

## The Rhode Island Energy Efficiency and Resource Management Council

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October 28, 2015

VIA HAND-DELIVERY AND ELECTRONIC MAIL

Luly E. Massaro  
Commission Clerk  
Rhode Island Public Utilities Commission  
89 Jefferson Boulevard  
Warwick, RI 02888

**RE: Docket 4580- EERMC Review and Approval of the 2016 Energy Efficiency Program Plan Cost-Effectiveness Pursuant to RIGL §39-1-27.7(c)(5)**

Dear Ms. Massaro:

The Energy Efficiency and Resource Management Council ("EERMC") is pleased to submit the attached Cost-Effectiveness Report, submitted pursuant to Rhode Island's Least Cost Procurement Law. The EERMC's review and approval of the cost-effectiveness of National Grid's 2016 Energy Efficiency Program Plan ("2016 EEPP"), is supported by the Vermont Energy Investment Corporation/Optimal Energy's ("Consultant Team"), which team drafted the attached report. The Consultant Team's report and findings were presented to the EERMC, approved and adopted by a unanimous vote of the EERMC on October 1, 2015.

As the PUC is aware, RIGL § 39-1-27.7(c)(5) requires that the EERMC review and approve the cost-effectiveness of National Grid's 3-year procurement plan and any related annual energy efficiency plans.

Pursuant to its cost-effectiveness review and approval responsibilities under RIGL §39-1-27.7(c)(5), the EERMC authorized the Consultant Team to conduct a cost-effectiveness analysis of the 2016 EEPP filed October 15, 2015. The enclosed report is the product of that analysis.

In brief summary, the Consultant Team and the EERMC find that under the Total Resource Cost ("TRC") test, ordered by the Commission in Docket 3931, and ensuing updates in Dockets 4202 and 4443, Revised Standards for Least Cost Procurement, and consistent with national best practices, both the individual programs and in combination, the portfolio of programs presented in the 2016 EEPP are cost-effective and compliant with state statutes and regulations.

The EERMC respectfully recommends that the Commission approve the cost-effective 2016 EEPP as submitted by National Grid and the parties on and as provided for by § 39-1-27.7(c)(5), approve a fully reconciling funding mechanism sufficient to fund the 2013 EEPP's proposed budget within 60 days from the date of the Plan's filing.

Respectfully submitted,  
Rhode Island Energy Efficiency  
Resources Management Council  
By its Attorney



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CERTIFICATION

I hereby certify that I filed an original and nine (9) copies of the within Cost-Effectiveness Report and sent a true copy, via electronic mail, of the within Cost-Effectiveness Report on this 28<sup>th</sup> day of October, 2015, to:

Luly.massaro@puc.ri.gov  
Luly E. Massaro, Commission Clerk  
Public Utilities Commission  
89 Jefferson Blvd.  
Warwick, RI 02888



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# **Cost-Effectiveness Report On National Grid's 2016 Energy Efficiency Program Plan and System Reliability Procurement Report**

**An Assessment and Report by  
The VEIC/Optimal Energy Consultant Team**



**Working on Behalf of the**



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

**Submitted to the Rhode Island  
Public Utilities Commission  
On October 28, 2015**



## **Energy Efficiency and Resource Management Council Consultant Team Findings**

The Energy Efficiency and Resource Management Council (EERMC or “the Council”) Consultant Team finds that the *2016 Energy Efficiency Program Plan (Docket No. 4580) and System Reliability Procurement Report (Docket No. 4581)* filed on October 15, 2015 by National Grid, are cost-effective according to the Total Resource Cost (TRC) test. We also find that the implementation strategies outlined in the Plan will continue to support a reasonable and credible sustained implementation and moderate ramp-up of National Grid’s energy efficiency implementation efforts, and align with the savings targets proposed by the EERMC in its September 1, 2013 filing and approved by the Rhode Island Public Utilities Commission (“the Commission”) at its Open Meeting held on March 29, 2014. These savings targets were then reflected in the 2015-2017 Energy Efficiency and System Reliability Procurement Plan filed by National Grid on September 2, 2014 and approved by the Commission October 30, 2014.

Overall, we conclude that the programs and portfolio meet the cost-effectiveness requirements of Rhode Island General Laws § 39-1-27.7 (c)(5) and therefore a fully reconciling funding mechanism sufficient to fund the proposed budget should be approved by the Commission within 60 days as required by that section.

A preliminary draft of these findings and of this report was presented to the EERMC by the Consultant Team at its October 1, 2015 meeting. At that meeting, the EERMC voted to have the EERMC’s Executive Committee set a meeting closer to the EEP and SRP filing date to review and vote, on behalf of the EERMC, on the final draft of the report. The Executive Committee held a meeting on October 14, 2015, and voted to approve the report provisionally, with direction to the Consultant Team to finalize the Cost-Effectiveness Report with minor changes, e.g. inserting dates and the docket numbers once assigned.

## **I: Introduction**

Since 2010, the EERMC has met its requirement in R.I.G.L. § 39-1-27.7(c)(5) to review and approve the cost-effectiveness of National Grid's 3-year procurement plan and any related annual energy efficiency plans:

*The Commission shall issue an order approving all energy efficiency measures that are cost effective and lower cost than acquisition of additional supply, with regard to the plan from the electrical and natural gas distribution company, and reviewed and approved by the energy efficiency and resources management council, and any related annual plans, and shall approve a fully reconciling funding mechanism to fund investments in all efficiency measures that are cost effective and lower cost than acquisition of additional supply, not greater than sixty (60) days after it is filed with the commission.*

To comply with this requirement for National Grid's proposed *2016 Energy Efficiency Program Plan and System Reliability Procurement Report* ("the Plan"), the EERMC directed its Consultant Team to produce this report. The Plan was presented to the Council at its October 1, 2015 meeting where the Council voted to endorse the Plan.

This report describes that review, including the finding that the Plan is cost-effective, and submits it as evidence to the Commission. It also describes the nature and process of the review, and presents the professional experience and qualifications of the Consultant Team to fulfill this task.

## **II. The Rhode Island Legal and Regulatory Framework**

Rhode Island's Comprehensive Energy Conservation, Efficiency, and Affordability Act of 2006 ("2006 Comprehensive Energy Act") established a comprehensive energy policy that explicitly and systematically requires maximization of ratepayers' economic savings through investments in all cost-effective energy efficiency. By means of this requirement on the distribution utility to procure all cost-effective energy efficiency, Rhode Island ratepayers have saved and will continue to save hundreds of millions of dollars in energy bills over the next decade.

The primary guidelines informing the planning process to achieve this objective are the Standards for energy efficiency and conservation procurement and system reliability ("the Standards"), required in the 2006 legislation. The EERMC proposed the initial Standards in June, 2008, and a subsequent revision was approved by the Commission in July, 2008. Updates to the Standards were proposed by the EERMC in 2011 under Docket No. 4202, and again in 2014 under Docket No. 4443, which were both approved by the Commission. The purpose of these Standards is to provide sufficient direction to guide National Grid in its 3-year and annual Plans.

The Standards ordered by the Commission identify the TRC test as the methodology to use in determining whether the measures, programs, and the portfolio of energy efficiency services are cost-effective.

The same TRC methodology has been applied to the evaluation of cost-effectiveness for natural gas energy efficiency since natural gas was added to the Least Cost Procurement mandates in 2010.

### **III. Summary of EERMC Consultant Team's Qualifications**

The Consultant Team is composed of Vermont Energy Investment Corporation serving as the lead contractor, Optimal Energy Inc., Energy Futures Group, Cx Associates and Prah Consultant. The Consultant Team is led by Scudder Parker and Mike Guerard. Key skills and expertise are provided by Kate Desrochers, Sam Dent, Sam Huntington and Craig Johnson on data and analytical issues; Sean Bleything, Richard Faesy and Glenn Reed on the residential sector; George Lawrence, Jennifer Chiodo and Zoe Dawson on the Commercial / Industrial (C&I) sector; and Ralph Prah on evaluation, measurement, and verification (EM&V) activity. An additional layer of supporting staff is also in place, as well as a full range of industry experts available on an as-needed basis.

This team brings an impressive understanding of, and experience with, energy efficiency policy, regulatory practice, program design, cost-effectiveness analysis, measure characterization, assessment of potential savings, and EM&V. Many of the individual consultants included on the Consultant Team have over 20 years of direct experience in energy efficiency and broader regulatory policy. All participants also practice in jurisdictions outside of Rhode Island and their experience in those settings provides an important context and perspective to inform the EERMC in its oversight role.

During its many years serving as the EERMC's Technical Consultant, the Consultant Team has developed strong familiarity with Rhode Island's policy, planning, implementation, and evaluation experience provides a high level of assurance that practices in Rhode Island are consistent with regional and national best practices in Energy Efficiency Least Cost Procurement.

### **IV. Consultant Findings**

The Consultant Team finds that both the individual programs and in combination, the portfolio of programs presented in the 2016 Energy Efficiency Program Plan (EPPP) filing by National Grid are cost-effective according to the TRC. We also find that the System Reliability Procurement (SRP) Report is cost-effective. We also find that the gas and electric programs and portfolio proposed represent reasonable, prudent and reliable ramp-up of National Grid's

implementation efforts to secure cost-effective savings for both electric and natural gas customers. We conclude that the gas and electric programs meet the cost-effectiveness requirements of R.I.G.L. § 39-1-27.7 (c)(5) and therefore a fully reconciling funding mechanisms sufficient to pay for the proposed budgets should be approved by the Commission within 60 days as required by that section.

The review conducted by the Consultant Team to reach these conclusions is described in detail in the following sections:

- Section V: Ongoing Oversight by the EERMC and its Consultant Team
- Sections VI: Cost-Effectiveness Overview
- Section VII: Review of Evaluation, Measurement and Verification (EM&V)
- Section VIII: Cost Effectiveness Review and Findings

## **V. Ongoing Oversight by the EERMC and its Consultant Team**

The EERMC, consistent with its statutory obligations under the 2006 Comprehensive Energy Act, continues to play an involved and active role with National Grid to guide, facilitate, and support public and independent expert participation in the review, oversight, and evolution of utility energy efficiency procurement and program implementation. The EERMC believes this input is critical to having the energy efficiency programs and new cost saving mechanisms evolve into resource acquisition tools that can effectively implement the Rhode Island law to procure all cost-effective natural gas and electric energy efficiency. The updated Standards in Docket No. 4443 require a consistent and effective process to guide the development and submission of National Grid's 2016 EEPP to the Commission.

The EERMC has met its review and input requirements both at its regularly scheduled meetings with National Grid and through Collaborative meetings and phone calls. The Collaborative is comprised of EERMC members; the EERMC Consultant Team; RI Office of Energy Resources (OER); Acadia Center; the Division of Public Utilities and Carriers with representation from the Attorney General's Office and support from its consultant; People's Power and Light; Green and Healthy Homes Initiative; and TEC-RI. National Grid coordinates and hosts the meetings, and has energy efficiency and system reliability representatives in attendance at all meetings.

For the 2016 EEPP and SRP development, activities that supported the process included:

### **July:**

- 7/17 – Consultant Team meeting with National Grid's Residential Strategy Group and OER to review elements of the residential plan and potential adjustments and enhancements for 2016 based on 2015 results-to-date

- 7/21 -- Consultant Team meeting with National Grid's C&I Strategy Group and OER to review elements of the C&I plan and potential adjustments and enhancements for 2016 based on 2015 results-to-date
- 7/23 – Technical Reference Manual for Estimating Savings from Energy Efficiency Measures (TRM) status review conference call with National Grid and Consultant Team
- 7/29 -- Collaborative meeting at National Grid to preview 2016 Plan direction, content and timeline

**August:**

- 8/13 – EERMC meeting held, with a presentation by National Grid and the Consultant Team on the 2016 EEPP and SRP direction and status
- 8/24 – A Public Hearing on Combined Heat and Power (CHP) was held in Providence to seek public input on potential modifications to the CHP program design to include in the 2016 EEPP.
- 8/24 – First drafts of the 2016 EEPP and SRP were submitted to the Collaborative and EERMC by National Grid and reviewed by the Consultant Team. The EEPP Benefit Cost Model (BC Model) was provided to the Consultant Team the next day. Comments and proposed enhancements on the draft EEPP, SRP and BC Model were submitted by the Consultant Team to National Grid within 10 days of receiving draft, as well as input from other stakeholders on the Collaborative.
- 8/25 – Consultant Team meeting with National Grid's C&I Strategy Group and OER to review elements of C&I Plan
- 8/26 – Consultant Team conference call with National Grid's Residential Strategy Group and OER to review elements of residential Plan
- 8/31 – Consultant Team conference call with National Grid to review BC Model inputs and values
- Ongoing Consultant Team review, discussions and exchange of comments with National Grid on the TRM.

**September:**

- 9/2 – Collaborative meeting at National Grid to review Plan direction, content and timeline
- 9/9 – TRM status review conference call with National Grid and Consultant Team
- 9/10 – Collaborative meeting conference call to discuss delivered fuels as it pertains to the Plan
- 9/10 – EERMC meeting, with presentation and discussion on first draft of EEPP and SRP

- 9/11 – Conference call with National Grid and Consultant Team to review BC Model inputs and values
- 9/14 – Conference call with Collaborative and National Grid to discuss SRP
- 9/15 -- Consultant Team meeting with National Grid's C&I Strategy Group and OER to review elements of C&I Plan
- 9/16 – Consultant Team meeting with National Grid's Residential Strategy Group and OER to review elements of residential Plan
- 9/21 – Second draft of the 2016 EEPP, as well as BC Models and SRP, were submitted to the Collaborative and EERMC by National Grid and reviewed by the Consultant Team. Comments and proposed enhancements submitted to National Grid within 10 days of receiving draft.
- 9/25 – Consultant Team conference call with National Grid to discuss remaining issues on second draft of the 2016 Plan
- 9/28 – Collaborative meeting at National Grid to review second draft of the 2016 Plan
- Ongoing Consultant Team review, discussions and exchange of comments with National Grid on the TRM and BC Models.

**October:**

- 10/1 – EERMC meeting for final review, discussion and vote to approve the 2016 EEPP and SRP provisionally, pending any minor adjustments approved by the Council's Executive Committee. Council also voted to approve a special meeting of the Executive Committee to approve a final draft of the Cost-Effectiveness Report for submittal to the Commission within 14 days of the filing of the EEPP and SRP by National Grid.
- 10/5 -- Collaborative conference call to review final version of Plan
- 10/15 -- Submittal of 2015 EEPP and SRP by National Grid to the Commission for approval.

Throughout this process, the objectives of the Standards were followed to ensure that program designs and the resulting implementation secure cost-effective energy efficiency resources that are lower than the cost of supply, are prudent and reliable, and deliver hundreds of millions of dollars in bill savings to Rhode Island customers.

**VI. Cost-Effectiveness Overview**

Cost-effectiveness tests compare the net present value of a stream of benefits over the net present value of a corresponding stream of costs, whether they occur at the time of purchase or over several years. The TRC has been widely accepted and used by regulators and policy-makers to evaluate demand-side management programs. The TRC test indicates that an

efficiency measure or program is cost-effective if the benefits outweigh the costs for Rhode Island consumers.

The TRC test compares the value of avoided energy costs and other resource costs to the full incremental cost of efficiency measures plus program administration costs. The TRC test was formally adopted as the best practice for evaluating the cost-effectiveness of energy efficiency measures and programs in 1983 when it was codified in the Standard Practice for Cost-Benefit Analysis of Conservation and Load Management Programs, published by the California Energy Commission. The “Standard Practice” manual has been revised several times since and has served as the *de facto* basis for determining efficiency cost-effectiveness by the majority of electric and gas utility efficiency programs. The manual is regarded as well-grounded in best-practices for cost-benefit analysis.

As noted above, the Commission ordered the TRC test for use in Rhode Island in Docket No. 3931, and ensuing updates in No. 4202 and 4443. Subsequently, National Grid proposed the specific costs and benefits to be included in the Rhode Island TRC test in its Least Cost Procurement Plan (September 2008) with support and input from the EERMC, which the Commission approved and ordered into effect. The Consultant Team reviewed National Grid’s application of the TRC test in the 2016 EPPP methodology and found it to be consistent with standard practice and the Standards. The methodology was also effectively documented in Attachment 4 of the Plan filing. The Rhode Island TRC test includes the following benefits and costs:

- The benefits in the TRC include the discounted, monetized value of reduced energy (MWh), reduced capacity needs (MW, avoids the costs of providing both peak demand, and the transmission and distribution system), reduced fossil fuel use (or increased use as a negative benefit), reduced water and sewer use, non-energy impacts (generally due to decreased operation and maintenance costs), and Demand Reduction Induced Price Effect (DRIPE, as included in the avoided costs of electricity). The benefits for reduced electric energy (MWh and MW) and other resources are monetized based on avoided costs.
- The costs in the TRC are all costs incurred by the utility and program participants as a whole to acquire the efficiency resources in the plan. They include the incremental cost of the efficiency measure(s),<sup>1</sup> and the non-incentive costs required to deliver the program. Incremental cost is composed of incentives and customer contributions, while non-incentive costs are composed of program planning and administration, marketing, evaluation,

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<sup>1</sup> Incremental cost depends on the market opportunity. In a market-driven situation (when a customer is buying a new piece of equipment or replacing a broken one), it is the difference in cost between the baseline technology and the efficient technology. In a retrofit situation, the incremental cost is the full cost of the project, including equipment and installation (since the baseline condition would be continuing with the existing equipment).

shareholder incentive and related implementation costs,<sup>2</sup> customer contribution, program evaluation, and shareholder incentive costs, as shown in Tables E-2 and E-5, and G-2 and G-5, of the National Grid's 2016 EEPP.<sup>3</sup>

The costs and benefits of an efficiency program, which can occur over many years, are discounted to present-value using a real discount rate in order to discount the future value of money (i.e., money today is considered more valuable than the same amount of money in the future). A program is considered to be cost-effective if the present value of benefits exceeds the present value of costs, that is, when the TRC benefit-cost ratio (BCR) is greater than 1.0.

## **VII. Review of Evaluation, Measurement and Verification**

Evaluation, Measurement and Verification (EM&V) refers to the systematic collection and analysis of information to document the impacts of energy efficiency programs and improve the effectiveness of these programs. Impact evaluation, a specific type of EM&V activity, refers specifically to efforts to document program impacts. From the perspective of this review of the cost-effectiveness of National Grid's programs and 2016 EEPP, the relevance of National Grid's EM&V process is that this process is responsible for confirming and/or refining over time the values of many of the parameter assumptions that go into National Grid's cost-effectiveness analyses, particularly those pertaining to program benefits.

EM&V activities in Rhode Island have generally been managed by the evaluation department of National Grid, with input from the Rhode Island Collaborative and the EERMC, following high-level regulatory direction set by the Commission, Division, and the Office of Energy Resources. National Grid owns utilities in Massachusetts, Rhode Island, and New York, and National Grid's evaluation department has EM&V-related responsibilities in all of these states. National Grid's evaluation department is highly experienced, and has a strong national reputation in the evaluation industry. In New England, National Grid's EM&V planning, implementation, and reporting activities have historically been tightly integrated between Massachusetts and Rhode Island. Most new EM&V studies that bear on Rhode Island's energy efficiency programs are planned, budgeted, implemented, reported, and filed in Rhode Island and Massachusetts.

In Rhode Island, the Consultant Team's work with National Grid's evaluation department to date has focused on providing input into evaluation priorities, approaches, and spending levels. We have in-depth familiarity with these methods through our work with National Grid in Massachusetts, on behalf of the Massachusetts Energy Efficiency Advisory Council. On the basis of this familiarity, we believe that National Grid's impact evaluation methods in New England

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<sup>2</sup> Cross-program costs (e.g., comprehensive marketing not specific to a single program) are allocated at the sector or portfolio level.

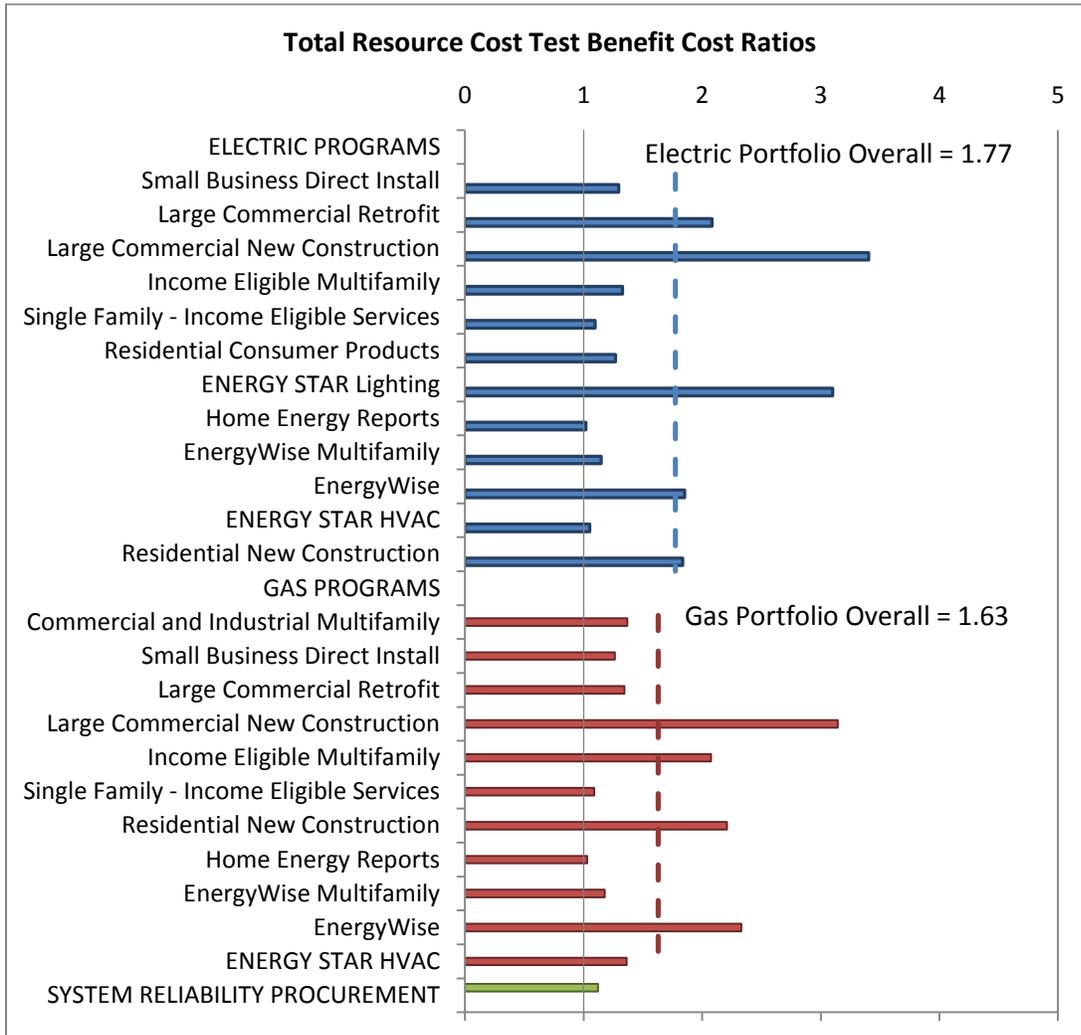
<sup>3</sup> Benefit-cost ratio (BCR) at the sector level includes the shareholder incentive as a cost. As shareholder incentive is not calculated at a program level, it is not included in program level BCR

have generally been consistent with prevailing industry standards. We therefore conclude that the strength of National Grid's EM&V process serves to buttress the finding that their programs and plan are cost-effective.

### **VIII. Cost Effectiveness Review and Findings**

This section summarizes the cost-effectiveness of programs presented in the 2016 EEPP and SRP, followed by a description of the Consultant Team's review of methodology and findings. The Standards require that all programs and the overall portfolio must be determined to be cost-effective by having a TRC benefit-cost ratio greater than 1.0. The Consultant Team's review has found that all of National Grid's proposed programs and the overall portfolio meet this standard. National Grid's program and portfolio cost-effectiveness are provided in Tables E-5 (electric) and G-5 (natural gas) of the 2016 EEPP. These tables provide supporting data on program budgets, avoided costs, and other related data. All of the electric programs are projected to be cost effective, with BCRs ranging from 1.02 (Home Energy Reports) to 3.41 (Large Commercial New Construction). Likewise, the natural gas programs are all projected as cost-effective with BCRs ranging from 1.03 (Home Energy Reports) to 3.14 (Large Commercial New Construction). The BCR for SRP is 1.12. All programs have a BCR greater than 1.0 as required by the Standards and § 39-1-27.7 (c) (5).

Figure 1: BCR levels



The Consultant Team reviewed the benefit and cost of measures, programs, and portfolio in the TRM, BC Model, and appendix tables to inform an educated review of the cost-effectiveness of programs offered by National Grid. This review, described in more details below, informed this cost-effectiveness report:

- The review of updates to the 2015 TRM allowed for an assessment of the measures and assumptions used in the calculations of the cost-effectiveness of National Grid’s energy efficiency programs. Due to the similarities in geography and programs, the Consultant Team also reviewed recent evaluations for Massachusetts and incorporated their findings where they were deemed relevant.

- The savings values in the TRM are integrated into National Grid’s electric and gas BC models, which are used to calculate program savings, incentive costs, benefits, and the cost-effectiveness of programs. The Consultant Team reviewed the two drafts of the electric and gas BC Model thoroughly, ensuring that updates to the TRM are reflected in the BC models, and that the quantity of measures (participation) is appropriate and reflects the program description in the EEPP. Also reviewed were the program design, cost-effectiveness projections, the mix of measures, and that net-to-gross values are appropriate and reflect values from the latest evaluations available. The 2016 electric and gas BC Models were compared to the 2015 models to ensure that changes to the program measures are appropriate and reflect changes to the EEPP.

The values from the BC Model, summarized at the program level, are then used to populate tables E-6 and G-6 in the appendix of the EEPP. The Consultant Team conducted an in-depth review of the appendix tables to identify trends between years and between drafts. The Consultant Team also reviewed to see that values from the BC models were correctly reflected in the appendix tables and that the values in the tables added up properly. Overall, analysis of cost-effectiveness focused on the methodology used to calculate cost effectiveness, the processes used to update the model inputs from year to year, and the general model assumptions and inputs.

Consistent and on-going oversight of National Grid energy efficiency planning and implementation activity takes place both through direct interactions with National Grid staff, and through participation in the Collaborative process (timeline documented in Section V). For program year 2016, the Consultant Team’s oversight of the planning process was comprehensive and in-depth, as illustrated below:

- The Consultant Team worked with National Grid analysts and sector managers to identify, prioritize, and address pertinent issues. The scope of the issues investigated and reviewed was broad and related to both program design and cost effectiveness.
- Consultant Team analysts reviewed two drafts of the BC Model associated with each of the EEPP drafts. As part of this review, some minor issues were identified in the TRM and BC Model and addressed by National Grid.
- The Consultant Team found that the overwhelming majority of the modeling and cost-effectiveness assumptions reviewed were reasonable and well-supported. Any cost-effectiveness issues identified in the benefit/cost model and in the review of the EEPP were addressed at the portfolio and program level by National Grid’s analyst team.
- Review of the cost-effectiveness of the EEPP was facilitated by the review of updates to the TRM assumptions. The TRM documents the savings algorithms and assumptions

used for prescriptive efficiency measures. Starting in 2011, the Consultant Team has annually reviewed assumptions in the TRM and any updates resulting from recent evaluations and changes to federal standards. National Grid used new results from the evaluations that were recently completed to update multiple measure baselines, net-to-gross ratios, measure lives, and other measure assumptions.

In summary, the Consultant Team's review of the general model assumptions and inputs for measure and program costs and savings was performed via meetings with National Grid and by looking at specific measures in the TRM and BC Model. The review focused on the examination of many key measure-level assumptions in the model and consistency with values in the TRM. The Consultant Team also looked for any trends and outliers that would indicate errors. The Consultant Team identified minor errors and provided feedback to National Grid to have those errors corrected in the cost-effectiveness BC Model. No significant error was identified that would bring into question the projected cost-effectiveness of the programs or portfolio.

Overall, the Consultant Team found that the application of the TRC test follows standard practice, including:

- The cost and benefit components of the TRC test;
- The methodology for monetizing benefits based on avoided costs;
- Adjustments of market effects (i.e., free ridership and spillover);
- Accounting for inflation in the avoided costs and measure costs;
- Net-to-gross assumptions are adjusted following evaluations;
- Discounting the future value of money;
- Inclusion of non-program-specific costs at the sector and portfolio levels;
- Adjustment of baselines following updates to building codes and federal standards;
- Pilot programs are used appropriately to determine the cost-effectiveness and viability of new measures.

In the future, the Consultant Team will continue working with National Grid, the EERMC, and the Collaborative to provide informed review of the savings assumptions used in the BC Model and TRM. The interaction between cost-effectiveness review and solid understanding of program design and implementation provides a high level of confidence to regulators and Rhode Island consumers that they are realizing benefits that will be reflected in their bills and the performance of their buildings and their utility systems.

In conclusion we find, based on this review that National Grid's planned programs for 2016 are cost-effective based on the TRC test, as described in the program plans.

## **IX. Conclusion**

**For the reasons stated herein, the EERMC and the EERMC's Consultant Team finds that National Grid's 2016 EEPP is cost-effective and lower cost than the acquisition of additional supply pursuant to R.I.G.L. § 39-1-27.7 (c)(5).**