

# Recommended Targets for Energy Efficiency and Peak Demand Reduction Savings for 2021-2023

Prepared for



STATE OF RHODE ISLAND  
**ENERGY EFFICIENCY &  
RESOURCE MANAGEMENT COUNCIL**

Prepared by:

The Rhode Island Energy Efficiency and Resource Management Council Consultant Team

Lead Authors: Mike Guerard, Sam Ross / Optimal Energy, Inc.

**March 19, 2020**



**Table of Contents**

- I. Introduction ..... 3
  - Purpose of the Targets ..... 3
- II. Overview of Targets Relation to Planning Process ..... 5
- III. Market Potential Study Scope and Application ..... 6
  - Context and Industry Overview ..... 6
  - Market Potential Study and Savings Targets ..... 6
- IV. Conclusion and Recommended Efficiency Savings Targets ..... 7
- Appendix A: Market Potential Study Overview ..... 11

## I. INTRODUCTION

This Memorandum presents proposed Three-Year Savings Targets (“Targets”) for National Grid’s upcoming 2021-2023 Energy Efficiency Procurement Plan (“Three-Year Plan”). These recommendations are based on the Energy Efficiency & Resource Management Council’s (“EERMC”) Consultant Team’s oversight and review of findings of the EERMC-funded Market Potential Study, conducted by Dunsy Energy Consulting; discussions with stakeholders and EERMC members; and review and alignment with relevant legislative and regulatory guidance on Target setting. Upon EERMC approval of Targets, as recommended or with modification, the EERMC’s counsel will submit the proposed Targets to the Rhode Island Public Utilities Commission (PUC).

This will be the fourth submittal of triennial Targets by the EERMC to the PUC since the promulgation of the 2006 Comprehensive Energy Conservation, Efficiency and Affordability Act, or “Least-Cost Procurement (LCP) Law.” This process has also served to meet the EERMC’s legislated requirement in R.I. Gen. Laws § 39-1-27.7(c)(1):

*“The commissioner of the office of energy resources and the energy efficiency and resources management council, either jointly or separately, shall provide the commission findings and recommendations with regard to system reliability and energy efficiency and conservation procurement on or before March 1, 2008, and triennially on or before March 1<sup>1</sup>, thereafter through March 1, 2024. The report shall be made public and be posted electronically on the website of the office of energy resources.”*

The proposed Targets presented by the Consultant Team are for Electric, Natural Gas, and Delivered Fuel Energy Efficiency energy savings, as well as electric peak demand reductions, in each of the three years from 2021 to 2023, with combined heat and power (CHP) targets separated from targets which cover other opportunities to capture energy savings and electric peak demand reductions. A key change from previous proposed Targets is a shift to presenting the Targets in lifetime savings instead of annual, a preference strongly encouraged by stakeholders and approved by the EERMC.

### Purpose of the Targets

The purpose of energy efficiency targets as recommended by the EERMC to the PUC has been consistent in the three previous Target submittals, as clearly articulated in the September 1, 2014 filing when the EERMC stated:

*The EERMC and the parties understand that the efficiency savings targets are intended to serve as guideposts as the utility develops its Three-Year EE Procurement Plan and more detailed annual EE Program plans. As the parties described in a joint brief filed with the Commission in Docket 4202 on April 1, 2011:<sup>2</sup> “It is important to note that the energy efficiency savings targets*

---

<sup>1</sup> Due to time required complete the savings projection portion of the Market Potential Study, the EERMC vote on Targets was moved to the March 19, which was communicated to the PUC

<sup>2</sup> The joint brief is available at: [http://www.ripuc.org/eventsactions/docket/4202-EERMC-JointRR\(4-1-11\).pdf](http://www.ripuc.org/eventsactions/docket/4202-EERMC-JointRR(4-1-11).pdf)

*are just that, targets of what the EERMC assessment estimates is potentially available for cost-effective efficiency...*

*...The 2010 legislation recognizes that the energy savings targets themselves do not constitute a plan, but rather **the targets are just high-level estimates of the potentially available cost-effective efficiency**, whose function is to guide the development of actual Three-year LCP and annual efficiency plans.”*

The purpose of the Targets is clear in its focus on establishing what is “potentially available cost-effective efficiency.” It is meant to guide the ensuing purpose of establishing savings goals to be established in Three-Year EE Procurement Plans and Annual EE Plans, which also require the consideration of additional analysis covering factors such as prudence and reliability, as directed in the PUC’s LCP Standards<sup>3</sup>. In previous target-setting cycles, this quantification of Targets has been undertaken in good faith by the EERMC’s Consultant Team and other stakeholders including National Grid and the Rhode Island Office of Energy Resources, referencing an Opportunity Report conducted in 2010, which was nominally designed to cover ten years. Due to the increasingly outdated nature of this quantification of the potentially available all cost-effective efficiency in more recent planning cycles, the results needed to be significantly modified, generally through reliance on more recent data drawn from National Grid’s efficiency business-as-usual program performance data. This process of updating an old estimate with recent program data was necessary in lieu of a more up-to-date, third-party quantification of the potential for all cost-effective energy efficiency in Rhode Island, and was subject to significant limitations. These limitations included the implicit application of a wide array of considerations and constraints typically incorporated in efficiency program planning and implementation, and associated program performance data, that are outside the intended purpose of the efficiency targets as just described.

To overcome these limitations, the EERMC solicited via a competitive RFP process a Market Potential Study for Rhode Island to provide an objective estimate of all potentially available cost-effective energy efficiency resources to inform the targets for the three-year period from 2021 to 2023. The scope and application of this Market Potential Study to savings targets are summarized in Section III of this memorandum, while the results of the study are drawn upon to inform the recommended targets described in Section IV. Appendix A contains the presentation on the study’s high-level results which have sufficient granularity to inform Targets. A final report will be issued in May 2020 with the full narrative and documentation.

This memorandum presents for the EERMC the Consultant Team’s recommendations for 2021-2023 savings targets for National Grid’s upcoming Three-Year Plan and ensuing Annual Plans for consideration by the EERMC in their deliberations regarding the savings targets they will recommend to the PUC. These proposed targets are derived primarily from the Market Potential Study, which provided a comprehensive, analytical process to determine all cost-effective energy savings. The Market Potential

---

<sup>3</sup> <http://www.ripuc.ri.gov/eventsactions/docket/4684-LCP-Standards-FINAL.pdf>

Study included a range of modeling scenarios to help understand the landscape for energy efficiency in Rhode Island, and to quantify the impact of different modeling assumptions. Importantly, the final report will contain detailed information on the full range of scenarios. However, the Consultant Team views the scenario referred to as ‘Maximum Achievable’ as appropriate to rely on to inform targets, based on the purpose of the Targets as just summarized, as this scenario corresponds to the full potential for all cost-effective energy efficiency savings available in Rhode Island. Additionally, we conducted a close review of the three prior submittals of Targets to the PUC; reviewed the LCP legislation and current LCP Standards; considered input from stakeholders, including the RI Energy Efficiency Technical Working Group coordinated by National Grid; and factored input from the EERMC during Council meetings and during individual meetings held with council members and OER to inform our recommendation.

Further, to support consideration of the distinction between Targets and the goals associated with Three-Year EE Procurement Plans and Annual EE Plans, we acknowledge that while the 2021-2023 electric and natural gas savings targets have been developed using the best information and data available at this time, additional relevant information is likely to be learned as time passes. Consequently, the annual savings targets, including considerations such as their associated budgets as estimated during the planning process, should be reviewed each year during the development of the Annual Plans. Following this review, the plan goals should either be determined to remain identical to the Targets, or revised in light of new information, as described further in Section II of this memorandum and in the proposed Least Cost Procurement Standards for 2021-2023.<sup>4</sup> The parties participating in the Annual Plan development should agree that revisions to the annual energy savings targets should be based only on clearly documented changes in cost-effective resource availability, or unforeseeable and/or unavoidable constraints to their full pursuit and achievement.

## **II. OVERVIEW OF TARGETS RELATION TO PLANNING PROCESS**

In 2010, the legislature adopted the ratemaking concept of revenue decoupling, in R.I. Gen. Laws § 39-1-27.7.1. Pursuant to § 39-1-27.7.1(f). The EERMC was required to submit proposed energy savings targets to the PUC by September 1, 2010. The purpose of these targets was to give the utility guidance on all the potentially available cost-effective efficiency resources in the state that would feed into the normal LCP Three-Year and Annual efficiency program planning processes under § 39-1-27.7.

During the Three-Year and Annual planning processes required by Rhode Island law, the efficiency strategies, programs and budgets are developed by the utility and the cost-effectiveness of the budgets and programs is reviewed and approved by the EERMC before being filed with the PUC for their consideration and action. It is during these planning activities that a wide range of factors are considered and fully vetted, in a transparent way with significant stakeholder engagement, to inform what percentage of the total cost-effective energy savings potential could be realized during the three

---

<sup>4</sup> “The Utility shall include a preliminary budget for the Three-Year Plan covering the three-year period that identifies the projected costs, benefits, and initial energy saving targets of the portfolio for each year. The budget shall identify, at the portfolio level, the projected cost of efficiency resources in cents/ lifetime kWh or cents/lifetime MMBtu. The preliminary budget and initial energy saving targets may be updated, as necessary, in the Utility’s Annual Energy Efficiency Plan.” Section 1.3. B. iv. b.

year period, and more accurately in ensuing annual plans based on evolving market trends and other factors. In particular, this is where “prudent and reliable” portion of the LCP law, which directs National Grid to secure all cost-effective energy efficiency that is less than the cost of supply and is prudent and reliable, should be applied.

Appropriately, the Consultant Team anticipates that once the prudent and reliable filter impacts are documented, there will be gaps between the potential study-informed Targets, which capture all cost-effective efficiency savings, and Three-Year and Annual Plan Goals, which represent the portion of Targets that will be proposed as Plan savings goals with associated budgets. The process for understanding the size of this difference includes a full review and vetting of all barriers that preclude reaching the full Maximum Achievable savings. This is a collaboration between National Grid, the EERMC and its Consultant Team, the Office of Energy Resources, and other stakeholders, and takes the form of a well-documented, transparent process involving full stakeholder engagement and input. At the end of this process, National Grid’s Annual Plans will be able to clearly detail the various reasons that Plan goals are below targets and justify the magnitude of the gap.

Factors that typically are analyzed during this process include overall costs, rate and bill considerations, workforce factors, environmental, equity, and other non-energy considerations, market characteristics such as EE equipment supply chains and consumer education and awareness, and State policy objectives including carbon emissions reductions and associated clean energy goals, among others. Many of these factors represent constraints on the ‘all cost-effective potential’ reflected in the Targets, which can be alleviated over time through program design innovation, capacity building, and policies to support growth and competition in efficiency product and service markets. As a result, even when Targets are set consistently from year to year as is the case for the Targets presented in Section IV, it is very reasonable for the detailed, granular planning process to generate Plan savings goals which ramp toward those Targets over time in the Three-Year and associated Annual Plans, while also supporting the removal of barriers for future Three-Year Plans.

### **III. MARKET POTENTIAL STUDY SCOPE AND APPLICATION**

#### **Context and Industry Overview**

Market Potential Studies are widely used as a best-in-class, data-driven resource to inform efficiency program targets, as they represent a quantitative estimate of the efficiency resource that is available for efficiency programs to pursue. As examples, efficiency boards and/or utility commissions in nearby states including Massachusetts, New Jersey, New Hampshire, Pennsylvania, and Delaware, among others, are currently or have recently had market potential studies conducted to help inform efficiency program targets in their respective jurisdictions. This section summarizes the scope and purpose of the Market Potential Study covering Rhode Island, whose results inform the recommended targets presented in Section IV.

#### **Market Potential Study and Savings Targets**

The EERMC issued an RFP in the spring of 2019 for the implementation of a Market Potential Study covering electric, natural gas, and delivered fuel energy efficiency; electric demand response; combined heat and power; heating electrification; and behind-the-meter renewable energy. Importantly, only the results from first three modules of the Market Potential Study, energy efficiency, demand response, and combined heat and power, will be drawn on in the recommended targets presented in Section IV. Additionally, it is important to note that the Market Potential Study contains a range of results associated with different scenarios, which correspond to different sets of modeling assumptions. The result set viewed by the Consultant Team as most consistent with the purpose and requirements of the target-setting process is the Maximum Achievable ('Max') scenario. This is because this scenario's assumptions and outputs adhere most closely to the definition of targets quoted above, "*...high-level estimates of the potentially available cost-effective efficiency...*".

It is important to recognize that the mandate for the targets just described differs significantly from the mandate for the 2021-2023 Three-Year **Plan** and associated Annual **Plans**, as summarized in Section II of this memorandum. In particular, the goals within these plans, which have not yet been developed, are expected to diverge from the targets described in Section IV for a range of reasons, and this should not be construed as a limitation or failure either of the target-setting process or of the subsequent plan development processes. Specifically, per the LCP Standards, considerations regarding prudence and reliability are directed at the Company to explore and apply in Plans. Rather, the targets define all potentially available cost-effective efficiency, which is the directive from LCP law and prior target filings. The savings goals developed through the planning process and included in the Plans will necessarily be modified as a range of factors associated with prudence and reliability are identified, discussed, quantified, and balanced in the planning process, with full engagement of stakeholders providing input to the Company. These factors may include, but are not limited to, considerations such as program costs and associated rate and bill impacts; availability of the skilled workforce necessary to implement the suite of efficiency programs that will be needed to pursue all cost-effective efficiency; time and resources needed to train and develop additional workforce to fill any gaps between current workforce capability and the aforementioned need; balancing the cost of savings and benefits derived from driving market transformations today through efficiency program support and the cost of savings and benefits that will be obtained once markets begin to transform; other policy priorities such as equity or carbon emissions reductions and other environmental considerations; and other considerations not identified here.

The Consultant Team's recommended efficiency Targets in the following section are proposed in the context of the overarching purpose of the Targets as established in this memorandum, and with full awareness of the expected differences in purpose and in numeric value between the saving targets and subsequent Three-Year and Annual saving goals.

#### **IV. CONCLUSION AND RECOMMENDED EFFICIENCY SAVINGS TARGETS**

As discussed above, the Consultant Team engaged in an extensive process to identify the achievable potential of electric, natural gas and delivered fuel energy efficiency savings and electric peak demand reduction opportunities in Rhode Island for the 2021-2023 period, based primarily on the findings of the

Market Potential Study. While there is some level of uncertainty in forecasting the future, the Consultant Team has high confidence that the process undertaken estimates the maximum achievable cost-effective potential energy efficiency savings and peak demand reductions according to accepted industry practices for Market Potential Studies.

Table 1, below, shows the recommended energy savings targets associated with each of electric, natural gas, and delivered fuels energy efficiency. These targets are denominated in their respective energy units; are not additive; represent targets for the full portfolio of efficiency measures across all sectors, building types, and end uses within each fuel; and correspond to the Maximum Achievable energy savings estimated in the Market Potential Study for each fuel.

**Table 1. Energy Savings Targets (Lifetime Energy Savings), Option 1**

Year	Electric Energy (MWh)	Natural Gas Energy (MMBtu)	Delivered Fuel Energy (MMBtu)
2021	1,949,782	9,598,108	3,709,796
2022	2,037,314	9,948,779	3,731,665
2023	2,059,265	9,958,127	3,806,532

Table 2 represents the electric peak demand reduction targets associated with the maximum achievable potential estimates drawn from both the electric energy efficiency and demand response modules of the Market Potential Study. The central recommended target is a single peak demand reduction target denominated in first-year annual MW. This target is intended to cover both passive peak demand reductions from energy efficiency measures, as well as active peak demand reductions from demand response programs, and be eligible to be met through a combination of these types of program offerings.

**Table 2. Electric Peak Demand Reduction Targets (Annual MW), Option 1**

Year	Total Electric Peak Demand Reductions	Energy Efficiency Passive Peak Demand Reduction	Active Demand Response Peak Demand Reduction
2021	64.7	30.8	33.9
2022	85.9	33.2	52.7
2023	108	33.5	74.5

*Note on Table 2: 'Total Electric Peak Demand Reductions' is the sum of 'Energy Efficiency Passive Peak Demand Reduction' and 'Active Demand Response Peak Demand Reduction' in each year.*

Table 3 shows the electric energy and electric peak demand reductions associated with the Maximum Achievable scenario from the combined heat and power (CHP) module of the Market Potential Study. Because CHP installations tend to be harder to predict, and large projects can represent significant percentages of overall electric energy savings from efficiency programs, the Consultant Team has opted to provide these data separately from the results of the energy efficiency and demand response modules. In particular, CHP savings targets have been denominated in *average annual achievable savings*, due to the aforementioned forecasting challenges, and should thus be shown separately from



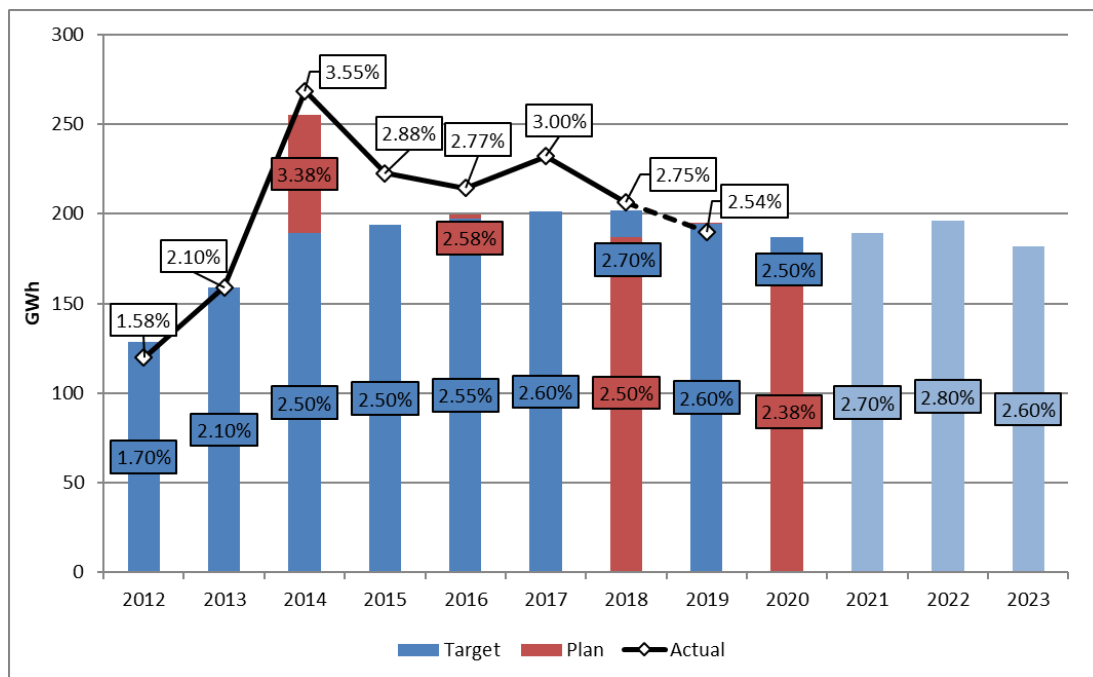
targets for electric energy and peak demand reduction savings derived from energy efficiency and demand response.

**Table 3. CHP Electric Energy Savings and Peak Demand Reduction Targets, Option 1**

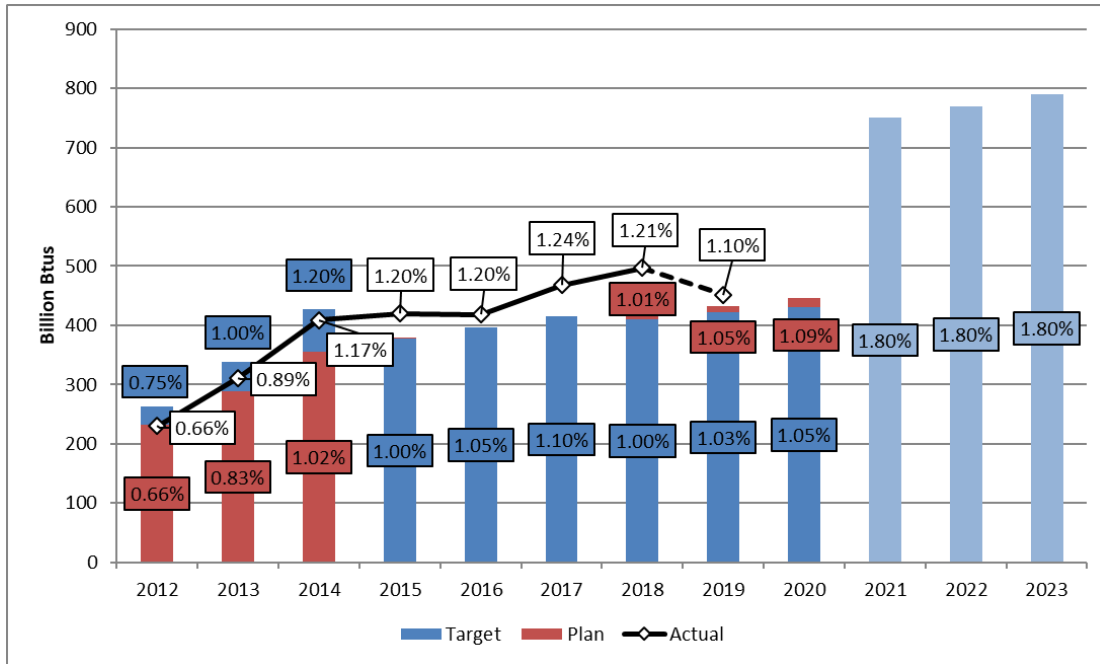
Year	CHP Electric Energy Savings (Lifetime MWh)	CHP Peak Demand Reduction (Annual MW)
2021	723,337	11.1
2022	723,337	11.1
2023	723,337	11.1

For context, the following two figures show the historical tracking of targets, associated annual plans and actual results alongside the proposed electric and natural gas energy savings targets' associated annual savings impacts. Note that these figures are in *annual savings*, not *lifetime savings*, for historical comparability, so the numbers in these charts for 2021-2023 do not match the numbers in the tables above. Rather, they correspond to the same set of Maximum Achievable model results from the Market Potential Study as the lifetime energy savings targets in Tables 1-3. The percentages in these figures represent percent of sales as defined during each three-year planning cycle, while the savings in energy units are captured on the y-axis. Lastly, as expected, there are only Target values for 2021-2023, as plans have not yet been developed for this period, and only Target and Planned values for 2020 but not Actuals, since the program year is not complete.

**Figure 1. Rhode Island Annual Electric Energy Savings Targets, Plan Goals, and Actual Savings**



**Figure 2. Rhode Island Annual Gas Energy Savings Targets, Plan Goals, and Actual Savings**



## **APPENDIX A: MARKET POTENTIAL STUDY OVERVIEW**