Attachment B

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NYISO Capacity Market Assessment

ICAP Working Group

August 28, 2014

Overview

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- **The NYISO is evaluating potential wholesale market changes to address fuel assurance, resource diversity/ performance, investment incentives**
- **Options under review include changes to the capacity market structure**
  - **Forward capacity procurement**
  - **Advanced retirement notification**
  - **Multi-year price lock-in**
- **NYISO also considering other market rule changes focused on incentives for performance, fuel assurance**

Overview

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- **Analysis Group (AG) has been asked to assess the potential changes to the capacity market through a qualitative and quantitative analysis**
- **AG will evaluate possible market changes through qualitative review and (where possible) quantitative impact analysis**
  - **Qualitative review will summarize potential benefits and drawbacks of changes to the market**
  - **Impact analysis will compare new market design option(s) versus "but-for" world (assuming no changes)**
    - **Assess differences in clearing prices, revenues to generators, costs to load**
    - **Review implications for resource/fuel mix and performance, reliability, environmental policy**
    - **Include assessment of impact of design changes on investment costs/incentives**
  - **Assessment will also include an estimate differences in costs and resources required to implement alternative capacity market design**

Topics for Today

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- Changes under consideration by NYISO
- Context for AG workproduct
- Metrics of modeling/analysis
- AG's initial thoughts on modeling approach
- Testing of variability and uncertainty through scenarios/sensitivities
- Data needs
- Schedule and workproduct

Changes Under Consideration

Challenges

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- **Uncertainty of revenues for investment in new system capacity resources**
  - Short-term capacity markets
  - Short-notice retirements, possible growth in need to sustain uneconomic capacity needed for reliability
  - Declining sales (e.g., due to increases in energy efficiency, grid-connected renewable resources, distributed generation)
  - Lower margins (e.g., due to lower natural gas prices)
- **Potential retirements of existing capacity**
- **Fuel assurance**
  - Increased reliance on gas-fired capacity
  - Potential impacts of natural gas delivery system constraints
  - Oil availability, deliverability under stressed winter conditions
- **Uncertainty in siting transmission projects**

Goals

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- **Improve reliability from resource adequacy and system security perspectives:**
  - Provide sufficient advanced notice of system needs (new generation, transmission)
  - Allow for orderly exit of uneconomic capacity, reduce/avoid need for contracts
  - Improve stability of financial incentives for new investment
  - Enhance incentives for resources to be available and perform when needed (operational performance, fuel certainty)

Market Design Alternatives

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- **Forward Capacity Market****
  - Voluntary auctions Y-5, Y-4
  - Residual auction (if needed) Y-3
  - Reconfiguration auctions (Y-2, Y-1, monthly?)
  - Exit notification at Y-3
  - 7-year "lock-in" of market price for new resources
- **Other changes may be considered to provide incentives for performance**
  - (Not reviewed in AG's analysis)

(based primarily on NYISO's 2009 FCM design discussions with its stakeholders)**

Impact Modeling

Purpose of Assessment

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- **All metrics evaluated as *differences* between the potential capacity market changes described above, and the status quo**
- **Purpose – inform NYISO & stakeholder deliberations**
  - Review challenges facing region, rationale for considering market changes
  - Qualitatively assess how changes could affect market and resource outcomes
  - Review potential benefits and drawbacks associated with changes
  - Quantify the magnitude of impacts where possible, discuss others directionally/qualitatively
  - Provide conclusions, recommendations based on research and analysis

Evaluation Metrics

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- **Some metrics quantitative, from model outcomes, supplemental analysis – measured as *differences* in:**
  - Capacity market prices
  - Costs to load, revenue to generators
  - Resource mix, fuel mix, emissions
  - System average performance
  - Initial cost to implement changes and change in annual costs to administer market
- **Others are qualitative, flow from interpretation of quantitative results and/or supplemental analysis**
  - System reliability, resistance to fuel-supply disruption
  - Climate for new investment, economic retirement
  - Stability, predictability of energy and capacity market prices
  - Ability to manage increased variability in load from growth in grid-scale and behind-the-meter generation

Modeling Method

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- **A comparison of two futures, *all else equal***
  - **Status quo**
    - Current capacity market structure
  - **Potential alternative capacity market structure, including:**
    - Forward capacity market
    - Forward retirement notice
    - Price lock-in
- **What changes?**
  - **Unit net going-forward costs, affected by differences in cost of capital, assessment of risk**
  - **To the extent that the potential alternative structure leads to differences in a unit's net going-forward costs, it would change the unit's offer in the capacity market, relative to the status quo**

Modeling Method

- **End result – two different capacity market supply curves, *possibly* leading to different capacity market outcomes**
  - **Clearing prices, quantities**
  - **Cost to load, revenues to resources**
  - **Resources that clear, do not clear**
  - **Fuel and resource mix**
  - **System average performance**
- **Secondary analyses, observations, conclusions flow from these results**

Modeling Structure, Inputs

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- **Scope – not a market forecast; rather, static model of possible *differences* in capacity market outcomes in a future year (2020), under various assumed conditions**
- **Scenarios**
  - Test sensitivity to variations in load, fuel prices, resource addition/attrition, industry/policy context
  - Test sensitivity of results to variations in key modeling assumptions
  - Will need to select a manageable number of scenarios that capture potential range of results
- **Key data to be used**
  - Estimates of unit variable costs
  - Estimates of unit fixed costs and investment costs (CONE for new units, expected upgrades or compliance investments for existing)
  - Expected operations and market revenues

Workproduct, Schedule

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- **Workproduct expected: Report, supporting summary materials**
- **Schedule**
  - **August, September**
    - Finalize modeling approach, collect needed data, establish modeling inputs
    - Finish model construct, identify scenarios and sensitivities
  - **September**
    - Interview ISO-NE, PJM to gather information on cost to administer various capacity market designs
  - **October**
    - Generate results, prepare report

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