

# National Standard Practice Manual

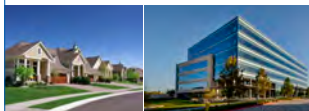
## CASE STUDY: Rhode Island



### National Standard Practice Manual

for Assessing Cost-Effectiveness of Energy Efficiency Resources

EDITION 1 Spring 2017



**nesp**  
NATIONAL EFFICIENCY SCREENING PROJECT

 **nesp**

NATIONAL EFFICIENCY SCREENING PROJECT

---

# **National Standard Practice Manual**

## **Case Study: Rhode Island**

2018

**Prepared by  
The National Efficiency Screening Project**



# Contents

|  |           |
|--|-----------|
| <b>1. INTRODUCTION .....</b>                                 | <b>1</b>  |
| <b>2. NSPM GUIDING PRINCIPLES .....</b>                      | <b>1</b>  |
| <b>3. COST-EFFECTIVENESS PRACTICES IN RHODE ISLAND .....</b> | <b>2</b>  |
| Historic Cost-Effectiveness Practices.....                   | 2         |
| 2017 Cost-Effectiveness Update .....                         | 3         |
| <b>4. RI TEST ALIGNMENT WITH NSPM PRINCIPLES .....</b>       | <b>5</b>  |
| Principle #1: Efficiency as a Resource .....                 | 5         |
| Principle #2: Articulate Applicable Policy Goals .....       | 5         |
| Principle #3: Account for all Relevant Impacts.....          | 6         |
| Principle #4: Ensure Symmetry .....                          | 8         |
| Principle #5: Use Forward-Looking Analysis.....              | 8         |
| Principle #6: Ensure Transparency .....                      | 9         |
| Summary .....  | 9         |
| <b>5. 2018 DEVELOPMENTS .....</b>                            | <b>10</b> |

# 1. INTRODUCTION

This National Standard Practice Manual (NSPM) provides a comprehensive framework for assessing the cost-effectiveness of energy efficiency (EE) resources.<sup>1</sup> The manual is directly applicable to all types of electric and gas utilities and all jurisdictions where EE resources are funded by and implemented on behalf of electric or gas utility customers.

The NSPM offers a set of guiding principles for EE cost-effectiveness analyses. The principles, based on sound economic practices, present a foundation that states can use as the basis for their cost-effectiveness framework for EE. The principles and concepts in the NSPM can also be used to assess the cost-effectiveness of distributed energy resources (DERs).

The purpose of this case study is to provide an example of how one state, Rhode Island, has developed an EE cost-effectiveness framework that incorporates the key principles in the NSPM.<sup>2</sup> Rhode Island has a long history of implementing successful EE programs, and ranks among the top five states in the American Council for and Energy-Efficient Economy's Scorecard. It has frequently revisited its cost-effectiveness practices to keep them up to date and to accurately reflect state policy goals. In 2017, Rhode Island adopted the guiding principles from the NSPM as part of its cost-effectiveness framework for EE and other DERs.

# 2. NSPM GUIDING PRINCIPLES

The NSPM presents six guiding principles that are fundamental to helping guide jurisdictions in the development of their primary cost-effectiveness test. These principles are summarized in Table 1.

Table 1. NSPM Guiding Principles

|                                 |  |
|---------------------------------|--|
| <b>Efficiency as a Resource</b> | EE should be compared with other energy resources (both supply-side and demand-side) in a consistent and comprehensive manner.   |
| <b>Policy Goals</b>             | A jurisdiction's primary cost-effectiveness test should account for its energy and other applicable policy goals and objectives.   |
| <b>All Relevant Impacts</b>     | Cost-effectiveness practices should account for all relevant, substantive impacts (as identified by policy goals,) even those that are difficult to quantify and monetize. |
| <b>Symmetry</b>                 | Cost-effectiveness practices should be symmetrical, where both costs and benefits are included for each relevant type of impact.   |
| <b>Forward-Looking Analysis</b> | Cost-effectiveness practices should apply a forward-looking, long-term approach that captures incremental impacts of energy efficiency.                                    |
| <b>Transparency</b>             | Cost-effectiveness practices should be completely transparent, and should fully document all relevant inputs, assumptions, methodologies, and results.                     |

---

<sup>1</sup> National Efficiency Screening Project, *National Standard Practice Manual for Assessing Cost-Effectiveness of Energy Efficiency Resources*, Spring, 2017, available at: <https://nationalefficiencyscreening.org/national-standard-practice-manual/>.

<sup>2</sup> The NSPM was not published at the time Rhode Island developed its draft framework, but the NSPM principles were available in draft form, and were adopted albeit without direct reference to later published NSPM.

### 3. COST-EFFECTIVENESS PRACTICES IN RHODE ISLAND

#### Historic Cost-Effectiveness Practices

The Narragansett Electric Company d/b/a National Grid (National Grid or the Company) has been implementing EE programs for its customers for well over 25 years. These programs and the underlying cost-effectiveness practices have been guided by a robust demand side management (DSM) Collaborative process that includes representatives from the Company, the Division of Public Utilities and Carriers (DPUC), the Office of Energy Resources (OER), the Energy Consortium Rhode Island (TEC-RI), low-income advocates, People's Power and Light, and others.

In 2006 the Rhode Island legislature passed the System Reliability and Least-Cost Procurement Act, which requires the Company to procure all EE resources that are cost-effective and cost less than supply-side resources.<sup>3</sup> The Act also established the Energy Efficiency and Resource Management Council (EERMC), to provide a forum for additional stakeholder input, as well as a formal structure for guiding the development of EE programs in Rhode Island.<sup>4</sup>

Rhode Island uses a set of Least Cost Procurement Standards (LCP Standards) to guide how EE and related initiatives are planned for and implemented, including guidance on cost-effectiveness analysis.<sup>5</sup> These standards are updated periodically to reflect new and evolving policy goals, and have typically been updated on a three-year cycle.

For many years the LCP Standards have required the Total Resource Cost (TRC) Test be used to assess the cost-effectiveness of EE resources. This test includes all the costs and benefits affecting the electricity system and the participants in the EE programs. The LCP Standards have also required that the cost-effectiveness analysis includes all participant benefits, including non-energy benefits.

Most of the avoided cost inputs for the cost-effectiveness analysis are derived from the New England Avoided Energy Supply Cost (AESC) Study.<sup>6</sup> This study is prepared by an independent contractor, funded by all of the electric and gas utilities in New England, and overseen by a large, diverse stakeholder group of regulatory commissions, energy offices, consumer advocates, low-income advocates, efficiency advocates, and more. As such, it is a comprehensive and credible source of information for the cost-effectiveness analysis in Rhode Island.

---

<sup>3</sup> R.I. Gen. Laws § 39-1-27.7(c)(5) System Reliability and Least-Cost Procurement.

<sup>4</sup> The EERMC is separate from the DSM Collaborative, although many parties are members of both. For more information on the EERMC, see <http://www.rieermc.ri.gov/>.

<sup>5</sup> Rhode Island Public Utilities Commission, *Least-Cost Procurement Standards*, July 28, 2017. Available at: [http://www.ripuc.org/rulesregs/commrules/4684-LCP-Standards\\_7-28-17.pdf](http://www.ripuc.org/rulesregs/commrules/4684-LCP-Standards_7-28-17.pdf).

<sup>6</sup> The most recent study is *Avoided Energy Supply Costs in New England: 2015 Report*, prepared for the Avoided-Energy-Supply-Component Study Group, prepared by Tabors Caramanis and Rudkevich, April 3, 2015. A new study is currently being prepared, and is scheduled to be released in March 2018.

The participant non-energy benefits are based on several studies that have been performed for the electric and gas utilities in Massachusetts, including National Grid. There are separate studies on the low-income, residential, and commercial/industrial sectors.<sup>7</sup>

## 2017 Cost-Effectiveness Update

In 2016, the Rhode Island Public Utilities Commission opened Docket 4600 to get stakeholder input on (a) new rate design principles and concepts, and (b) cost-effectiveness for EE and other types of distributed energy resources (DERs). One of the reasons for opening the docket was to develop a cost-effectiveness framework that can be applied consistently across different types of ratepayer-funded resources and programs.<sup>8</sup>

After months of stakeholder discussions, the Working Group<sup>9</sup> recommended expanding the Rhode Island TRC Test to include a broader range of benefits to better align with its applicable state policies.<sup>10</sup> The new cost-effectiveness test was named “the Rhode Island” Test. The RI Test recognizes some of the benefits and costs related to DERs that are not relevant to EE, and expands the list of impacts that were included in its previously used TRC test, including: risk impacts, environmental impacts, jobs and economic development impacts, societal low-income impacts, public health impacts, and energy security impacts. Notably, some of these impacts, such as economic benefits, employment benefits, and air quality were statutorily required in the screening of some measures, such as combined heat and power, whereas the statute left more discretion to the Commission on other EE measures.<sup>11</sup> A motivating issue for Docket 4600 was to levelize the consideration of benefits across all EE measures, and eventually across other resources and functions on the electric system.<sup>12</sup>

The Commission accepted the recommendations of the Working Group, and directed the Company to use the new RI Test, to the extent possible, for evaluating the cost-effectiveness of EE, DERs, other Company investments and spending, and new rate proposals.<sup>13</sup> The Commission also simultaneously updated the Rhode Island LCP Standards to reflect the new RI Test. The updated LCP Standards also require that the NSPM guiding principles be used in developing a cost-effectiveness test. The new RI Test is summarized in Table 2, and compared to the earlier TRC test used by the state.

---

<sup>7</sup> Massachusetts Program Administrators, *Massachusetts Special and Cross-Sector Studies Area: Residential and Low-Income Non-Energy Impacts NEI Evaluation*, NMR Group, Tetra Tech, August 15, 2011. Also, *Final Report - Commercial & Industrial Non-Energy Impacts Study*, Tetra Tech, June 29, 2012; and *Massachusetts Special and Cross-Sector Studies Area: Low-Income Single Family Health- and Safety-Related Non-Energy Impacts Study*, NMR Group and Three3 Inc., August 5, 2016.

<sup>8</sup> RI PUC Investigation into the Changing Electric Distribution System and the Modernization of Rates in Light of the Changing Distribution System, Report and Order 22851, Docket 4600, July 31, 2017, page 5 at: <http://www.ripuc.org/eventsactions/docket/4600page.html>.

<sup>9</sup> The Working Group included representatives from: the Acadia Center, the Conservation Law Foundation, Direct Energy, the George Wiley Center, National Grid, New Energy Rhode Island, Northeast Clean Energy Council, People’s Power and Light, DPUC, the EERMC, OER, and TEC-RI.

<sup>10</sup> Raab et. al., *Docket 4600: Stakeholder Working Group Process: Report to the Rhode Island Public Utilities Commission*, April, 2017. Available at: <http://www.ripuc.org/eventsactions/docket/4600page.html>.

<sup>11</sup> R.I. Gen. Laws § 39-1-27.7(c)(6)(iii) System Reliability and Least-Cost Procurement.

<sup>12</sup> RI PUC *Staff Memorandum RE: Recommendations for a Docket to Investigate the Changing Distribution System*, March 1, 2016 at: [http://www.ripuc.org/eventsactions/docket/4600-PUC-Recommendation\\_3-1-16.pdf](http://www.ripuc.org/eventsactions/docket/4600-PUC-Recommendation_3-1-16.pdf)

<sup>13</sup> Rhode Island Public Utilities Commission, *Investigation into the Changing Electric Distribution System and the Modernization of Rates in Light of the Changing Distribution System*, Report and Order, Docket 4600, July 31, 2017.









Table 4. Non-Energy Impacts Used in Rhode Island Cost-Effectiveness Analyses – Residential Sector

| NEI                                  | Description   | Low-Income | Home Retrofit | New Constn. |
|--------------------------------------|---|------------|---------------|-------------|
| Thermal Comfort                      | Greater participant-perceived comfort in home   | ✓          | ✓             | ✓           |
| Noise Reduction                      | Less participant-perceived noise in the home  | ✓          | ✓             | ✓           |
| Property Value Increase              | Increased value of property and expected ease of selling home   | ✓          | ✓             | ✓           |
| Home Durability                      | Increased home durability in terms of maintenance requirements because of better quality heating, cooling and structural materials                          | ✓          | ✓             |             |
| Equipment Maintenance                | Reduced maintenance costs of owning newer and/or more efficient appliance equipment   | ✓          | ✓             |             |
| Health Benefits                      | Fewer colds and viruses, improved indoor air quality and ease of maintaining healthy relative humidity as a result of weatherization in home                | ✓          | ✓             |             |
| Rental Units Marketability           | Financial savings to owners of LI rental housing as a result of increased marketability of the more efficient housing.                                      | ✓          |               |             |
| Property Durability                  | Financial savings to owners of LI rental housing as a result of more durable and efficient materials being installed.                                       | ✓          |               |             |
| Reduced Tenant Complaints            | Savings to owners of LI rental housing in terms of staff time and materials as a result of fewer tenant complaints with the more efficient measures.        | ✓          |               |             |
| Rental Unit Increased Property Value | Owner-perceived increased property value due to more energy efficient measures  | ✓          |               |             |
| Arrearages                           | Reduced arrearage carrying costs as a result of customers being more able to pay their lower bills  | ✓          |               |             |
| Bad Debt Write-offs                  | Reduced costs to utility of uncollectable, unpaid balances as a result of customers being more able to pay their lower bills                                | ✓          |               |             |
| Terminations and Reconnections       | Reduced costs associated with terminations and reconnections to utility due to nonpayment as a result of customers being more able to pay their lower bills | ✓          |               |             |
| Customer Calls and Collections       | Utility savings in staff time and materials for fewer customer calls as a result of more timely bill payments   | ✓          |               |             |
| Notices                              | Financial savings to utility as a result of fewer notices sent to customers for late payments and terminations  | ✓          |               |             |
| Safety-Related Emergency Calls       | Financial savings to the utility as a result of fewer safety related emergency calls being made   | ✓          |               |             |

In approving the new RI Test, the Commission directed the Division to prepare a report proposing methodologies that can be used to quantify and monetize the recently-added costs and benefits.<sup>19</sup> The Commission also clarified that qualitative considerations could be used when making final determinations on the cost-effectiveness of efficiency resources.<sup>20</sup> The Commission noted that the RI Test “should not be the exclusive measure of whether a specific proposal should be approved,” and that the RI Test “should serve as a starting point in making a business case for a proposal.”<sup>21</sup> The Commission noted further that

<sup>19</sup> Rhode Island Public Utilities Commission, *Investigation into the Changing Electric Distribution System and the Modernization of Rates in Light of the Changing Distribution System*, Report and Order, Docket 4600, July 31, 2017, page 27.

<sup>20</sup> Rhode Island Public Utilities Commission, *Guidance Document: Goals, Principles, and Values for Matters Involving the Narragansett Electric Company d/b/a National Grid*, October 2017. Available at [www.ripuc.ri.gov/eventsactions/docket/4600A-GuidanceDocument-Final\\_Redline.pdf](http://www.ripuc.ri.gov/eventsactions/docket/4600A-GuidanceDocument-Final_Redline.pdf)

<sup>21</sup> Rhode Island Public Utilities Commission, *Investigation into the Changing Electric Distribution System and the Modernization of Rates in Light of the Changing Distribution System*, Report and Order, Docket 4600, July 31, 2017, page 23.

outside factors many need to be considered, including “statutory mandates or qualitative considerations.”<sup>22</sup>

#### **Principle #4: Ensure Symmetry**

The Rhode Island cost-effectiveness practices have largely been aligned with the principle of symmetry, particularly with respect to participant impacts. This principle requires that if certain categories of costs are included in the analysis (e.g., participant costs), then the benefits associated with those categories should be included as well.

For states that use the TRC Test, which includes participant costs, it can be particularly challenging to account for all participant benefits, especially non-energy benefits. The majority of states that use the TRC test account for participant costs but not participant benefits, resulting in an asymmetrical test.<sup>23</sup> Rhode Island is one of the few states that includes a comprehensive set of participant non-energy impacts, as described in the previous section, thereby ensuring symmetry across participant benefits and costs.

#### **Principle #5: Use Forward-Looking Analysis**

The Rhode Island cost-effectiveness analyses have always been forward-looking, incremental, and long-term. The study period for the cost-effectiveness is twenty years, essentially reflecting the full life of efficiency measures. And the avoided costs from the AESC study are specifically developed to reflect incremental effects, relative to what would occur in the absence of the efficiency programs.

To further assess cost-effectiveness of EE proposals, the EERMC and Commission reviewed a bill impact analysis prepared by National Grid. This bill impact analysis is not the same as a Rate Impact Measure (RIM), because the bill impact analysis is consistent with the principle of using forward-looking analyses, whereas the RIM is not.<sup>24</sup> These bill impact analyses consider the long-term impacts on rates, both the potential increase in rates due to the recovery of lost revenues, and the decrease in rates due to avoided costs. These analyses generally find that (a) the long-term rate impacts of the efficiency programs are very small; (b) customers who participate in EE programs experience bill reductions, despite the small increase in rates; and (c) the vast majority of customers participate in the efficiency programs at one time or another.<sup>25</sup> Taken together, these three findings demonstrate that any rate impacts of the efficiency

---

<sup>22</sup> Rhode Island Public Utilities Commission, *Investigation into the Changing Electric Distribution System and the Modernization of Rates in Light of the Changing Distribution System*, Report and Order, Docket 4600, July 31, 2017, page 23.

<sup>23</sup> ACEEE, 2012. “A National Survey of State Policies and Practices for the Evaluation of Ratepayer-Funded Energy Efficiency Programs.” U122. M. Kushler et al. <http://aceee.org/research-report/u122>

<sup>24</sup> The forward-looking aspect of this principle requires that the Rate Impact Measure (RIM) Test is not used for determining EE cost-effectiveness. The key difference between the RIM Test and the other tests is that the RIM Test includes the lost revenues from efficiency programs as a cost of the program. These lost revenues do not represent a new, forward-looking cost created by the EE resources. Instead, they represent the revenues that need to be collected by the utility to recover the existing fixed costs on the system. These fixed costs have been incurred in the past, and thus are “sunk” costs. According to economic theory, sunk costs should not be included when determining the cost-effectiveness of future investments. See also, National Efficiency Screening Project, *National Standard Practice Manual for Assessing Cost-Effectiveness of Energy Efficiency Resources*, Spring, 2017, Appendix C.

<sup>25</sup> See e.g., National Grid, *2017 Energy Efficiency Plan*, Attachment 7, Bill Impact Analysis, October 2016. Available at: <http://www.ripuc.org/eventsactions/docket/4654page.html>.

programs are not significant enough to raise equity concerns, particularly in light of the large amount of benefits derived from the programs.<sup>26</sup>

## **Principle #6: Ensure Transparency**

The Rhode Island cost-effectiveness practices are very transparent. This is the result of many factors - especially the EE filing requirements, and the stakeholder involvement in the entire EE planning and assessment process.

Each year National Grid files with the Commission an Annual Report, as well as quarterly updates, which provide detail on historic performance of the EE programs, including cost-effectiveness performance.<sup>27</sup> The Company also files with the Commission, for approval, a one-year and a three-year Energy Efficiency Plan, with detail on forecasted future performance of the EE programs, including cost-effectiveness performance.<sup>28</sup> In addition, the EE cost and performance parameters are documented in detail in the Rhode Island Technical Reference Manual,<sup>29</sup> and the avoided costs are documented in detail in the New England AESC Study.

The efficiency planning process in Rhode Island includes several layers of stakeholder input, which helps to provide transparency and open discussion of many aspects of efficiency program design and implementation, including cost-effectiveness. The EERMC has a formal process for reviewing EE program issues, including a statutory requirement to conduct an independent assessment of the cost-effectiveness of National Grid's efficiency programs.<sup>30</sup> The Rhode Island DSM Collaborative meets with the Company on a regular basis to discuss a variety of issues, including cost-effectiveness issues. And the Commission holds hearings and technical sessions to review the efficiency programs and plans, and to ensure that they are cost-effective.

## **Summary**

Rhode Island EE cost-effectiveness practices are currently well aligned with all of the NSPM guiding principles, especially as a result of the recent update to its practices. Table 5 presents a summary of how the practices are aligned with each of the principles.

---

<sup>26</sup> *National Standard Practice Manual for Assessing Cost-Effectiveness of Energy Efficiency Resources*, Spring, 2017, Appendix C.

<sup>27</sup> See e.g., National Grid, *2016 Year-End Report*, May 2017 at: <http://www.ripuc.org/eventsactions/docket/4580page.html>.

<sup>28</sup> See e.g., National Grid, *2017 Energy Efficiency Plan* at: <http://www.ripuc.org/eventsactions/docket/4654page.html>.

<sup>29</sup> See, for example: National Grid, *Rhode Island Technical Reference Manual for Estimating Savings from Energy Efficiency Measures*, 2016 Program Year, October 2016. Available at: <http://www.ripuc.org/eventsactions/docket/4654page.html>.

<sup>30</sup> See, for example: Rhode Island Energy Efficiency and Resource Management Council, *Cost-Effectiveness Report: National Grid's 2018-2020 Energy Efficiency and System Reliability Procurement Plan*, prepared by Vermont Energy Investment Corp and Optimal Energy, submitted to the Rhode Island Public Utilities Commission, September 2017. Available at: <http://www.ripuc.org/eventsactions/docket/4654page.html>.

