Staff Workshop on the PUC’s Docket No. 4600A Guidance Document

Guidance on the Goals, Principles and Values for Matters Involving The Narragansett Electric Company d/b/a National Grid

November 1, 2018
Purpose

• Explain staff’s thoughts for how the Docket 4600 Order and Guidance Document would affect cases

• Provide staff’s responses and reactions to questions

• Identify some issues that might need more development

• Identify some issues that might need more clarity from the PUC
Disclaimer: I am not a Commissioner
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- Some of your questions can only be answered definitively by the Commission.
- Some of the remaining work can only be deemed complete by the Commission.
- Part of the workshop and continuing discussion is figuring out what these things are and the best process to address them.
Terminology

- Docket 4600
- Business case
- Rhode Island Benefit Cost Framework
- Qualified value

- Rhode Island Test
- Regulator’s point-of-view
- Pilot
- Critically linked
Docket 4600

Scope

Determine what to value when setting rates

Increase consistency in regulation and valuation across programs
Scope

- Determine what to value when setting rates
- Increase consistency in regulation and valuation across programs

Report

- Goals for the future electric system
- Benefit Cost Framework
- Rate Design
- Next Steps
Benefit Cost Framework

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Goals for the future electric system

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- Framework
- Use for programs and projects
- Use for rates
- Use for optimization
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- Location strategies to investigate
- Low income & customer protections
- Concepts
- Long-term distr. rate design
Docket 4600

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• Utility business model review
• Functionality and visibility for future energy system
• Develop distribution system planning recommendations
• Beneficial electrification review framework
• Valuing distributed generation
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Recommendations

Accept Report

Adopt Goals, Principles, and Framework and issue Guidance

Low-income rate requirements

Improve Framework

Open Grid Mod. Docket

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**Docket 4600 Report**

- **Goals**
  - Next Steps
    - Utility business model review
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- **Benefit Cost Framework**
  - ✓ Use for programs and projects
  - ✓ Use for rates
  - • Use for optimization
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  - ✓ Principles
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  - • Long-term distr. rate design

**Recommendations**

- **Accept Report**
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- **Low-income rate requirements**
- **Improve Framework**
- **Open Grid Mod. Docket**

**Recommendations**

- ✓ Adopt Goals, ✓ Principles, ✓ Framework and ✓ Issue Guidance
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**Goals**
- ✓ Improve Framework
- ✓ ✓ ✓
Docket 4600

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**Next Steps**
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Order

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Docket
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  - Pilots
  - Delayed applicability

- **Next Steps**
  - Open Grid Mod.
• Order 22851 gave effect to various parts of the report.

• The Guidance Document gave further explanation of the application of certain parts of the Order.

• These are the controlling documents.
Business Case

• Order 22851 in Docket No. 4600:

“…the Framework should serve as a starting point in making a business case for a proposal.”
The Guidance Document describes when a business case is required as part of a legal case.

- New (or incremental) proposals, programs, rate design, or capital spending

- A business case is the justification of a proposal and its costs based on its expected benefits.
There are many ways to interpret “benefits” and “costs.”

Achieving beneficial objectives and goals can be part of a business case.

Implementation of beneficial principles can be part of a business case.

Creating value can be part of a business case.
Business Case

• The *Guidance Document* can clarify, simplify, and standardize how to make the *business case* within a *legal case*.

• The *Framework* can clarify, simplify, and standardize how to make the *value case* within a *business case*.

• Start with Framework values to create evidence.
## RI Benefit Cost Framework

<table>
<thead>
<tr>
<th>Mixed Cost-Benefit, Cost, or Benefit Category</th>
<th>System Attribute Benefit/Cost Driver</th>
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RI Benefit Cost Framework

- Guidance Document: “…significant work still left to be done so that the Framework can be applied in a fully quantitative manner…”

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- My opinion: need for improvement increases in this direction...

...rather than this direction
Value Case and Cost Effectiveness

- Guidance Document and PUC decisions point to using all Framework categories to test for cost-effectiveness and to make a business case.

- This is the regulator’s point-of-view on cost-effectiveness.
Regulator’s Point-of-View

- A participant asks, “Do my benefits outweigh my costs?”
- A program administrator asks, “Do the program benefits outweigh the program costs?”
- A ratepayer asks, “Will the rate decreases outweigh the rate increases?”
- Society asks, “Do the benefits to society outweigh costs to society?”

Framework Value Case
- Cost-effective

Paraphrasing EPA's Understanding Cost-Effectiveness of Energy Efficiency Programs, 2008
A regulator asks, “Do the energy policy benefits outweigh the energy policy costs?”

Framework Value Case

- Cost-effective
Regulator’s Point-of-View

• A regulator asks, “Do the energy policy benefits outweigh the energy policy costs?”

• This question extends to the business case.
Value Case and Cost Effectiveness

- Some sections of statute require additional specific value cases as part of the standard.
- The Framework should be used to create these value cases too.
- These value cases may imply specific sets of costs and benefits, and can differ depending on point-of-view.

Framework Value Case

- Cost-effective
- Less than supply
- Below market
Value Case and Cost Effectiveness

- PUC may use the regulator’s point-of-view for other value cases when statute is not specific

Framework Value Case
- Cost-effective
- Less than supply
- Below market
Value Case and Cost Effectiveness

• RI Test, built on the Framework, is how the Commission determines cost-effectiveness.

• Parties can also provide additional value cases (and from other points-of-view) to support their case.

Framework Value Case

• Cost-effective
• Less than supply
• Below market
• Others – e.g. other cost tests
Value Case and Cost Effectiveness

- Guidance Document: “...if a proposal passes the cost-effectiveness test, it will not automatically be approved if persuasive evidence is presented that, for example, it will be too burdensome on customers in the short term.”

- Consider a proposal that passes the RI Test, with all benefits being societal economic gains.

Framework Value Case

- Cost-effective
- Less than supply
- Below market
- Others – e.g. other cost tests
Value Case and Cost Effectiveness

- To create different value cases, ask "Does this category apply in this context?"

- When I say, "Does this category apply?" I do not mean "Is this category non-zero?"

- I mean "Should this category logically be included in the test (or comparison) being constructed?"

Framework Value Case

- Cost-effective
- Less than supply
- Below market
- Others – e.g. other cost tests
Value Case and Cost Effectiveness

Would…

• a participant
• a ratepayer
• society
• the market
• a regulator

…include the category to answer their objective question?

Framework Value Case

• Cost-effective
• Less than supply
• Below market
• Others – e.g. other cost tests
Value Case and Cost Effectiveness

• If a category applies, the PUC expects the proponent to quantify or qualify that value, even if the value is zero.

• If you believe a proposal has no effect on a certain category, explain why and that you expect the value is zero.

Framework Value Case

• Cost-effective
• Less than supply
• Below market
• Others – e.g. other cost tests
The RI Test is a benefit cost test from the regulator’s point of view.

Every category in the Framework applies.

Some values will be zero because the program or proposal has no effect on that category, but this should be explicitly provided.
When I refer to the “RI Test,” I am referring to:

- A cost-effectiveness test that includes all categories in the Framework presented in a case.
- A test that can change with time as methods improve.
- A test that can change between cases because a different expert was employed.
- A snapshot application of the Framework.
Why do I do this?

• It seems useful to have a name for the test that happens in a docket, and can change from case to case or party to party for a lot of different reasons.

• This seemed useful considering we can also use the Framework for other things.

• The Framework is something the PUC adopted; the Test is something parties present in a case.
Creating Any Value or Cost-Effectiveness Case

Start with a Framework category and ask, “Does the category apply?”

Yes

Can a value for the effect on this category be quantified?

Yes

Can a value for the effect on this category be qualified?

Yes

Is the quantification method for this program or proposal type new?

Yes

• Provide and justify the methodology
• Quantify the value
• Complete, go to the next category

No

• Provide the methodology

No

• Likely unacceptable answer
• Reconsider if category is N/A
• Reconsider if category has undetermined qualified value

No

• Explain why
• Complete, go to the next category

No

• Explain why
Are the qualification factors for this program or proposal type new?

Yes
• Provide and justify the factors

No
• Provide the factors

• Qualify the direction of the value
• Qualify the magnitude of the value
• Complete, go to the next category
Qualitative Factors

- Drivers of benefits and costs
- Identify independent and dependent factors
- Explain basis of each factor and any assumptions
- For each factor, identify direction and magnitude if possible, and identify confidence in each
- Identify order of magnitude or range if possible
- Call out ambiguity
## Qualitative Factors

<table>
<thead>
<tr>
<th>PROS</th>
<th>CONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>This</td>
<td>The Other</td>
</tr>
<tr>
<td>That</td>
<td></td>
</tr>
</tbody>
</table>
Qualifying the Net Direction and Magnitude of Value

• Net direction can have four responses

- Negative
- Neutral
- Positive
- Undetermined

Factors:
- Factor 1
- Factor 2
- Factor 3
- Factor 4
- Factor 5
- Factor 6
- Factor 7
Qualifying the Net Direction and Magnitude of Value

- Net magnitude can be on a continuum, discrete ordering, comparison, or some other metric

- Continuum might use qualitative size or order-of-magnitude
Qualifying the Net Direction and Magnitude of Value

- Net magnitude can be on a continuum, discrete ordering, comparison, or some other metric

- Discrete ordering might use qualitative size or order-of-magnitude too

<table>
<thead>
<tr>
<th>Factor 4</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 5</th>
<th>Factor 6</th>
<th>Factor 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>10^{-2}</td>
<td>10^{0}</td>
<td>10^{2}</td>
<td>Insignificant</td>
<td>Small</td>
<td>Large</td>
<td>Very Large</td>
</tr>
</tbody>
</table>

10^{7} | Undetermined
Qualifying the Net Direction and Magnitude of Value

• Net magnitude can be on a continuum, discrete ordering, comparison, or some other metric

• Comparison might use equality or inequality relationships

Factor 3 ≈ Factor 4 << Factor 1 < Factor 2 ≈ Factor 7 ? Factor 5, Factor 6
Qualifying Value

- Should be done at factor level
- Total net qualitative value is a sort of “sum” of individual factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>Net Direction</th>
<th>Net Magnitude</th>
<th>Value Vector</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-</td>
<td>Small</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>+</td>
<td>Large</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>-</td>
<td>Insignificant</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>+</td>
<td>Insignificant</td>
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<td>5</td>
<td>?</td>
<td>?</td>
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<td>6</td>
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<td>?</td>
</tr>
<tr>
<td>7</td>
<td>+</td>
<td>Large</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
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</table>
Qualifying Value

• It may be possible to enhance both quantified and qualified value by indicating a confidence level
  • Very low
  • Low
  • Medium
  • High
  • Very high

• IPCC Uncertainty Guidance may have useful information
  • Independence of factors
  • Quality of information regarding factors
Valuing Rate Design

• I think the PUC is interested in understanding how new rate design:

  1. Reallocates framework costs and benefits

  2. Creates incremental framework costs and benefits

• Section 2.3.4 of the Stakeholder Report had what I considered a useful draft methodology.
Valuing Rate Design

Reallocates framework costs and benefits

Case 1 – Only consumers on the system

- Assume a cost-based revenue requirement that is fully reconciling.
- Assume the only benefit is the required use of the system and energy.
- Every dollar of cost shifted is a dollar of benefit shifted.

Total system cost: $2000
Total recovery: $2000

Cost: $1000
Charges: $1500

$500 Benefit

Cost: $1000
Charges: $500
Reallocates framework costs and benefits

Case 2 – A consumer and prosumer

- Assume a cost-based revenue requirement that is fully reconciling.
- Assume the only benefit is the required use of the system and energy.
  - Can design rates so that each customer pays their cost

Valuing Rate Design

Total system cost: $1000
Total recovery: $1000

Cost: $1000
Product: $1000
Charges: $0

Cost: $1000
Product: $0
Charges: $1000
Reallocates framework costs and benefits

Case 3 – A consumer and prosumer

• Assume a cost-based revenue requirement that is fully reconciling.
• Assume the only benefit is the required use of the system and energy.
  ➢ Can also design rates so benefits of production are split.

Valuing Rate Design

Total system cost: $1000
Total recovery: $1000

Cost: $1000
Product: $1000
Charges: $500

Benefit: $500

Cost: $1000
Product: $0
Charges: $500
Reallocates framework costs and benefits

Case 4 – Consumers and a net positive PPA

• Assume a cost-based revenue requirement that is fully reconciling.
• Benefits now include proceeds from sale of the PPA products.
  ➢ Can design rates so benefits of PPA are related to use of the system, energy burden risk, best use of incremental revenue, etc.

Valuing Rate Design

PPA Cost $1000
PPA Product: $2000

Benefits

$500 $500
Valuing Rate Design

Creates incremental framework costs and benefits

Case 1 – Increase fixed charges relative to volumetric charges

- This change could affect, for example,
  - energy efficiency adoption,
  - distributed generation adoption, and
  - arrearages.

- Changes in the size of these associated with incremental costs and benefits?
Valuing Rate Design

Creates incremental framework costs and benefits

Case 2 – Time-varying rates

• Advanced meters could have some benefits that are independent of revenue metering.

• Some of the benefits of advanced revenue metering could come from improved efficiency through price signals.

• Meters cannot do that alone; there must be rate design to create these incremental benefits, and some will be more effective than others.

• Rate design and meters could be critically linked.
• Sometimes benefits of one action or technology cannot be achieved without additional actions.

• In these cases, the actions can be tested for cost-effectiveness as a single action.

• This provides transparency on the total costs needed to achieve the total benefits expected.
Critically Linked

• For example, National Environmental Policy Act:

  Actions are connected if they:

  (i) Automatically trigger other actions which may require environmental impact statements.

  (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously.

  (iii) Are interdependent parts of a larger action and depend on the larger action for their justification.
Critically Linked

• Guidance Document goes at least one step further

• Recognizes that some combined actions have dependent and independent elements.

• PUC may review independent elements independently

Cost: $1000
Benefit: $2000

Cost: $200
Benefit: $100

PV

Battery Storage

House
Critically Linked

• If the storage can only charge from the PV system

• And the $2000 in PV system benefits are independent of storage capabilities

• PUC may approve PV system but reject storage element

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Critically Linked

• If the storage can only charge from the PV system

• And the $2000 in PV system benefits requires storage capabilities to shift generation to meet demand

• PUC may approve both elements

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Break