) as they are imposed and are projected to be imposed by the Regional Greenhouse Gas Initiative, Rhode Island Renewable Energy Standard and Rhode Island Act on Climate, and any other utility system costs associated with reasonably anticipated future greenhouse gas reduction requirements at the state, regional, or federal level for both electric and gas programs. The RI Test shall also include the costs and benefits of other emissions and their generation or reduction through Least Cost Procurement. The RI Test may include the value of greenhouse gas reduction not embedded in any of the above.

v. Benefits and costs that are projected to occur over the term of the Least-Cost Procurement investment shall be stated in present value terms in the RI Test calculation, using a discount rate that appropriately reflects the risks of the investment of customer funds in Least-Cost Procurement. Energy efficiency is a low-risk resource in terms of cost of capital risk, project risk, and portfolio risk.

D. Reliable

i. The distribution company shall assess the

a. ability of Least-Cost Procurement investments to meet the energy supply or delivery system needs.

b. ability of previous investments, including identical or similar investments, to support the conclusion that a new investment is reliable, and

c. potential for implementation issues, including available workforce, market continuity, program scalability.

ii. As applicable, the distribution company also shall assess an investment’s

a. ability to meet specific identified system needs;

b. anticipated reliability as compared to alternatives;

c. operational complexity and flexibility;

d. resiliency of the system;

e. risks associated with investment (for example, the ability to obtain licensing and permitting, significant risks of stranded investment, the potential risk reduction of a more incremental approach, sensitivity of alternatives to differences in load forecasts, and emergence of new technologies, etc.);

f. risks associated with customers' behavior, responsiveness, and ability to potentially modify usage at certain times and seasons; and

g. relative changes in other risks that are applicable to the investment, such as reduced (or increased) public safety risk.

The distribution company shall supply any other information that the company believes supports a finding that an investment is reliable.

E. Prudent

i. The distribution company shall assess:

a. how the investment supports the goals of the electric or natural gas system and the purposes of Least-Cost Procurement.

b. potential for synergy savings based on alternatives that address multiple needs;

c. how the entire investment proposal affects the risks of ratepayers and the distribution company;

d. how the investment effectively uses available funding sources and integrates with energy programs and policies; and

e. how the investment is equitable in consideration of the allocation of costs, the allocation of benefits, customer access, and customer participation. This shall be done by, at minimum, assessing which groups have historically received disproportionately lower benefits from LCP investments and by presenting other appropriate, quantifiable metrics that describe how an investment is equitable.

ii. The distribution company shall provide rate impacts to a range of customer types and usage levels, and shall provide bill impacts, and shall provide how these impacts were considered in the proposed investment.

iii. The distribution company may provide additional cost tests to support a finding that an investment is prudent.

iv. The distribution company shall supply any other information that the company believes supports a finding that an investment is prudent.

F. Environmentally Responsible

i. The distribution company shall assess how investment complies with State environmental and climate policies and shall properly value environmental and climate costs and benefits.

ii. The distribution company shall assess how the investment affects environmental and climate pollution, where applicable, at a local, regional, and global scale.

G. Lower than the Cost of Additional Supply (omitted)

H. Lower than the cost of the best alternative Utility Reliability Procurement

i. The distribution company shall compare the cost of System Reliability Procurement measures, programs, and/or portfolios to the cost of the best alternative Utility Reliability Procurement option using all applicable costs enumerated in the RI Framework. The distribution company shall provide specific costs included in the Cost of System Reliability Procurement.

ii. At a minimum, the comparison shall include the applicable cost categories in a Total Resources Cost Test.

iii. The distribution company shall describe which costs in the RI Framework were included in the cost of System Reliability Procurement and which costs are included in the alternative Utility Reliability Procurement. For any categories that are not included in either, the distribution company shall describe why these categories are not included."

Appendix 4. Preliminary Conceptual Drafts of SRP Investment Proposals

Rhode Island Energy will file:

- An *SRP Investment Proposal* for Electric Demand Response alongside, but separate from, the *FY2025 Electric Infrastructure, Safety, and Reliability ("ISR") Plan* in December 2023; and
- An *SRP Investment Proposal* for a Gas Demand Response Pilot Program on November 1, 2023.

Reducing Energy Supply through Electric Demand Response

System Reliability Procurement Investment Proposal

CONCEPTUAL DRAFT

Reducing Energy Supply through Electric Demand Response:

A Proposal for ConnectedSolutions 2024-2026

Introduction

In accordance with Least-Cost Procurement Statute and Least-Cost Procurement Standards, Rhode Island Energy respectfully files this proposal for continuation of its demand response program, branded ConnectedSolutions, during 2024-2026. Herein, the Company motivates the value of offering an electric demand response program, describes the conceptual design of ConnectedSolutions, proposes and motivates some program design modifications, offers preliminary annual peak reduction targets and associated budget, and requests approval for cost recovery of the budget via the System Reliability Procurement Factor (SRP Factor) added to the Energy Efficiency System Benefit Charge (EE Charge).

Timeline for Development and Review

September 6	Preliminary draft SRP Investment Proposal circulated for external review and feedback
September 20	Opportunity for discussion of SRP Investment Proposal at the SRP Technical Working Group meeting
September 21	Revised draft SRP Investment Proposal included in final draft of *2024-2026 SRP Three-Year Plan*; opportunity for discussion at the EERMC meeting on September 28
October 18	Opportunity for discussion of SRP Investment Proposal at the SRP Technical Working Group meeting

November 1	SRP Investment Proposal submitted to EERMC for review per LCP Standards 6.3.G
November 15	Opportunity for discussion at the SRP Technical Working Group meeting
November 16	Possible discussion, action at the EERMC meeting
November 21	SRP Investment Proposal included as Appendix to *2024-2026 SRP Three-Year Plan* filed with the Commission
December 15	SRP Investment Proposal filed for regulatory review and approval alongside, but separate from, the *FY25 Electric ISR Plan*

Motivation, Objectives, and Program Design Principles

Electricity supply costs differ in the summer and the winter, driven by economics of generation plants needed to serve the amount of electricity consumed by customers (called 'load') and the fuel costs for those generation plants. On hot, humid summer weekday afternoons and evenings, customers typically demand the most electricity, and this 'peak demand' requires the less and less economically efficient generators to produce electricity to serve the load. These 'peaker plants' are the most expensive generators and drive up summer electricity supply costs.[30]

Rhode Island Energy proposes to offer a 'demand response' program to incentivize participating customers to shift a portion of peak electricity demand to off-peak hours in 2024-2026. This shift (referred to technically as 'reducing regional coincident peak demand') should reduce peak electricity supply costs and, therefore, put downward pressure on wholesale electricity supply prices which may translate to lower supply rates.

The objective of Rhode Island Energy's demand response program, branded ConnectedSolutions, is to reduce regional coincident peak demand.

In offering ConnectedSolutions, the Company asserts the following program design principles, explained further below:

1. Be agnostic toward technology and participants
2. Encourage diffuse and diverse participation for reliable response
3. Right-size incentives
4. Comply with Least-Cost Procurement Standards
5. Reduce and mitigate distribution system issues
6. Share value created

[30] Electricity supply costs reflect three components: energy, capacity, and ancillary. Reducing peak demand puts downward pressure on energy and capacity supply cost components, which benefits all customers.

Stemming from the program objective to reduce peak demand, Rhode Island Energy does not differentiate a kilowatt reduced by one technology or participant from a kilowatt reduced by another technology or participant. Each of those kilowatts reduced has the same value for putting downward pressure on electricity supply costs. In this manner, ConnectedSolutions is technology and participant agnostic.

This principle is most clearly displayed in commercial and industrial participation in ConnectedSolutions, where participants can use any technology, process, or other innovation to reduce peak demand. For residential and small business participants, technology is limited by practical considerations for implementation (i.e., a subset of thermostat and battery manufacturers and models). Rhode Island Energy seeks to expand eligible technologies in 2024-2026 to include electric vehicles that can automatically curtail charging during peak events.

ConnectedSolutions is a voluntary program; not all participants reduce demand when called on. Rhode Island Energy seeks to build a demand response program with a relatively certain level of response from its participants. This leads to favoring program design that encourages diffuse participation (i.e., no one participant's level of response substantially sways the overall peak demand reduction achieved by the program) and diverse participation (i.e., no one technology type exerts a disproportionate influence on the overall peak demand reduction achieved by the program). This principle is intended to be complementary – not contradictory – to the principle of being technology and participant agnostic. All else equal, more participants and more technologies will result in a more reliable and consistent level of response. Rhode Island Energy seeks to encourage more participants over fewer, with more technology types than fewer, within its program design for ConnectedSolutions.

While each kilowatt of peak demand reduction is considered to be equal, achieving each kilowatt of peak demand reduction may require different levels of action or opportunity cost on the part of the participant. For example, an automatic setback to a participant's thermostat requires no action, while a request for participants to reduce their thermostats manually requires some action. Another example, having a thermostat that is controllable is a relatively small upfront cost and workload when compared to the upfront costs and work entailed to install a battery energy storage system. A third example for good measure, the opportunity cost of setting back a thermostat (potential temporary discomfort) is small relative to the opportunity cost of skipping a production sequence (definite lost revenue). Rhode Island Energy's third program design principle posits that incentives should be right sized to spur action; because different methods of reducing peak load require different burdens, it makes sense to differentiate incentive levels. Doing so will minimize program costs while achieving the same peak demand reduction.

Demand response activities are contemplated within the Least-Cost Procurement Statute, and further stipulated in the Least-Cost Procurement Standards. Accordingly, demand response must be reliable, prudent, cost-effective, and environmentally responsible. These Standards constitute guardrails on program design. One example of application of these guardrails is with limitations on eligible technologies incentivized for reducing peak demand. Switching from electricity to fossil-fuel generators to reduce peak demand is inconsistent with the Standard of environmental responsibility; therefore, fossil-fuel generation is ineligible to receive incentives from ConnectedSolutions.

An eligible alternative to fossil-fuel generation is battery energy storage, which can power a home or business during a peak period and/or export electricity to the electric distribution system for other customers to use. However, large levels or concentrated electricity export may have unintended adverse impacts to the electric distribution system, especially as battery energy storage becomes more common. Rhode Island Energy seeks to maintain the benefits of peak demand reduction through program design that encourages on-site consumption of stored electricity and discourages large levels of unconstrained exported electricity on feeders with relatively low capacity to handle that export.[31]

Rhode Island Energy is creating value by offering ConnectedSolutions. This value is primarily tangible monetary value – customers keep money in their wallets because electricity bills are less expensive because of ConnectedSolutions. Rhode Island Energy seeks to share this quantifiable monetary value between customers and its shareholders such that *all* parties are better off with ConnectedSolutions than without.

Program Design for 2024-2026

This section describes major program design elements of ConnectedSolutions as well as proposed program design modifications for 2024-2026. This section is not intended to be comprehensive of all program design detail; such detail will be developed and made available in advance of each peak demand season, annually.

Administration

Rhode Island Energy's Role:

Rhode Island Energy serves as the Program Administrator, providing strategic direction and management of ConnectedSolutions. Rhode Island Energy's role manifests through program design, implementation, and evaluation. Rhode Island Energy is uniquely suited for this role because of its expertise in wholesale energy and capacity markets, knowledge of its electric distribution system to mitigate risks through program design, everyday relationship with its customers to promote program participation, and ability to coordinate demand response with all other business activities.

[31] Although interconnection system impact studies do examine the stated charge/discharge patterns of battery energy storage systems, including reducing or mitigating system issues as a program design principle is a necessary and beneficial backstop to ensure demand reduction benefits. In this manner, consistency in considering distribution system issues in demand response program design carries over to system impact studies to ensure full flexibility in program participation without adverse system risks.

Implementation Vendor:

Rhode Island Energy contracts with a third-party solution provider that offers software-as-a-service to implement day-to-day program operations. This implementation vendor is responsible for managing relationships and contracts with technology providers, in order to enable those technologies to participate in ConnectedSolutions (or, more precisely, to enable customers who have those particular technology types and models to enroll and participate). The implementation vendor also assists with data collection, participant enrollment, program impact evaluation, participant satisfaction, troubleshooting, incentive payouts, and ancillary technical assistance. Contracting with a vendor for these roles allows Rhode Island Energy and its customers to benefit from the innovation and price competition within the competitive market for demand response implementation.

Prior to peak season in 2024, Rhode Island Energy will conduct a competitive solicitation for an implementation vendor, in accordance with the system reliability procurement process described in the *2024-2026 SRP Three-Year Plan*. The intent is for a vendor to be tentatively selected prior to filing this SRP Investment Proposal, with final contract and scope of work contingent on regulatory ruling.

Curtailment Service Providers:

Rhode Island Energy and its implementation vendor work with a network of curtailment service providers. These curtailment service providers manage relationships with commercial and industrial customers under their own, independent contracts for value-sharing to which Rhode Island Energy is not party. However, curtailment service providers are essential to the ecosystem of ConnectedSolutions so that they align their support for commercial and industrial customers with Rhode Island Energy's calls for peak demand reduction.

Administrative Vendors:

Rhode Island Energy contracts with additional vendors to support administrative functions, including but not limited to, administering financing interest buy-down incentives.

ConnectedSolutions
ConnectedSolutions is designed for participation by all customers. Reducing peak demand through setting back thermostats, discharging battery energy storage systems, curtailing electric vehicle charging, or voluntarily are all ways in which residential and business customers can participate. For commercial and industrial customers, specially designed Daily Dispatch and Targeted Dispatch programs offer more flexible avenues of participation that accommodate more complex technologies (e.g., building automation systems, complex lighting controls, etc.) and processes (e.g., deferring production) participants can leverage to reduce peak demand.

The following subsections describe the conceptual design, and in some cases, proposed changes to program design for each avenue of participation.

Smart Thermostats

Residential and small business customers may enroll eligible smart thermostats in ConnectedSolutions. During peak periods, smart thermostats will automatically increase target cooling levels, thereby reducing demand of central air conditioning units. Eligibility is defined by thermostat manufacturers and model, as determined by the implementation vendor.

Incentive structure and amount:

Eligible participants receive a one-time enrollment incentive of $50 per enrolled device followed by an annual participation incentive of $25 per device per year, to be rendered at the end of the peak season for all participants with full participation in at least 50 percent of peak events.

Changes from prior program design:

Rhode Island Energy is proposing to change the amount of the one-time enrollment incentive. Under prior program design, participants received $25 upfront for enrollment. Rhode Island Energy is proposing to increase this one-time enrollment incentive to $50. Rhode Island Energy bases this proposed program design modification on the theory of change that federal funding and state programs will encourage additional adoption of energy efficient cooling systems, and the adopters of these technologies are likely further along in the technology adoption spectrum. Therefore, Rhode Island Energy generally proposes increases this upfront incentive to encourage a larger portion of energy efficient cooling system adopters to simultaneously participate in demand response.

Battery Energy Storage Dispatch

During peak periods, battery energy storage systems discharge electricity to serve on-site load and export electricity to the electric distribution system for neighboring customers to use, thereby reducing peak demand.

Incentive structure and amount:

Eligible participants receive an annual performance incentive of $TK per average peak kilowatt reduced per peak event per year, to be rendered at the end of the peak season for all participants. Some eligible participants may additionally opt to leverage the HEAT Loan to support financing their battery energy storage systems. The HEAT Loan provides low-interest rate financing, with zero-percent interest financing available to some customers based on income eligibility.

Changes from prior program design:

In accordance with the program design principle to right-size incentive levels, Rhode Island Energy is proposing to change the amount of the performance incentive. Under prior program design, participants received $400 per average kilowatt reduced per peak evet per year. Recent changes to incentive levels in neighboring states suggest that participants are willing to reduce peak demand for less incentive; therefore, Rhode Island Energy seeks to reduce the performance incentive to better align with revealed participant willingness to accept. Modifying the performance incentive has the additional benefit of allowing more participants for the same program cost, which advances the program design principle to encourage diffuse and diverse participation for reliable response.

Electric Vehicle Charging Curtailment

New for 2024-2025, Rhode Island Energy proposes to incentivize participants who drive electric vehicles to curtail charging during peak demand periods.

Incentive structure and amount:

Eligible participants receive a one-time upfront incentive of $TK per enrolled vehicle followed by an annual performance incentive of $TK per average peak kilowatt reduced per peak event per year, to be rendered at the end of the peak season for all participants.

Notes about program design:

Rhode Island Energy will propose an off-peak charging rebate program to begin in 2024. The electric vehicle charging curtailment option through ConnectedSolutions is distinct and separate from the to-be-proposed off-peak charging rebate program in the following ways:

- Customers may only participate in one program or the other; customers may not participate in *both* the off-peak charging rebate program *and* electric vehicle charging curtailment through ConnectedSolutions.
- The off-peak charging rebate program structures its incentive as a dollar value per *kilowatt-hour* reduced *cumulatively* during peak periods; the incentive for electric vehicle charging curtailment through ConnectedSolutions is structured as a dollar value per *kilowatt* reduced *on average* during peak periods.
- The off-peak charging rebate program requires an action by the participant to participate in each peak period; the electric vehicle charging curtailment option through ConnectedSolutions does not require any action by the participant to participate in peak events.

By offering both the off-peak charging rebate program and the electric vehicle charging curtailment option through ConnectedSolutions, Rhode Island Energy seeks to learn about the differential impacts and customer acceptance of these programs to reduce peak demand. Such learnings may inform future program and rate designs.

Voluntary

Rhode Island Energy proposes a new communications strategy to encourage voluntary peak reduction through any means or technology by any customer in response to peak events.

Incentive structure and amount:

Voluntary demand response will not provide any direct monetary incentive to participants for peak demand reduction, although all customers will benefit through downward pressure on electricity supply costs.

Notes about program design:
Rhode Island Energy will primarily leverage its in-house communications team and communications channels (specifically: social media and customer text messages and/or emails) for its voluntary demand response.

Daily Dispatch
Commercial and industrial customers may enroll in ConnectedSolutions Daily Dispatch. Daily Dispatch incentivizes customers on a pay-for-performance basis to curtail their electricity demand during the one peak grid load hour of the year, as well as other high and medium peak days in June through September, for a total of no more than 60 events.

Incentive structure and amount:
Customers earn a performance incentive of $300 per kilowatt reduced on average during peak events.

Targeted Dispatch
Commercial and industrial customers may enroll in ConnectedSolutions Targeted Dispatch. Targeted Dispatch incentivizes customers on a pay-for-performance basis to curtail their electricity demand during the one peak load hour of the year and other high peak days in June through September, for a total of no more than eight events.

Incentive structure and amount:
Customers earn a performance incentive of $40 per kilowatt reduced on average during peak events. Customers earn a performance incentive of $40 per kilowatt reduced on average during peak events.

Modification in Program Design:

Rhode Island Energy is proposing modifications in program design specifically for battery energy storage systems larger than 25 kW. Three program design principles motivate these program design modifications: (i) encourage diffuse and diverse participation for reliable response, (ii) comply with Least-Cost Procurement Standards, and (iii) reduce and mitigate distribution system issues.

Rhode Island Energy motivates this modification in program design through an illustration of potential behavior and adverse consequences allowable under prior program design: a single large battery energy storage system (e.g., 5 MW) sited at an industrial facility with smaller peak demand (e.g., 2 MW). Consider a 70 MW peak demand reduction target. This battery potentially constitutes 7% of peak demand reduction – whether the battery participates or not could result in a variation of 5 MW peak reduction, or 7% of peak demand reduction achieved. That 7% proportion of peak reduction is determined by a single participant-technology threatens the reliability of expected response. If this battery participates at a performance incentive rate of $400 per average kilowatt reduced per peak event, then the battery would earn an incentive of $2 million, TK% of the program budget. That TK% of program budget could be awarded to a single participant is inconsistent with the Least-Cost Procurement Standard of prudency, specifically: "how the investment is equitable in consideration of the allocation of costs, the allocation of benefits, customer access, and customer participation" (Standards 1.3.E.i.e). Finally, the call to respond during a peak event, and resulting export, may create unforeseen distribution system issues,[32] such as overloads on a feeder segment, as well as potentially suboptimal use of hosting and loading capacity on that feeder. Rhode Island Energy seeks to strike the right balance between creating value through system peak demand reduction and mitigating potential distribution system Issues that may erode that value.

In light of these program design principles, Rhode Island Energy seeks to implement two program modifications: (i) imposing a cap on incentive payout for any single customer and (ii) encouraging battery deployment specifically on feeders with higher capacity. The specific details of these proposed program modifications (i.e., the method of determining the incentive cap, the structure to differentially encourage deployment, and the method for determining level of encouragement) are open to discussion and input. With the objective of encouraging broad participation by customers, Rhode Island Energy will provide preference to recommendations for simple and easy-to-understand program design modifications. Rhode Island Energy seeks stakeholder recommendations on ways in which program designers could, should, or should *not* modify program design to achieve program design principles. All comments, questions, and recommendations should be emailed to Carrie Gill at cagill@rienergy.com.

Annual Peak Reduction Targets
[Forthcoming]

Budget, Performance Incentive, and Funding Source
[Forthcoming]

Request for Ruling
[Forthcoming]

[32] If not studied in interconnection system impact studies and mitigated via system modifications or improvements.

Gas Demand Response Pilot

System Reliability Procurement Investment Proposal

DRAFT FOR EXTERNAL REVIEW

Reducing Gas System Peak Demand through Gas Demand Response:

A Proposal for the Gas Demand Response Pilot 2024-2026

Introduction

In accordance with Least-Cost Procurement Statute and Least-Cost Procurement Standards, Rhode Island Energy respectfully files this proposal for continuation of its Gas Demand Response Pilot, during 2024-2026. Herein, the Company motivates the value of offering a demand response program, describes the general concepts of Gas Demand Response Pilot (or 'Gas DR Pilot'), proposes and motivates some potential program design modifications, offers an hourly peak reduction target and associated budget, and requests approval for cost recovery of the budget via the System Reliability Procurement Factor added to the Energy Efficiency System Benefit Charge.

Please note that this draft of the *2024-2026 System Reliability Procurement (SRP) Investment Plan* is preliminary – there will be revisions and updates prior to filing for regulatory approval. Rhode Island Energy invites and encourages feedback on ways in which we can improve the Gas Demand Response Pilot in coming years.

Timeline for Development and Review

September 6	Preliminary draft circulated for external review and feedback
September 20	Opportunity for discussion at the SRP Technical Working Group meeting
September 20	Draft of SRP Investment Proposal submitted to Energy Efficiency and Resource Management Council for review per LCP Standards 6.3.G
September 21	Revised draft included in final draft of *2024-2026 SRP Three-Year Plan*; opportunity for discussion at the EERMC meeting
October 11	Revised draft of SRP Investment Proposal submitted to Energy Efficiency and Resource Management Council for review
October 18	Opportunity for discussion at the SRP Technical Working Group meeting
October 19	Possible discussion, action at the Energy Efficiency and Resource Management Council
November 1	SRP Investment Proposal filed for regulatory review separate from the *FY25 Gas ISR Plan*

November 21	SRP Investment Proposal included as Appendix to 2024-2026 SRP Three-Year Plan filed with the Commission

Motivation, Objectives, and Program Design Principles

Rhode Island Energy is a public utility under the provisions of R.I. Gen. Laws § 39-1-2 and provides natural gas sales and transportation service to approximately 270,000 residential and commercial customers in 33 cities and towns in Rhode Island. Each year, the Company must ensure it maintains sufficient gas supply in its resource portfolio to continuously supply the amount of gas required by customers' (called 'demand' or 'load') throughout the year under all reasonable weather conditions.

Ensuring there is adequate supply to meet customer requirements is particularly important on the coldest days during the winter period when customer demand is at its highest (called 'peak demand'), as the inability to provide gas to customers for heating could create unsafe environments. To accomplish this, the Company must maintain sufficient supply under contract and in storage (underground storage and LNG), reduce peak demand, and/or have sufficient time to contract for additional resources should they be required. Even so, during the coldest days of the year when our system is near daily or hourly peak demand, upstream or on-system constraints may result in demand exceeding available pipeline capacity in certain areas on the system.

Rhode Island Energy proposes to continue to offer the Gas Demand Pilot to test (1) the level of customer interest and scalability of the program, and (2) the gas system benefits of incentivizing the reduction or curtailment of gas usage during system peak demand periods (from November 1st to March 31st) when requested, provided doing so does not compromise safety. The Gas DR Pilot offerings will continue to target large commercial and industrial customers with firm service – that is, a minimal amount of continuous, uninterruptible gas demand which the Company is obligated to serve. The Gas DR Pilot may also test the interest of residential and small-business customers with hybrid gas-electric heating systems in the program and the system benefits associated with their participation.

To date, gas demand response hasn't provided the level of relief anticipated due to lack of performance during called events and low customer interest, so enhancements may be needed to create a more effective program. Testing the efficacy of gas demand response will allow Rhode Island Energy to understand gas demand response's impact on gas system needs and optimization, customer interest, effectiveness of incentive levels, and scalability of the program, as well as its potential applicability to other customer classes. The learnings for the pilot program going forward will focus on how to increase program enrollment, participation during call events, and potential expansion of the program beyond large commercial and industrial customers. Aquidneck Island will continue to be a particular focus, but other areas with similar capacity constraints will be evaluated. Rhode Island Energy will report the resulting impacts of its demand response program in its SRP Annual Reports.

The objective of Rhode Island Energy's Gas Demand Response Pilot is to test customer adoption and the effectiveness of gas demand response in reducing system peak demand.

During the coldest days of the year, forecasted peak demand may exceed pipeline capacity, resulting in capacity-constrained areas on the system. Reducing peak demand has the potential to mitigate capacity constraints on the system.

In offering the Gas Demand Response Pilot, the Company asserts the following program design principles, explained further below:

1. Technology and participant agnostic
2. Encourage diffuse and diverse participation for reliable response
3. Right-size incentives
4. Compliant with Least-Cost Procurement Standards
5. Reduce and mitigate distribution system risk
6. Share value created

Stemming from the program objective to reduce peak demand, Rhode Island Energy does not differentiate dekatherms (Dth) reduced by one technology or participant from Dth reduced by another technology or participant. Each of those Dth reduced has the same benefit with respect to reducing peak demand and avoiding or alleviating capacity constraints on the system. In this manner, the Gas DR Pilot is technology and participant agnostic.

This principle is clearly displayed in commercial and industrial participation in the Gas DR Pilot, where participants can use any technology, process, or other innovation to reduce peak demand – this has historically been accomplished either by temporarily switching to an alternative, back-up heating source or through adjusting thermostat settings (called 'thermostat setback'). For residential and small business participants, technology is anticipated to be limited by the fact the aggregate peak demand for customers in this segment is simply too low (versus an individual large commercial or industrial customer) to have a meaningful impact on system optimization absent robust participation rates – adjusting thermostat settings is unlikely to significantly reduce peak system demand and could even create unsafe conditions for residential customers, which is why the Company is considering targeting customers with hybrid gas-electric heating systems who can temporarily curtail gas use and switch to electric heating.

Consistent with its electric demand response program, Rhode Island Energy seeks to build a gas demand response program with a reliable level of response from its participants. This leads to favoring program design that encourages diffuse participation (i.e., no one participant's level of response substantially sways the overall peak demand reduction achieved by the program) and diverse participation (i.e., no one technology type exerts a disproportionate influence on the overall peak demand reduction achieved by the program). This principle is intended to be complementary – not contradictory – to the principle of being technology- and participant-agnostic. All else equal, more participants and more technologies will result in a more reliable and consistent level of response. Rhode Island Energy seeks to encourage more participants over fewer, with more technology types than fewer, within its program design for the Gas Demand Pilot.

While each Dth of peak demand reduction is considered to be equal, achieving each Dth of peak demand reduction may require different levels of action or opportunity cost on the part of the participant. For example, an automatic setback to a participant's thermostat or switch to a back-up source of heating requires no action, while a request for participants to manually adjust their thermostats or switch to a backup heating system requires some action. Another example, having a controllable thermostat for purposes of changing the setpoint only is a relatively small upfront cost and workload when compared to the upfront costs and work required to install a new primary or secondary heating system. A third example for good measure, the opportunity cost of setting back a thermostat (below a customer's preferred temperature) is small relative to the opportunity cost of deferring a production sequence (definite lost revenue) or potential increased cost of temporarily running a back-up heating system. Rhode Island Energy's third program design principle posits that incentives should be right sized to spur action so, because different methods of reducing peak demand require different burdens, it makes sense to differentiate incentive levels. Doing so will minimize program costs while achieving the same peak demand reduction.

Demand response activities are contemplated within the Least-Cost Procurement Statute, and further stipulated in the Least-Cost Procurement Standards. Accordingly, demand response must be reliable, prudent, cost-effective, and environmentally responsible. These Standards constitute guardrails on program design. As an example, the electric demand response program, switching from electricity to fossil-fuel generators to reduce peak demand is inconsistent with the Standard of environmentally responsible; therefore, fossil-fuel generation is an ineligible technology for the electric demand response program. However, for the Gas DR Pilot, most large commercial and industrial customers currently cannot meet their space, process, or production heating needs without use of fossil fuels, so switching from gas to another combustible fuel is not inconsistent with the environmentally responsible guardrail.

Rhode Island Energy's Gas DR Pilot is designed to create value. The primary value – to the company and program participants – is risk mitigation. Participating customers receive incentive payments for reducing demand during peak events, thus reducing the need for on-system investments to mitigate capacity constraints. Rhode Island Energy seeks to share this quantifiable value between customers and its shareholders such that *all* parties are better off with the Gas DR Pilot than without.

Program Design for 2024-2026

This section describes major program design elements and goals of the Gas DR Pilot as well as a proposed program design modification for 2024-2026. This section is not intended to be comprehensive of all program design detail; such detail will be developed and made available in advance of each peak demand season, annually.

Hourly Peak Reduction Targets and Program Design

The Company will target 40-50 Dth of hourly peak reduction during the winter months (Nov. 1st through March 31st) of 2024-2026 through two individual large commercial and industrial customer DR offerings. The Company expects that the majority of these peak reduction savings will come from customers participating in what is called the full day Extended Demand Response (EDR) pilot offering, with the remainder from customers participating in a Peak Period Gas Demand Response (PPDR) pilot offering. These demand reduction pilot offerings are described in more detail below. The hourly Dth reduction target will be dependent on enrollment levels and establishing a sufficient incentive level to drive effective participation. The hourly peak reduction target and associated budget may be adjusted annually for subsequent winter months (November 1st through March 31st) during the remainder of the 3-year plan (2024-2026).

During the winter of 2018/19, the Company launched the PPDR pilot offering, which incentivizes customers to shift their usage outside of the peak-period of the gas system (6AM-9AM from November 1st to March 31st). This pilot targets large commercial and industrial customers who have intra-day flexibility of their natural gas usage. Customers participating in this pilot are able to achieve demand reduction via non-gas backup heating or thermostat setback.

In 2019/20, the company added the EDR offering, which targets large commercial and industrial customers that can achieve 24-hour gas reductions (10AM on day 1 until 10AM on day 2, Nov. 1st through March 31st), primarily with non-gas back-up heating.

For both DR offerings, Rhode Island Energy may place a limit on the number of consecutive days on which any individual customer can be called participate during the winter, but the Company will have the right to call up to 6 events during the winter at the stated incentive rate. Customer participation in the called events will be compensated via direct incentive payments, not in the form of a reduced rate. Going into the 2024-2026 winter season, the company will maintain both the PPDR and EDR offerings.

Measurement of demand reduction for the PPDR and EDR program offerings will continue to require the installation of data recording hardware that provides granular usage data for participating customers. Additional data recording hardware requirements will be determined if the program is expanded beyond large commercial and industrial customers. The data collected will be directly used to inform the pilot research questions identified in the next section, “Pilot Program Goals”. Data from the Gas DR pilot will be evaluated each year.

Pilot Program Goals

Gas demand response is a pilot program. We are trying to understand the scalability of the program and the degree to which it might offset a utility reliability procurement. However, gas demand response hasn't provided the level of relief anticipated due to lack of performance

during called events and low customer interest, so enhancements may be needed to create a more effective program. Continuing to test the efficacy of gas demand response will allow Rhode Island Energy to understand gas demand response's impact on gas system needs and optimization, customer interest, effectiveness of incentive levels, and scalability of the program, as well as its potential applicability to other customer classes. The learnings for the pilot program going forward will focus on how to increase program enrollment, participation during call events, and the expansion of the program beyond large commercial and industrial customers. Specifically, the goal of the Gas DR Pilot is to test the following research questions:

- Are large commercial and industrial customers interested in participating in an incentivized gas demand response program?
- Are residential customers with hybrid electric-gas heating systems interested in participating in gas demand response?
- What incentive structure and level are sufficient to stimulate program enrollment and participation?
- How do we increase enrollment – within and across customer classes – and scale the program? Can program enrollment be increased through targeted marketing?
- What are distribution system benefits of gas demand response? From large commercial and industrial customer participation? For residential customer participation, if the pilot is expanded?
- Is there a minimum threshold for participation to realize system benefits? Does this differ across customer classes?

[Note: The list of Gas DR Pilot research questions is still in development.]

Program Administration

Rhode Island Energy will serve as the Program Administrator for the Gas DR Pilot. In this role, Rhode Island Energy will provide strategic direction and management of the Gas DR Pilot. The Company's role manifests through program design, implementation, and evaluation. Rhode Island Energy is uniquely suited for this role because of its management of gas supply procurement, knowledge of its gas distribution system to mitigate risks through program design, everyday relationship with its customers to promote program participation, and ability to coordinate with all other business activities.

Rhode Island Energy will be responsible for day-to-day program operations and managing relationships and contracts with customers enrolled and participating in the Gas DR Pilot. The Company will also be responsible for data collection, participant enrollment, program impact evaluation, participant satisfaction, participant troubleshooting, incentive payouts, and ancillary technical assistance.

Because the gas demand response program is in the pilot stage and designed to test the benefits of reducing gas system peak demand, customer adoption of gas demand response, the incentive levels required drive participation, and RI Energy's role in influencing market adoption, it is, by

nature of its design and goals, necessary for the Company to administer the program. Following the Gas DR Pilot, Rhode Island Energy will evaluate whether there is value in launching a full-scale demand response program.

Large Commercial & Industrial Customers
Target Participants:

The Gas DR Pilot is specifically designed for large commercial and industrial customers with firm service.

Eligible Technologies – HVAC Controls and Back-Up Heating Systems:

Customers participating in the Gas DR Pilot must be able to provide peak demand reduction via HVAC setbacks or by switching to a back-up heating system that utilizes a fuel other than natural gas.

Incentive Structure and Amount:

	PPDR	EDR
Event Duration (hours) (Maximum 6/winter)	3 6AM-9AM	24 10AM-10AM
Capacity Payment (per month)	$250/peak-hour Dth	$700/peak-hour Dth
Energy Payment	$50/Dth	$7/Dth

As was the case in prior years, customer compensation for participation in the Gas DR Pilot offering will be based on a combination of 'reservation' and 'energy' payments that differ for the PPDR and EDR offerings. Each of these rates will be standard offers to all customers, though customer earning opportunity will vary based on the volume of peak hour Dth reduction that each customer can commit to and deliver. The Company will utilize a rolling performance rating that measures customer reliability and limits payments to nonperforming resources.

Proposed Program Design Modification – Inclusion of Small-Business & Residential Customers
Target Participants:

Rhode Island Energy is proposing to explore a possible expansion of the Gas DR Pilot to residential and small-business customers with hybrid gas-electric heating systems.

Eligible Technologies – Hybrid Gas-Electric Heating Systems:

If the Gas DR Pilot is expanded to residential customers, the Company's current thinking is participants with hybrid gas-electric heating systems would provide peak demand reduction by temporarily relying exclusively on their electric heating system during peak demand events.

Incentive Structure and Amount:
[Forthcoming]

Annual Peak Reduction Targets
[Forthcoming]

Budget, Performance Incentive, and Funding Source
[Forthcoming]

Request for Ruling
[Forthcoming]

Appendix 5. System Data Portal

See attachment.

Appendix 6. Electric System Reliability Procurement Benefit-Cost Assessment Model

See attachment. No proposed changes.

Appendix 7. Electric System Reliability Procurement Technical Reference Manual

See attachment. No proposed changes.

Appendix 8. Gas System Reliability Procurement Benefit-Cost Assessment Model

See attachment. No proposed changes.

Appendix 9. Gas System Reliability Procurement Technical Reference Manual

See attachment. No proposed changes.

Appendix 10. Expected Valuation

Introduction

Expected valuation is a common practice for accounting for probabilities of different outcomes. In essence, the expected value of an action is the sum of its probability-weighted values. Expected value may be applied when there are multiple possible outcomes that may result from an action. By applying expected value, we can appropriately internalize the range of likely outcomes; not applying expected value may result in over-emphasizing (under-emphasizing) a particular outcome because of the implicit assumption that outcome will result with 100% (0%) certainty.

In this appendix, Rhode Island Energy describes its proposed application of expected value. Rhode Island Energy will begin by considering expected valuation as a sensitivity analysis to certain benefit-cost assessments. Through gaining experience with applying expected value, Rhode Island Energy can contemplate refining its methodology for deciding when and how to apply expected value.

When to apply expected value

Generally, in the short-term, Rhode Island Energy will apply expected value as a sensitivity analysis in situations where Rhode Island Energy conducts a benefit-cost assessment for investment choices between two alternatives, and for which it is feasible to identify potential outcomes and estimate the probabilities of those outcomes occurring. Rhode Island Energy recognizes that there may be unforeseen complexities that prevent full application of expected value and considers the next few years to be an exploratory, learning experience.

As a first step in this learning experience, Rhode Island Energy will first apply expected value to investment decisions regarding non-wires (non-pipes) solutions relative to wires (pipes) solutions, where the outcomes are differences in the deferral term of the wires (pipes) solution.[33]

In the longer-term, Rhode Island Energy can potentially apply expected value to more complex decisions, including but not limited to decisions between more than two alternatives ands decisions with more than two potential outcomes.

Whenever Rhode Island Energy applies expected value, Rhode Island Energy will document the exact method for each step contained in the methodology, all assumptions, and all justifications or underlying evidence required for a reader to understand and replicate the calculations.[34]

Methodology for applying expected value

In this section, Rhode Island Energy summarizes its proposed methodology for applying expected value based on three discreet steps: (1) identifying the relevant scenarios, (2) assigning

[33] For simplicity, Rhode Island Energy will just refer to wires and non-wires solutions for the remainder of this document. Rhode Island Energy does intend to apply expected value, as described herein, to pipes and non-pipes solutions, as appropriate and feasible.

[34] Subject to protection of confidential data and sources.

value to each scenario, (3) estimate probability for each scenario, (4) conduct the relevant comparison in the benefit-cost assessment. This methodology was heavily informed by Ross, Trietch, and Gill (2022), included in the appendix for easy reference. The appendix also contains a summary of stakeholder engagement regarding expected value and an Excel tool to aid in illustrative and conceptual understanding of expected value.

Terminology

First, Rhode Island Energy provides the following working definitions with the objective of aiding readers' clarity throughout this document.

Decision

A decision is a choice between at least two alternatives (i.e., throughout this document, we assume a planner is deciding between a wires solution and a non-wires solution to achieve the objective of resolving a specific grid need).

Alternative

An alternative is one option being seriously considered in a decision (i.e., throughout this document, we assume there exists two, and only two, alternatives: a wires solution and a non-wires solution).

Outcome k

An outcome is some future state of the world that may (or may not) result from the decision. In Ross, Trietch, and Gill (2021), 'scenario' is used synonymously with 'outcome'.

Probability $P_{outcome\ k}$

Probability is the likelihood of an outcome occurring. A 100% probability indicates that an outcome is certain to occur; no other outcome is possible. A 0% probability indicates that an outcome is certain to never occur. A probability between 0% and 100% indicates that at least two (or more) outcomes are possible. The probabilities of all possible outcomes must sum to 100%.

Cost

In this document, Rhode Island Energy uses 'cost' to refer to the amount Rhode Island Energy would need to pay for an alternative. This cost is what would be proposed to be recovered from customers, not including appropriate return.

Deferral Term $T_{deferral}^{outcome\ k}$

The deferral term is the duration of time that one alternative can be postponed, delayed, or deferred if another alternative is instead implemented. Note that some prior documentation used 'deferral period' synonymously with 'deferral term'.

Deferral Value $T_{deferral}^{outcome\ k}$

Deferral value is the net benefit, according to the appropriate benefit-cost assessment, associated with an alternative being postponed, delayed, or deferred for a specific deferral term. Note that the deferral value must reference the deferral term; deferral value is different for each deferral term, all else equal.

Wires Lifetime T_{wires}
The time period over which the wires solution would be in place. Wires lifetime may correspond with the depreciation period.

Rate of Return r
The rate of return is the incremental revenue required for a wires solution.

Discount Rate i
The discount rate is the assumed time value of money used in calculating net present value. The discount rate may correspond to inflation rate.

Given Input
Applying expected value requires several sets of input. The Steps below describe what input is required to perform the step and what outputs are produced. Where not otherwise discussed, the wires cost $Cost_{wires}$, wires lifetime T_{wires}, rate of return r, and discount rate i are all taken as given, supported by prior engineering and financial analysis not described herein. In any public-facing documentation, Rhode Island Energy will state its assumptions, underlying analysis, and any other caveats for the values of these inputs. While these inputs are given, Rhode Island Energy may conduct a sensitivity analysis to understand how big of a driver these factors are in the decision.

Step 1: Identify the Relevant Outcomes
Inputs

- Wires lifetime T_{wires}

Outputs

- Deferral term for each outcome $T_{deferral}^{outcome\ k}$

Description
Rhode Island Energy will assess at least the following two outcomes:

(1) Implementing the non-wires alternative delays the need to implement the wires alternative by the deferral term.
(2) Implementing the non-wires alternative avoids the need to implement the wires alternative. In this outcome, the deferral term is equivalent to the lifetime of the wires solution.

At the end of the deferral term (outcome 1) or the lifetime of the wires solution (outcome 2), a new decision will be made that accounts for the specific grid need and relevant alternatives at that time (this new decision does not factor into the decision at hand).

Rhode Island Energy may choose to assess additional outcome(s) if that outcome(s) has a sufficiently likely probability of occurring. If Rhode Island Energy does choose to assess additional outcome(s), Rhode Island Energy will describe the outcome(s) and provide its reasoning for including that outcome(s) in its application of expected value.

Rhode Island Energy may also supplement its application of expected value by estimating the hypothetical deferral term for which deferral value is equal the cost of the non-wires solution. In other words, Rhode Island Energy will assume the deferral value is equal to the cost of the wires solution. In this case, Rhode Island Energy interprets the hypothetical deferral term as the deferral term required to come to fruition for the non-wires alternative to 'break even' with the wires alternative. In other words, in an outcome where this deferral term is realized, Rhode Island Energy would be indifferent to either wires or non-wires alternative, assuming all else equal.

Step 2: Assign Value to Each Outcome

Inputs

- Discount rate: i
- Rate of return: r
- Annual revenue requirement at year t: RR_t
- Deferral term for each outcome $T_{deferral}^{outcome\ k}$

Outputs

- Net present values: NPV_{wires}, $NPV_{outcome\ k}$
- Deferral value of outcome k: ${V_{deferral}}^{k}$

Description

Rhode Island Energy takes as a given the annual revenue requirement for the wires solution, as determined by annual depreciation and annual return (given rate of return r) for years $t = 1$ through $t = T_{wires}$. Rhode Island Energy calculates net present value of the wires solution using these annual values and the discount rate:

$$NPV_{wires} = \sum_{t=1}^{t=T_{wires}} \frac{RR_t}{(1+i)^t}$$

Rhode Island Energy will adjust the annual revenue requirement for the wires solution for each of the deferral periods identified out potential outcomes in Step 1: $T_{deferral}^{outcome\ k}$. In the simplest case, this adjustment entails delaying the implementation of the wires solution until $T_{deferral}^{outcome\ k}$. Net present value is calculated in the same manner:

$$NPV_{outcome\ k} = \sum_{t=T_{deferral}^{outcome\ k}}^{t=T_{deferral}^{outcome\ k}+T_{wires}} \frac{RR_t}{(1+i)^t}$$

The deferral value associated with a particular outcome is the difference in net present value relative to the net present value of the wires solution:

$$V_{deferral}{}^{k} = NPV_{wires} - NPV_{outcome\ k}$$

$V_{deferral}{}^{k}$ should nearly always be a positive value. This stems from the time value of money. There may be cases in which $V_{deferral}{}^{k}$ is negative, but those cases would require significant adjustments to annual revenue requirement beyond simply delaying implementation of the wires solution; such adjustments are not contemplated within this document.

Rhode Island Energy may choose to run and present sensitivity analyses using one or more different discount rates.

Step 3: Estimating Probability of Each Outcome

Inputs

- Underlying data and analysis

Outputs

- Probability of each outcome $P_{outcome\ k}$

Description

This Step is likely the Step that will have the most evolution as Rhode Island Energy gains experience in applying expected value. For this reason, Rhode Island Energy attempts to build flexibility into this document.

Rhode Island Energy's objectives in estimating probability are (1) using data-driven and replicable methods, (2) using defensible and understandable methods, and (3) doing our due diligence in ground-truthing and retrospective review. In other words, Rhode Island Energy recognizes it has room to learn and doesn't want to preemptively restrict its learning by prescribing a specific method. Rhode Island Energy will present its probabilities for each outcome, describe its underlying methodology for estimating those probabilities, and include relevant data sources. Rhode Island Energy invites feedback, questions, concerns, and recommendations from external stakeholders regarding its methodology for estimating probabilities of outcomes on an ongoing basis specific to each decision.

Rhode Island Energy may also include an estimation of the probabilities of outcomes required for the net present value of the wires solution to equal the net present value of the non-wires solution. Similar to the break-even analysis in Step 1, understanding the breakeven probabilities (e.g. an 80% probability that Outcome 1 occurs and a 20% probability that Outcome 2 occurs) will help Rhode Island Energy (and external stakeholders) ask the question of whether those probabilities are plausible, which will aid in ground-truthing (i.e. gut checking) the estimated probabilities.

For more information about methods of estimating probabilities, Rhode Island Energy refers readers to Ross, Trietch, and Gill (2022), though notes those methods are not a comprehensive listing of options.

Step 4: Conduct the Cost Comparison

Inputs

- Deferral value of outcome k: ${V_{deferral}}^{k}$
- Probability of each outcome: $P_{outcome\ k}$

Outputs

- Expected deferral value: $EV_{deferral}$

Description

Rhode Island Energy will calculate expected deferral value by summing the probability-weighted deferral values for each outcome:

$$EV_{deferral} = \sum_{outcome=1}^{outcome=K} \left(P_{outcome\ k} * {V_{deferral}}^{k}\right)$$

The cost comparison of interest is the cost of the non-wires solution to the expected deferral value. If the cost of the non-wires solution is equal to the expected deferral value, then Rhode Island Energy should be theoretically indifferent to the two alternatives, all else equal. If the cost of the non-wires solution is less than the expected deferral value, then the non-wires solution is the financially preferred alternative, all else equal. If the cost of the non-wires solution is more than the expected deferral value, then the wires solution is the financially preferred alternative, all else equal.

<u>Future Work</u>

Rhode Island Energy expects to refine its application of expected value as it gains experience. Rhode Island Energy welcomes further discussion and research with external stakeholders, with the following topics being of particular interest:

- Working through a similar application methodology for decisions about non-pipes solutions.
- Identifying and integrating an outcome where the non-wires solution is less than 100% effective. In other words, including some measure of risk for alternatives.
- Expanding the set of alternatives and conducting the cost comparison across all alternatives comprehensively.
- Quantifying and internalizing option value: the value gained by waiting to make a decision.

<u>Stakeholder Engagement</u>

In meetings of the System Reliability Procurement Technical Working Group in prior years, the concept of expected value has arisen. These discussions led to three representatives of members of the System Reliability Procurement Technical Working Group to publish a whitepaper on the concept, accepted and presented by the American Council for an Energy Efficiency Economy (ACEEE) in 2022. This concept was also presented to the Association of Energy Savings Professionals (AESP) in 2023. The whitepaper is included as an appendix for reference.

The System Reliability Procurement Technical Working Group further discussed application of expected value in its meetings in 2023:

- January 2023: Review of the concept of expected value, including key points from Ross, Trietch, and Gill (2022)
- February 2023: Discussion of identifying outcomes, applying probabilities, and estimating expected value
- April 2023: Application of expected value to a conceptual example adapted from a real-life non-wires solution request for proposals
- May 2023: Delivery of drafted Q1 deliverables (draft version of this appendix; a conceptual Excel Tool; and Ross, Trietch, and Gill (2022))