

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 <i>2024-2026 SRP Three-Year Plan</i> ; 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 <i>FY25 Gas ISR Plan</i>

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.

As noted above, 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 potential program design modification for 2024-2026.

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?

[Forthcoming: The list of Gas DR Pilot research questions is preliminary and still in development. Feedback and suggestions are welcome.]

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:

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.

	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

Potential 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:

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Similar to the electric demand response offering, Rhode Island Energy is contemplating a one-time enrollment incentive of \$XX per enrolled customer followed by an annual participation incentive of \$XX per device per year, to be rendered at the end of the peak season for all participants with full participation in at least XX% percent of peak events.

[Forthcoming: The incentive structure and level to test are still being scoped and will be finalized by the next draft to be provided on October 11th. Feedback and suggestions are welcome.]

Annual Peak Reduction Targets

[Forthcoming: The anticipated annual peak reduction target for the large commercial and residential Gas DR Pilot is expected to continue to be 27,520 therms for the 2024-2026 period. Any participation by residential customers is expected to result in additional incremental savings. Incremental reduction targets will be dependent on expected enrollment levels and establishing a sufficient incentive level to drive effective participation. Estimated savings associated with possible residential participation is still under development and will be finalized by the next draft to be provided on October 11th.]

Budget and Funding Source

[Forthcoming: The anticipated annual budget for the large commercial and residential Gas DR Pilot is expected to continue to be \$268,042 for the 2024-2026 period. Any participation by residential customers is expected to result in incremental spend associated with incentive payments, administrative and marketing costs. Funding will be through cost recovery of the budget via the System Reliability Procurement Factor added to the Energy Efficiency System Benefit Charge. Estimated costs associated with possible residential participation is still under development and will be finalized by the next draft to be provided on October 11th.]

Request for Ruling

Rhode Island Energy will request regulatory approval for its gas demand response pilot program via a *System Reliability Procurement Investment Proposal* to be filed on November 1, 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.