



## Framework for Evaluating Major Initiatives

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January 2011

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# Executive Summary

In October 2008, the Federal Energy Regulatory Commission (Commission) issued Order 719 to improve the operation of organized wholesale electric markets. Among other things, the Order obligated each Regional Transmission Organization (RTO) and Independent System Operator (ISO) to increase responsiveness to customers and other stakeholders, based on four criteria: (1) inclusiveness; (2) fairness in balancing diverse interests; (3) representation of minority positions; and (4) ongoing responsiveness. The Order also directed RTOs to “post on its web site a mission statement or organizational charter” and encouraged “each RTO and ISO to include in its mission statement, among other things, the organization’s purpose, guiding principles, and commitment to responsiveness to customers and other stakeholders, and ultimately to the consumers who benefit from and pay for electricity services.”<sup>1</sup>

ISO New England’s *RTO Responsiveness and Governance Working Group* subsequently formed, with a steering committee composed of the New England Power Pool (NEPOOL), state regulators, consumer advocates, and ISO New England. The recommendations of that working group resulted in ISO New England adding the following language to its mission statement in its Tariff:

*In fulfilling this mission and consistent with the preceding principles, the ISO shall strive to perform all its functions and services in a cost-effective manner, for the benefit of all those served by the ISO. To assist stakeholders in evaluating any major ISO initiative that affects market design, system planning or operation of the New England bulk power system, the ISO will provide quantitative and qualitative information on the need for and the impacts, including costs, of the initiative.*

Given the establishment of this mandate, the ISO engaged *The Brattle Group* to develop initial concepts outlining: (1) criteria to identify which market design and system planning initiatives are “major”; (2) guidelines for developing quantitative and qualitative information for evaluating such major initiatives; and (3) a process for reviewing major initiatives with stakeholders going forward.

ISO New England and *The Brattle Group* developed these concepts and initiated discussion with stakeholders on the initial drafts of the criteria, refining the draft recommendations based on their feedback.

## Summary of Recommendations

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The recommendations summarized in this document are informed by the responses gathered from stakeholders on the three main aspects of information to be provided to stakeholders on major ISO New England initiatives. Namely, this document outlines the criteria and process to identify, evaluate, and initiate stakeholder review of major ISO New England initiatives.

It should be noted that the classification criteria and guidelines outlined in this report are not absolute or immutable. They will evolve over time with experience applying them. Also of note, this assessment focused on the market design and system planning aspects of initiatives—as opposed to operational initiatives—because these areas constitute the vast majority of the ISO’s efforts to develop and implement substantial changes to the system. Further, market design and system planning outcomes ultimately drive the ISO’s bulk power system operations.

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<sup>1</sup> Order No. 719 at P 556

## Classification Criteria to Identify Major Initiatives

Section Two of this document outlines the threshold criteria that must be met for ISO New England market design and system planning initiatives to be considered “major.” This approach establishes a common, set of structured questions and transparent classification criteria to characterize each initiative. The questions and criteria were designed to be relatively easy and objective to answer, thereby offering a straightforward examination of the most important dimensions of each initiative, considering concepts such as:

- Will the initiative affect a large portion of the market or system?
- Is the effort outside of a specifically prescribed requirement mandated by the Commission or the North American Electric Reliability Corporation (NERC)?
- Will the implementation costs for ISO New England and participants likely be large?

The answers to the questions and the application of classification criteria determine whether the initiative is of significant scope and substance to meet the standard for “major” initiatives.

## Guidelines for Evaluating Major Initiatives

For ISO New England initiatives that have been deemed to be “major,” Section Three describes the quantitative and qualitative information ISO New England would provide to stakeholders on those projects. ISO New England plans to prepare and disseminate to stakeholders seven categories of information for each major initiative:

1. Qualitative discussion of the **objective** of the ISO New England initiative
2. Description of the **implications** of the initiative for ISO New England functions, markets, market participants, and Open Access Transmission Tariff (OATT) requirements
3. Quantitative information on the estimated **implementation costs** for ISO New England and implementation costs for participants (if possible)
4. Quantitative information on **direct impacts on affected resources, load, or transmission assets**
5. Additional quantitative information regarding **indirect impacts on markets or reliability**
6. Additional **qualitative information on harder-to-quantify effects**
7. Description of **particular risks of unintended consequences** and how such risks could be mitigated

The categories developed for market design initiatives differ slightly from the categories for system planning initiatives, as described in the body of this report.

## **Process to Review Information on Major Initiatives with Stakeholders**

Finally, Section Four details the process ISO New England plans to follow for reviewing major ISO New England initiatives with stakeholders. This process is designed to ensure that stakeholders have relevant information about ISO New England's proposals before deciding whether or not to support the change.

The goal is to provide useful and timely information and to foster meaningful dialogue with stakeholders, without creating undue delays. This approach should avoid halting work efforts due to repetitive iterations of analysis, minimize attempts to use requests for analyses as a filibuster, reduce risks (cost, market, reliability), help control ISO New England's analytical budget, and enable good project management.

The following five steps reflect the ISO's system planning and market development processes overlaid with its newly recommended process for reviewing information with stakeholders on major initiatives:

- 1. Project Definition/Requirements Gathering**

ISO staff coordinates with internal and external stakeholders to understand the problem through sector meetings, working groups, and ad hoc meetings with participants.

- 2. Analysis and Conceptual Design**

The ISO identifies potential solutions, which are reviewed to ensure that they properly address the problem and are feasible based upon any internal constraints.

- 3. Detailed Design/Solutions**

The ISO works through any identified problems with the conceptual design, further refines the project scope, and updates estimates of the time and effort required to implement the changes.

- 4. Impact Analysis**

The ISO develops and presents the impact analysis on its major initiatives.

### **Revisions to Market Rules or Tariff**

Tariff changes are drafted based on the ISO's design.

One new feature of the Analysis and Conceptual Design phase is that the ISO New England intends to present the problem and potential solutions for major initiatives to the appropriate NEPOOL committee before moving forward to the next activity. The ISO will also determine if initiative is major or minor during this step. In the Detailed Design/Solution phase, stakeholders may raise with the ISO certain assumptions they would like the ISO to incorporate into its impact analysis on the ISO's major initiative.

It should be emphasized that ISO New England's mission statement, and the obligations and processes discussed herein concern only ISO New England initiatives, not alternative initiatives proposed by stakeholders. However, apart from fulfilling its obligations regarding ISO initiatives, ISO New England will also continue to consider analyzing well-developed stakeholder proposals/alternatives, as requested.

## Section Two – Classification Criteria to Identify Major Initiatives

Separate classification criteria described in this document will help to identify major ISO New England market design initiatives and system planning initiatives. The concept of a “major” ISO initiative is one with potentially significant costs and impacts to warrant providing “quantitative and qualitative information on the need for and the impacts, including costs, of the initiative” in accordance with ISO New England’s mission statement.

**Market design initiatives** are those projects that enhance the region’s wholesale electricity markets—such as the energy markets, ancillary service markets, and the capacity market—through competitive market incentives designed to ensure that adequate supply is available to meet demand over the long term. **System planning initiatives** involve long-run forecasting of system conditions, infrastructure needs, and resource adequacy requirements (as implemented through interconnection and cost allocation processes) and the integration of emerging technological solutions.

### A. Market Design Initiatives

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#### A.1. Classification Criteria

In order to determine whether an ISO initiative was “major,” ISO New England and *The Brattle Group* developed necessary and sufficient conditions that help to objectively assess the potential impact, riskiness, and controversy of a given initiative. The initial assessment criteria were later refined based on feedback received from the Markets Committee on August 5, 2010, and are structured as follows:

For an initiative to be extensive and controversial enough to be considered “major,” all of the following three **necessary criteria** must be true:

1. A major initiative must be a *substantial* change, such that the initiative involves a fundamental redesign or a substantial adjustment to an existing design.
2. It must also be *controversial* by directly affecting multiple Participants who have identified an interest in or concern over the issue, or it has been identified by more than one state as important.
3. A major initiative must also be one initiated *outside of a very prescriptive order* by the Commission requiring specific compliance measures.

In addition, in order for the potential impacts to be significant enough for the ISO’s initiative to be considered “major,” it must satisfy at least one of three **additional criteria**:

1. It is a fundamental redesign that bears *significant risks of unintended consequences* (e.g., neither ISO New England nor other similar RTOs have tested something similar to the initiative) and that has potentially large effects on other ISO New England markets or functions.
2. The initiative may have *broad or deep market impact*, as measured by the size of the markets affected and the volume of the resources and/or load that would be directly affected.
3. The initiative would require *large implementation costs* by ISO New England or Participants.

The following tables describe the necessary and additional criteria for identifying major market design initiatives.

**Necessary Criteria for “Major” Market Initiatives**  
(All must be true for the initiative to be a candidate for “major”)

Necessary Criteria	Question	Assessment
<b>Necessary Criterion 1</b>  <i>Significant Change—</i> “fundamental” or “substantial adjustment” to market design	<b>1. How extensive is the initiative?</b>  (a) Fundamental redesign (b) Substantial adjustment to existing design (c) Implementation of existing design principles (including conforming changes)	Answering “a” or “b” to Question 1 is required to satisfy <i>Necessary Criterion 1</i> .
<b>Necessary Criterion 2</b>  <i>Not following a prescription in a Commission Order—</i> Outside of a specifically prescribed requirement mandated by a Commission Order <sup>2</sup>	<b>2. Is the initiative outside of a specifically prescribed requirement mandated by a Commission Order?</b>  (a) Yes (b) No, following a prescription in the Order	Answering “a” to Question 2 is required to satisfy <i>Necessary Criterion 2</i> .
<b>Necessary Criterion 3</b>  <i>Controversial—</i> Multiple participants are affected and interested or States say it’s “key”	<b>3. Participants directly affected</b> Measures how many sectors the initiative would directly affect, classified as:  (a) <u>Small</u> : One sector of Participants (b) <u>Moderate</u> : Two or three sectors of Participants (c) <u>Large</u> : Four to six sectors of Participants	To satisfy <i>Necessary Criterion 3</i> , the following is required:  Answering “b” or “c” to Question 3 and answering “b” or “c” to Question 4  <b>-or-</b> Answering “c” to Question 5
	<b>4. Participants identified their interest in the initiative as a key issue (either supporting or in opposition)</b> Measures how many sectors (using number of voting members as weights) indicated their interest/concerns with the initiative, classified as:  (a) <u>Small</u> : One sector of Participants (b) <u>Moderate</u> : Two or three sectors of Participants (c) <u>Large</u> : Four to six sectors of Participants	
	<b>5. Have the states identified the initiative as a key policy issue?</b>  (a) No (b) Yes, one state (c) Yes, more than one state	

<sup>2</sup> A Commission Order is considered “prescriptive” for the purpose of this document if it describes what specific steps, rule changes, or design changes ISO New England is required to follow. By contrast, a Commission Order is considered to be “not prescriptive” if it only describes general guidelines or objectives for ISO New England, letting ISO New England and its participants choose among potentially multiple approaches to meet those guidelines or objectives. A past market design initiative that was introduced to comply with prescriptive Commission Orders includes long-term transmission rights.

**Additional Criteria for “Major” Market Initiatives**  
**(At least one of these and all of the necessary criteria must be true**  
**for the initiative to be “major”)**

Additional Criteria	Question	Assessment
<b>Additional Criterion 1</b>  <i>Risky (little experience, interconnected)—</i> Fundamental redesign and little experience and impacts other markets or other functions	<b>1. How extensive is the initiative?</b>  (a) Fundamental redesign (b) Substantial adjustment to existing design (c) Implementation of existing design principles (including conforming changes)	To satisfy <i>Additional Criterion 1</i> , the following is required:  Answering “a” to Question 1  <b>-and-</b>  Answering “a” or “b” to Question 6  <b>-and-</b>  Answering “c” to Question 7 or answering “c” to Question 8
	<b>6. How well-tested is the initiative here or in other regions for success and/or unintended consequences?</b> Assesses whether ISO New England, or any other RTO with a market design similar to ISO New England, has had substantial experience in designing and implementing the initiative. For the purpose of this criterion, RTOs with similar market designs are PJM, Midwest ISO (MISO), New York ISO (NYISO), and California ISO (CAISO). Possible choices for this criterion are:  (a) <u>None</u> : Neither ISO New England nor other RTOs with similar market design have adopted the initiative. (b) <u>Limited</u> : At least one RTO has implemented the initiative for less than 1 year. (c) <u>Substantial</u> : At least one RTO has implemented the initiative for more than 1 year.	
	<b>7. Likely consequences for other markets in ISO New England</b> Estimated indirect impact of the initiative for other markets (where markets include but not limited to energy, capacity, regulation, reserves, Financial Transmission Rights (FTRs)) is classified into the following two categories:  (a) No/little impact (b) Moderate impact (c) Potentially large impact (with a short description of the potential impacts)	
	<b>8. Likely consequences for other ISO New England functions</b> Estimated impact of the initiative for other ISO New England functions (where functions are Market Design, System Planning, and System Operations) is classified into the following two categories:  (a) No/little impact (b) Moderate impact (c) Potentially large impact (with a short description of the potential impacts)	



<b>Additional Criterion 2</b>  <i>Broad/deep market impact (large market with moderate impact or smaller market with large impact)</i>	<b>9. Size (value) of the market(s) where the initiative is being introduced</b> Total value (in dollars) of the market(s) directly being changed; classified into the following three categories using roughly 5% and 20% of total value of the energy, ancillary services and capacity markets in ISO New England (about \$8 billion in 2009) as thresholds:  (a) <u>Smaller market</u> : ≤ \$400 million (b) <u>Moderate size market</u> : > \$400 million and ≤ \$1.6 billion (c) <u>Large market</u> : > \$1.6 billion	Satisfying <i>Additional Criterion 2</i> requires answering “c” to Question 9 and either:  Answering either “b” or “c” to Question 10  <b>-or-</b>  Answering either “b” or “c” to Question 11 and “b” to Question 12  - - - - -  An alternative means to satisfy <i>Additional Criterion 2</i> requires answering “b” to Question 9 and either:  Answering “c” to Question 10  <b>-or-</b>  Answering “c” to Question 11 and “b” to Question 12
	<b>10. Volume added/disqualified as a result of initiative</b>  (a) <u>Small</u> : ≤ 320 MW (1% of resources) (b) <u>Moderate</u> : > 320 MW and ≤ 3200 MW (c) <u>Large</u> : > 3200 MW (10% of resources)	
	<b>11. Volume whose revenues, costs, risks or incentives are significantly and directly affected</b>  (a) <u>Small</u> : ≤ 320 MW (1% of resources) (b) <u>Moderate</u> : > 320 MW and ≤ 3200 MW (c) <u>Large</u> : > 3200 MW (10% of resources)	
	<b>12. How substantial are the likely changes to revenues, costs, risks or incentives for the affected resources or load</b>  (a) Small (b) Large	
<b>Additional Criterion 3</b>  <i>Large implementation costs— For ISO New England or Participants</i>	<b>13. ISO New England implementation cost</b> Estimated capital cost to ISO New England for implementing the initiative classified into the following three categories using 1% and 10% of ISO New England capital budget (about \$25 million in 2009) as thresholds:  (a) Small: ≤ \$250 thousand (b) Moderate: > \$250 thousand and ≤ \$2.5 million (c) Large: > \$2.5 million	Satisfying <i>Additional Criterion 3</i> requires:  Answering “c” to Question 13  <b>-or-</b>  Answering “b” to Question 14
	<b>14. Significant stakeholder implementation cost</b> Have many stakeholders indicated a high implementation cost?  (a) No (b) Yes	

## B. System Planning Initiatives

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### B.1. Classification Criteria

For determining which ISO New England system planning initiatives are “major,” ISO New England and *The Brattle* Group developed classification criteria similar to those for market initiatives. Initial drafts of the recommended classification criteria were presented to the Reliability Committee on September 20, 2010, and the assessment criteria was refined based on stakeholder feedback.

For a system planning initiative to be extensive and controversial enough to be considered “major,” all of the following three **necessary criteria** must be true:

1. A major initiative must be a *substantial* change, such that the initiative involves a fundamental change or a substantial adjustment to criteria or parameters.
2. It must also be *controversial* by directly affecting multiple participants who have identified and interest in or concern over the issue, or it has been identified by more than one state as important.
3. A major initiative must also be one initiated *outside of a very prescriptive order* by the Commission requiring compliance.

In addition, for the ISO New England initiative’s potential impacts to be significant enough for the initiative to be considered “major,” it must satisfy at least one of five **additional criteria**:

1. It is a fundamental change that bears *significant risks of unintended consequences* (e.g., neither ISO New England nor other similar RTOs have tested something similar to the initiative) and that has potentially large effects on other ISO New England functions.
2. The initiative may have *broad affects*, as measured by the volume of the resources, transmission and/or load that would be directly affected.
3. The initiative includes *compensating actions to maintain system reliability*,
4. It would require *large implementation costs* by ISO New England or Participants.
5. The initiative causes *significant cost shifts* among New England stakeholders.

The following tables describe the necessary and additional criteria for identifying major planning initiatives.

**Necessary Criteria for “Major” Planning Initiatives**  
**All must be true for the initiative to be a candidate for “major”**

Necessary Criteria	Question	Assessment
<b>Necessary Criterion 1</b>  <i>Significant change—</i> Fundamental change or substantial adjustment to criteria or parameters	<b>1. How extensive is the change proposed in the initiative?</b>  (a) Fundamental change in planning processes, NPCC/NERC requirements, or tariff (b) Substantial adjustment to criteria or parameters (c) Not a significant change -- just implementation of existing principles (including conforming changes) or routine implementation of an established, periodic process	Answering “a” or “b” to Question 1 is required to satisfy <i>Necessary Criterion 1</i> .
<b>Necessary Criterion 2</b>  <i>Not simply compliance with a prescriptive requirement from FERC or NERC—</i> Outside of a specifically prescribed requirement mandated by FERC or NERC <sup>3</sup>	<b>2. Is the initiative outside of a specifically prescribed requirement mandated by FERC or NERC?</b>  (a) Yes (b) No, following a prescription in the requirement	Answering “a” to Question 2 is required to satisfy <i>Necessary Criterion 2</i> .
<b>Necessary Criterion 3</b>  <i>Controversial—</i> Multiple participants are affected and interested or States say it’s “key”	<b>3. Participants directly affected by the initiative and identified it as a key issue</b>  (a) <u>Small</u> : One sector of Participants (b) <u>Moderate</u> : Two-three sectors of Participants <u>Large</u> : Four-six sectors of Participants	To satisfy <i>Necessary Criterion 3</i> , the following is required:  Answering “b” or “c” to Question 3
	<b>4. Have the states identified the initiative as a key policy issue?</b>  (a) No (b) Yes, one state (c) Yes, more than one state	<p style="text-align: center;">-or-</p> Answering “c” to Question 4

<sup>3</sup> In this question, a FERC order or NERC requirement is considered “prescriptive” if it describes what specific steps, rule changes, or design changes that ISO New England is required to follow. In contrast, it is considered to be “not prescriptive” if it only describes general guidelines or objectives for ISO New England, and lets ISO New England and its participants choose among multiple approaches to meet those guidelines or objectives. Some past system planning initiatives that were introduced to comply with prescriptive FERC orders include standardized generator interconnection changes (Order 2003) and certain planning orders (Order 890).

**Additional Criteria for “Major” Planning Initiatives**  
**At least one of these and all of the necessary criteria must be true**  
**for the initiative to be “major”**

Additional Criteria	Question	Assessment
<b>Additional Criterion 1</b>  <i>Risk of unintended consequence—</i> Fundamental change and little experience and impacts other functions	<p><b>1. How extensive is the change proposed in the initiative?</b></p> <p>(a) Fundamental change in planning processes, NPCC/NERC requirements, or tariff</p> <p>(b) Substantial adjustment to criteria or parameters</p> <p>(c) Not a significant change -- just implementation of existing principles (including conforming changes) or routine implementation of an established, periodic process</p> <hr/> <p><b>5. How well-tested is the initiative here or in other regions for success and/or unintended consequences?</b></p> <p>(a) <u>None</u>: Neither ISO New England nor other RTOs have adopted the initiative.</p> <p>(b) <u>Limited</u>: At least one RTO has implemented the initiative for less than 1 year.</p> <p>(c) <u>Substantial</u>: At least one RTO has implemented the initiative for more than 1 year.</p> <hr/> <p><b>6. Likely consequences for other ISO New England functions (Market Design and System Operations)</b></p> <p>(a) No/little impact</p> <p>(b) Moderate impact</p> <p>(c) Potentially large impact (with a short description of the potential impacts)</p>	<p>To satisfy <i>Additional Criterion 1</i>, the following is required:</p> <p>Answering “a” to Question 1</p> <p style="text-align: center;"><b>-and-</b></p> <p>Answering “a” or “b” to Question 5</p> <p style="text-align: center;"><b>-and-</b></p> <p>Answering “c” to Question 6</p>
<b>Additional Criterion 2</b>  <i>Broad effects</i>	<p><b>7. MW of load, generation or transmission capacity that are substantially and directly affected by the initiative per year</b></p> <p>(a) <u>Small</u>: ≤ 320 MW (1% of resources)</p> <p>(b) <u>Moderate</u>: &gt; 320 MW and ≤ 3200 MW</p> <p>(c) <u>Large</u>: &gt; 3200 MW (10% of resources)</p>	<p>Answering “b” or “c” to Question 7 is required to satisfy <i>Additional Criterion 2</i>.</p>
<b>Additional Criterion 3</b>  <i>Actions to maintain system reliability—</i> Includes compensating actions within the initiative to maintain reliability	<p><b>8. Does the initiative require other actions to be taken to maintain reliability?</b></p> <p>Assesses whether ISO New England is likely to have to adjust planning or operational parameters or otherwise take actions to maintain reliability. For example, if the initiative expands the reliance on wind generation in New England, ISO New England may have to procure larger amounts of regulation and other ancillary services in order to maintain reliability.</p> <p>(a) No</p> <p>(b) Yes</p>	<p>Answering “b” to Question 8 is required to satisfy <i>Additional Criterion 3</i>.</p>

<p><b>Additional Criterion 4</b></p> <p><i>Large implementation costs—</i> For ISO New England or Participants</p>	<p><b>9. ISO New England implementation cost</b> Estimated capital cost to ISO New England for implementing the initiative classified into the following three categories using 1% and 10% of ISO New England capital budget (about \$25 million in 2009) as thresholds:</p> <p>(a) <u>Small</u>: ≤ \$250 thousand (b) <u>Moderate</u>: &gt; \$250 thousand and ≤ \$2.5 million (c) <u>Large</u>: &gt; \$2.5 million</p> <hr/> <p><b>10. Are there significant stakeholder implementation cost</b> Have a majority of stakeholders indicated a high implementation cost?</p> <p>(a) No (b) Yes</p>	<p>Satisfying <i>Additional Criterion 4</i> requires:</p> <p>Answering “<b>c</b>” to Question 9</p> <p><b>-or-</b></p> <p>Answering “<b>b</b>” to Question 10</p>
<p><b>Additional Criterion 5</b></p> <p><i>Cost shift—</i> There is a significant change in the allocation of costs among New England stakeholders</p>	<p><b>11. Does the initiative result in a significant change in the allocation of costs among New England stakeholders?</b></p> <p>(a) No (b) Yes</p>	<p>Answering “<b>b</b>” to Question 11 is required to satisfy <i>Additional Criterion 5</i>.</p>

## Section Three – Guidelines for Evaluating Major Initiatives

As indicated earlier in this document, ISO New England’s mission statement creates an obligation for it to provide stakeholders “quantitative and qualitative information on the need for and the impacts, including costs” of the ISO’s major initiatives. This section provides suggested guidelines for developing such information for each major market design and system planning initiative.

Initial drafts of the recommended guidelines for evaluating major market design initiatives and system planning initiatives were presented to the Markets Committee on October 14, 2010 and to the Reliability Committee on November 17, 2010.

### A. Analytical Tools

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#### **Process to Adopt or Develop New Analytical Tools for Providing the Necessary Information**

A broad range of models and customized analyses are generally needed to evaluate the full spectrum of initiatives. Relatively simple, transparent analyses may be more helpful and credible for stakeholders than full-blown benefit cost analyses using complex models. For example, for the ISO’s major planning initiatives, a well-calibrated load-flow simulation model with capability to analyze multiple contingencies may be useful. At other times, resource adequacy models—such as GE-MARS and the Westinghouse Capacity Model—could provide beneficial information, or perhaps even a spreadsheet model with robust capability to determine charges to each customer and payments to each provider of transmission services based on cost allocation and compensation formulas.

These findings suggest that ISO New England can most effectively fulfill its obligations by developing a portfolio of tools and resources over time, as needed when proposed initiatives arise, rather than investing in major modeling platforms in anticipation of potential future applications. In the process of developing these tools and analyses for specific ISO initiatives, there will be opportunities for participants to provide input on assumptions that ISO New England will consider as part of its analysis, as described in Section Four.

#### **Limits of Simulation Models**

Some stakeholders may expect ISO New England to attempt to conduct a comprehensive cost-benefit analysis of major ISO initiatives, based largely on energy market simulation modeling. Market simulation models are often used in cost-benefit analyses. They are most useful for evaluating how specific changes in supply, demand, or transmission affect prices and generation patterns. Such models may be called for in certain evaluations ISO New England conducts.

However, such models are unlikely to be able to provide the kind of information stakeholders need to evaluate the impacts and costs of most ISO initiatives, for the following reasons:

- 1. Complexity and opacity**

Energy market simulation models are highly granular, requiring highly detailed data inputs and panoply of assumptions. The detail can provide richness, but it can also appear as a black box when presented to diverse stakeholders with different levels of modeling expertise and differences in opinions on assumptions. Simpler models may be more idealized, but they may be more useful for quickly informing diverse groups.

- 2. Model limitations**

In spite of the granularity of energy market simulation models, there are many important

effects that they do not capture (even if they may appear to be comprehensive).

- a. *No capacity market module*: market simulation models only calculate short-term energy market equilibrium, given the available supply. They are blind to the interactions between the energy market and capacity markets, as well as effects on investment and retirement over time.
- b. *Idealized market participant behavior*: market simulation models generally do not provide insight to how market design initiatives will affect bidding behavior.
- c. *Idealized market operations*: market simulation models generally do not capture intra-hour dynamics, inefficiencies in managing loop flows, or many of the other subtleties that initiatives are designed to address.

### 3. **ISO New England data limitations**

ISO New England has little or no information on many of the data inputs needed for conducting simulations of future years, especially Market Participants' long-term investment and retirement decisions. Further, ISO New England is unlikely to be able to determine how a market initiative would affect such private business decisions. ISO New England's role is not to guess or plan such decisions, but rather to set up the market with the right signals so that market participants can make economically efficient decisions on their own. For example, locational marginal pricing clearly provides better short- and long-term signals than zonal pricing, but an ISO introducing Locational Marginal Pricing (LMP) should probably not even try to predict how much capacity of which types developers will add at which nodes.

Pertinent information can be provided to stakeholders, however, to guide their decision making. The following section describes how ISO New England and The Brattle Group have captured the types of qualitative and quantitative information it will provide through a variety of appropriate modeling tools.

## **B. Market Design Initiatives**

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### **Categories of Information to be Provided for Each Major Initiative**

1. Qualitative discussion of the **objective** of the initiative.
  - a. What need is not being met (or not being met as well as it could be) in the absence of this initiative?
  - b. The economic principles supported by the initiative are also provided in this category.
2. Description of the **implications** of the initiative for ISO New England functions and markets and for market participants.
3. Quantitative information on the estimated **implementation costs** for ISO New England and participants (if possible)
4. Quantitative information on **direct impacts on affected resources or load** (e.g., MW and MWh affected, frequency of effect)
5. Additional quantitative information regarding **indirect impacts on markets**, depending on the nature of the initiative:
  - a. Metrics would ideally include estimated future impacts on market prices, customer costs, producer surplus, and total surplus, both in the short-term and long-term. Where doing so would be prohibitively impractical, speculative, expensive, or time-consuming, ISO New England should explain why. ISO New England should at least provide illustrative

analyses, backcast-based analyses (which may be indicative of future impacts), and a discussion of directional effects in both the short-term and the long-term.

- b. Analyses may involve the use of market analysis tools, the definition of base case and relevant scenarios, and the development of key assumptions and key data inputs (see discussion below about energy market simulation models). When possible, ISO New England should provide stakeholders with spreadsheet-based tools they can use to analyze future impacts based on their own assumptions.
  - c. The need for rigorous analysis may be greater for initiatives that are costly to implement or impose substantial costs on market participants.
6. Additional qualitative information on **harder-to-quantify effects** (*e.g.*, effects on competition)
  7. Description of particular **risks** of unintended consequences and how such risks could be mitigated.

## C. System Planning Initiatives

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### Categories of Information to be Provided for Each Major Initiative

1. Qualitative discussion of the **objective of** the initiative.
  - a. What need is not being met (or not being met as well as it could be) in the absence of this initiative?
2. Description of the **implications** of the initiative for ISO New England functions and markets and for market participants, as well as for OATT language.
3. Quantitative information on the estimated **implementation costs** for ISO New England and participants (if possible)
4. Quantitative information on **direct impacts on affected resources, transmission assets and load** (*e.g.*, MW and MWh affected, frequency of effect, changes in allocation of transmission costs to groups of participants)
5. Additional quantitative information regarding **reliability impacts** (*e.g.*, changes in Loss of Load Probability (LOLP), changes in need for local resources providing regulation and spinning reserves)
6. Additional qualitative information on **harder-to-quantify effects** (*e.g.*, accelerating new entry, effect of new transmission on competition)
7. Description of particular **risks** of unintended consequences and how such risks could be mitigated.



## **Section Four – Process to Review Information on Major Initiatives with Stakeholders**

This section provides ISO New England's recommended process for dissemination of qualitative and quantitative information on its major market design and system planning initiatives. This process is designed to ensure that stakeholders have relevant information about the ISO's proposals before deciding whether or not to support the change. The goal is to provide timely information and have meaningful dialogue with stakeholders, but not create undue delays. This approach seeks to minimize attempts to use requests for analyses as a delay tactic, reduce risks (cost, market, reliability), control the budget, and enable good project management.

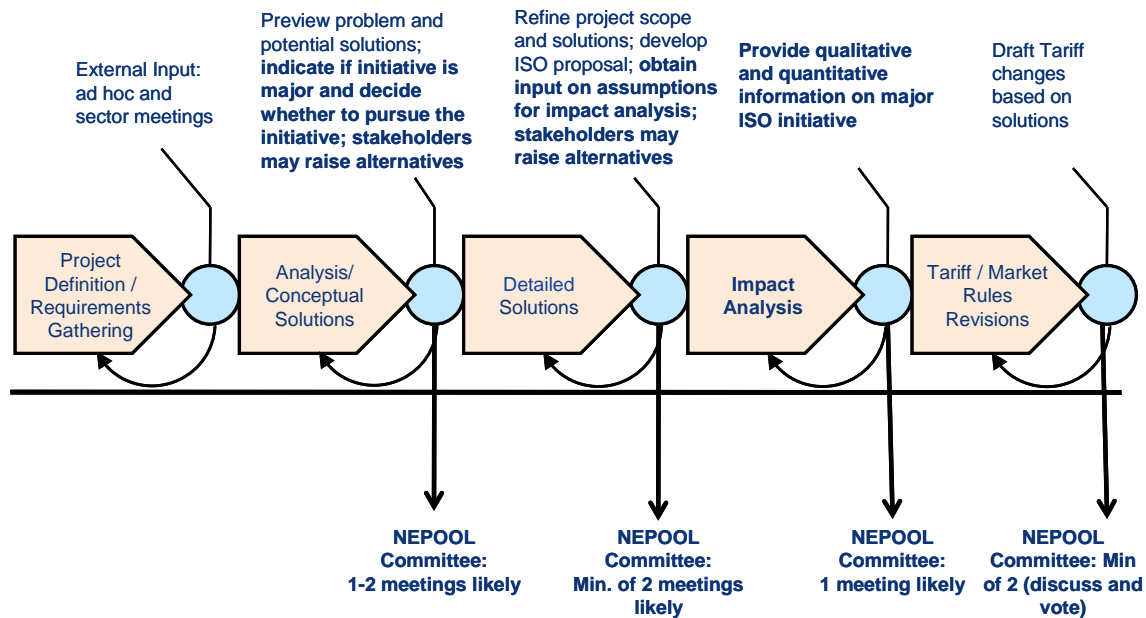
This proposed process includes at least two additional meetings with stakeholders (an analysis/conceptual design meeting and an impact analysis meeting) for review of major initiatives in addition to the existing process normally followed by the ISO New England.

As an adjunct approach to this proposed process for reviewing information on major initiatives, ISO New England is planning to consider any stakeholder alternatives to the ISO's major initiatives. Providing an analysis on alternative initiatives proposed by stakeholders is not part of the ISO's mission statement, but the ISO understands sometimes alternatives may be offered against one of its major initiatives and the ISO will generally consider that information in the steps outlined below to potentially incorporate that into its workflow.

ISO New England expects that at least eight months would be needed to complete the process for design, stakeholder review, and a ruling by the Commission on ISO's initiatives. This minimum duration is based on two months for initial ISO analysis and design, four months for New England Power Pool (NEPOOL) committee review, and two months for Commission filing and ruling. For a major initiative, at least two more months would be potentially needed, and even more may be typical. It should be noted that this schedule does not include the time required by the ISO to implement the proposed changes, which can add anywhere from 3-18+ months, depending upon the complexity of the changes. The timing for these steps may be more compressed in certain circumstances depending on limiting constraints of Commission Orders and filings.

An illustration of the proposed process comprising the five steps for review of information on ISO New England's major market design initiatives is provided below, followed by descriptions of each of these five steps. The items in bold reflect the changes or additions to the existing stakeholder process to identify and provide information on ISO New England's initiatives.

## A. Proposed Development Timeline to Review Information on Major Initiatives



### 1. Project Definition / Requirements Gathering

In this first step, the ISO New England Market Development team coordinates with internal and external stakeholders to understand the problem through sector meetings, working groups, and ad hoc meetings with participants. This process involves:

- Gathering data related to problem,
- Understanding requirements of the solution, and
- Performing causal analysis

Once the problem is understood, ISO New England identifies potential impacts to reliability, other markets or products, ISO business units, and participants. It is important to define the scope of the problem and solution at this stage.

### 2. Analysis and Conceptual Design

In this step, the Market Development team works to identify potential solutions, which are reviewed to ensure that they properly address the problem and are feasible based upon any internal constraints.

One new feature of the review process for major initiatives is that the ISO New England will present the problem and perhaps some conceptual solutions to the appropriate NEPOOL committee before moving forward to the next activity. ISO New England does this already with certain other projects and will continue to do so.

As another new feature for major initiatives, the ISO New England will apply the criteria from Section Two to determine if the initiative is major or not. ISO New England will then discuss its finding and reasoning at the first NEPOOL committee on its initiative. Additionally, if stakeholders seek to develop an alternative solution, the notion should be raised during this discussion. Based on the analysis and discussion during this phase, ISO New England also decides whether to pursue the initiative.

### **3. Detailed Design**

In this step, ISO New England works through any identified problems with the conceptual design, further refines the project scope, and updates estimates of the time and effort required to implement the changes.

At this stage, the NEPOOL committee often sees the initial presentation on a topic as an actual ISO proposal. It would represent at least the second meeting for discussing a major initiative, and ISO New England expects that often multiple NEPOOL committee meetings will have been held at this point in the process for major initiatives.

As a new feature for major initiatives, stakeholders who want ISO New England to consider certain assumptions in its impact analysis for a major ISO initiative should raise them at this meeting. This will occur *before* the ISO begins the impact analysis, which will take place in Step Four below. However, ISO New England will endeavor to describe the structure of the impact analysis and what some of the categories of assumptions will be so that stakeholders can provide their input accordingly.

If stakeholders did not notify the ISO New England and NEPOOL of a potential alternative solution, this meeting provides the next opportunity to present their design for an alternative solution to a major ISO initiative at this step. An additional meeting may be warranted in that case to fully discuss such alternatives. If a well-developed alternative is presented at the meeting, and the ISO perceives substantial support for the ISO to provide qualitative and quantitative information on the alternative, it will consider and try to accommodate the request. It should be noted that this is not a requirement under the new mission statement change adopted under the Commission's Order 719.

### **4. Impact Analysis**

In this step, ISO New England plans to present its impact analysis on its design at the NEPOOL committee for system planning initiatives. Further design discussion may also take place at this meeting.

Different initiatives will require different analysis and assumptions, but the ISO New England will share its rationale for the particular analysis. Additionally, if the ISO New England determined that it would provide qualitative and quantitative information on a well-developed alternative proposal, it will seek to present that analysis along with the analysis of its own major initiative. ISO New England will attempt to provide comparative information where feasible.

### **5. Revisions to Market Rules or Tariff**

Tariff changes are drafted based upon the ISO's design. This includes reviewing references and definitions to ensure that all appropriate updates have been made.

Once Tariff changes have been reviewed and approved internally, they are presented to the NEPOOL committee for review and discussion. ISO New England prefers to work with participants to discuss revisions/ suggestions prior to the vote on the changes, since the changes made on the day on the vote do not follow the normal internal review process and ISO controls. If an alternative is being pursued by stakeholders, Tariff changes should be drafted and presented.

Tariff changes are then voted at the next meeting by the NEPOOL Committee before going to the Participants Committee for consideration.

# APPENDIX – Examples of Information Provided for Specific Major Initiatives

## A. Examples Presented to Stakeholders at the October 2010 Markets Committee Meeting

### Market Initiative Example 1: APR Changes for OOM Resources

Type of Information	Potential Metrics and Analyses	Pros for this Analysis	Cons for this Analysis	ISO may Assess?
Direct Impact	Total MW of OOM resources in the past auctions	Actual data, not speculative	Not predictor of future OOM	Yes, likely
Direct Impact	When/whether APR adjustment would have applied in past auctions	Clarifies the rule change by providing an application	None	Yes, likely
Indirect Impact	Effect APR would have had on supply curves and clearing prices in re-pricing past auctions	Uses actual bidding data provides a historic illustration	Not predictor of future market conditions	Yes, likely
Indirect Impact	Market-clearing prices in future auctions	Helps participants in planning decisions	Too speculative	No, not likely
Indirect Impact	Effect on new entry in future auctions	Helps participants in planning decisions	Too speculative	No, not likely

### Market Initiative Example 2: Enabling Demand Resources to Set Energy Prices

Type of Information	Potential Metrics and Analyses	Pros for this Analysis	Cons for this Analysis	ISO may Assess?
Direct Impact	How much DR might qualify (by zone) to set clearing prices in real-time	Provides rough magnitude of eligible resources under a specific proposal	Resource capabilities may change in future	Yes, likely
Direct Impact	Market clearing mechanics in a quantitative example	Clarifies initiative	None	Yes, likely
Indirect Impact	Effect on historical LMPs	Uses actual market data to illustrate possible impacts	Does not predict future LMP impacts	Yes, likely
Indirect Impact	Effect on future RT energy and ASM prices	Could inform potential effect on scarcity pricing, load costs, and generator/DR revenues	Too speculative w.r.t. future bids and system conditions; expensive modeling effort	No, not likely
Qualitative	Effect on market competition	Could inform market monitoring needs	Not a quantitative prediction of future market outcomes	Yes, likely

## B. Examples Presented to Stakeholders at the December 2010 Reliability Committee Meeting

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### Planning Initiative Example 1: Changing Calculation of Tie Benefits

	Information Provided
Objective	Establish a methodology for determining the right level of tie-benefits considering reliability requirements and economic factors
Implications	Affects NICR used in FCM
Implementation Costs	Minimal
Direct Impacts	$\Delta \text{NICR} = - \Delta \text{TB}$ . Amount to be determined
Indirect Impacts	Capacity Cost Impact, estimated emergency purchases as NICR changes, emergency procurement costs
Indirect Impacts not Quantified	<p>LOLE Impact: no impact if TB methodology respects transmission and operational limits</p> <p>Capacity Price Impact from NICR Changes: could simulate the capacity market with alternative NICR levels, but doing so requires speculative assumptions about retirement, entry, bidding, cost structures, and other factors affecting clearing prices. The price impact of lower NICR is likely to be partially mitigated by retirement of marginal capacity resources that can't afford environmental upgrades if prices are low.</p> <p>Energy Price Impact: Changes in long-term energy prices can be expected to be offset, more or less, by changes in capacity prices, assuming a competitive market in which suppliers bid their avoidable going-forward cost not covered by energy margins.</p>

### Planning Initiative Example 2: FCM Queue Redesign

	Information Provided
Objective	FERC required the ISO to file "a mechanism that will ensure generators meet an intra-zonal deliverability test in order to qualify as an ICAP resource". The initiative sought to improve the coordination between the requirements of the FCM and the current FERC-approved Generator Interconnection Process through a specific stakeholder process.
Implications	Affects Schedule 22/23 of the Tariff (Generation Interconnection procedures) as well as Market Rule 1 (FCM qualification)
Implementation Costs	Moderately expensive (Extensive stakeholder meetings led by ISO-NE staff with analysis and design options; warranted significant preparation of participants' positions)
Direct Impacts	Increased financial deposits at various stages of generator interconnection study to increase the certainty that projects in the Interconnection Queue are serious about moving forward. New ISO-NE processes to provide for both a "Capacity" Interconnection and "Energy" Interconnection (i.e. Interconnection Agreement; Tracking in CAMS/SMS/FCTS). New Rules within FCM qualification for conditionally qualified resources and changes to auction software to allow conditionally qualified resources to participate. Modifications to the interconnection process to provide an opportunity for long lead-time technologies to secure their interconnection space.
Indirect Impacts	Impact to transmission solution studies by energy-only generators
Indirect Impacts not Quantified	<p>Impacts to prices in FCM.</p> <p>Impacts to Generation Queue order</p>

### Planning Initiative Example 3: PP9 Standardize Substation Design

	Information Provided
Objective	Create standardized guidelines for design of substation bus arrangements that support and promote the reliability of the New England Transmission System. Current systems were not easily comparable. Note: The development of a guidelines document was initiated by the TO Executive Group in response to discussions regarding appropriate substation design and potential over-building.
Implications	Design needed to consider potential implementation issues due to concerns that standard design practices may not always be appropriate and/or the guidelines won't be followed without a linkage between the newly proposed planning procedure (PP-9) and the regional system planning and transmission cost allocation processes..
Implementation Costs	Minimal (stakeholder meetings/TO WG meetings/ISO-NE System Planning staff)
Direct Impacts	Clear direction during the RSP solutions development process on what are acceptable practices that will ensure there is a less likelihood of gold-plating a transmission project. Best practices and guidelines established and the need to ensure they are up-to-date going forward (maintain PP9).
Indirect Impacts	Affects on transmission cost allocation review. Deviation(s) from standard design practices may result in additional engineering to ensure applicability.
Indirect Impacts not Quantified	Utilities' abilities to accommodate future expansions may be affected by the initiative thereby causing additional engineering work and costs.