Update – Scenario Process: Stakeholder Comments and Revisions to the Process

December 19, 2006 Stakeholder Meeting

ISO new england

Recap Since Last Meeting

- Purpose: Educate - and provide information to -- policy makers and stakeholders about regional electric system issues
- Kick-off stakeholder meeting – November 9, 2006
  - ISO-NE overview of proposed “strawman” Scenario Process
  - Participation by State Officials, Market Participants, Non-Governmental Organizations
  - Comments provided at and after the meeting
    - Comments address process elements, technical issues
- Steering Committee weighs comments, develops revised proposal
- Today’s objective is to describe and discuss revisions to approach

Issues, Feedback and Revisions

Issue	Strawman approach	Feedback	Proposed approach
# and design of scenarios	5 options Common 2,600 MW Vary by 5,400 MW of: • "the queue" • nuclear • clean coal • natural gas • renewables and energy efficiency	Add various new scenarios (e.g., EE, large hydro, DG)	Add many new scenarios: • Blend (as in the "queue") • Demand side: 50% EE and 50% DR • Supply side: – renewable energy (wind, PV, biomass, etc.) and DG – nuclear – coal – new gas (dual-fueled) – imports of hydro or low-emission resources

With use of sensitivity analysis to compare various combinations of assumptions

Issues, Feedback and Revisions (cont.)

Issue	Strawman approach	Feedback	Proposed approach
Character of scenarios	Use of "boundary" cases – to examine "what if" expansion path focused in one direction or another (e.g., all coal expansion case, or all EE)	Use different bundles of technologies, to model more "realistic" blends and expansion plans	Work within "boundary case" approach to: • illustrate direction of key impacts • elucidate key differences (where variations across blends are more subtle) • avoid ISO 'choosing' a preferred mix.

We recognize that this will require careful discussion of what the scenario process does and doesn't study, and why.

Issues, Feedback and Revisions (cont.)

Issue	Strawman approach	Feedback	Proposed approach
Load levels	Use a single load level in a future year (i.e., 35,000 MW) Each scenario involves incremental resources (8,000 MW): • supply side, or • demand side	Use different multiple load levels in future years, to capture changes over time; use no load growth with different resource options	Expand on strawman to include more sensitivity analyses across all scenarios

The demand-side scenario, with “more EE and DR” sensitivities, will show “what if reduced peak and energy”

Issues, Feedback and Revisions (cont.)

Issue	Strawman approach	Feedback	Proposed approach
# and range of sensitivity analyses to study	Change in: • relative fuel prices • emission allowance prices • load level • system load factor • Clean coal: with and without carbon sequestration.	Consider array of sensitivities (e.g., load level, with and without more energy efficiency, etc.)	Add array of sensitivities, applied to all scenarios: • fuel prices • more EE/DR • unit retirements • higher carbon allowance prices • amount of energy purchases • load factor - derived from EE/DR cases

Issues, Feedback and Revisions (cont.)

Issue	Strawman approach	Feedback	Proposed approach
Treatment of resource investment costs	Provide information about revenues from various markets	Add information to compare full costs of resource options	Add step to compare revenues in markets against range of investment costs (from public-domain literature)
Modeling "externality impacts" of options	Provide metrics that relate only to electric system impacts	Compare life cycle costs, effects beyond electric impacts (e.g., jobs)	In Phase 1, focus on electric system impacts, but provide output in format that can be used by others at a later date.

Issues, Feedback and Revisions (cont.)

Issue	Strawman approach	Feedback	Proposed approach
# of years in the study	Comparison of options in a single horizon year	Conduct year-by-year analysis of stream of costs and benefits, with net present value analysis.	Continue use of a single horizon year for comparing options using variety of metrics – in light of ISO internal resource constraints, and goal of the process to inform policy decisions rather than develop an "optimal" plan.

Issues, Feedback and Revisions (cont.)

Issue	Strawman approach	Feedback	Proposed approach
# of zones modeled in New England	Single zone ('bus') system	Use of multiple zones and/or LMPs, to capture locational subtleties of options	Given complexities of siting assumptions and data analysis and results, retain single zone system. Assume market signals will encourage siting resources in import congested locations. Assume transmission plans also mitigate congestion.

Issues, Feedback and Revisions (cont.)

Issue	Strawman approach	Feedback	Proposed approach
Treatment of transmission costs across cases	Use of simplified (high-level) transmission cost analysis (using $/mw-mile approach)	Use of more highly differentiated zonal analysis with transmission expansions and cost differences across cases	Use of high-level transmission cost analysis is consistent with goal of informing policy makers on generic resource cases, rather than for site-specific transmission and generation studies.

Issues, Feedback and Revisions (cont.)

Issue	Strawman approach	Feedback	Proposed approach
Are emissions or MWH output from blend of resources allowed to violate policy or law (e.g., RPS requirements, EE targets, or carbon cap)?	Model each scenario without regard to imposing constraints, and review whether the constraints are violated as part of analysis	Use modeling technique that imposes certain conditions as constraints (e.g., dispatch generation such that carbon cap may not be exceeded).	Review impacts on metrics without imposing constraints, to explore the extent to which different scenario put pressure on policy goals, statutory requirements.

Issues, Feedback and Revisions (cont.)

Issue	Strawman approach	Feedback	Proposed approach
What capacity factor to use for different resource options (e.g., wind)	Assume 20% of wind capacity qualifies.	Various opinions about the appropriate capacity factors to use for different technologies	Work with PSPC to develop appropriate technical assumptions for capacity factors.

Stakeholder Process Comments

ISO new england

Analysis Issues – Technical Challenges

- Process designed to obtain stakeholder input on key assumptions, data and technical analysis issues
- Stakeholders may suggest approaches for enhancements of analyses
  - Some may be easy to incorporate
  - Some may require additional studies, research
- Implications of decisions to address certain technical issues/modify analyses
  - Some may have workload impacts, requiring choice about allocation of attention
  - Some may cause certain scenarios to move at different pace.

Stakeholder Process Issues

- Need for working groups
  - ISO-NE will work with established technical committees to seek additional technical support
  - Additional Scenario Analysis working groups to be formed to assist ISO-NE
- Sessions with public officials
  - Periodic meetings to be held with New England Conference of Public Utility Commissioners (NECPUC) and environmental regulators

Stakeholder Metric Issues

- Metrics are a means of measuring and comparing the results of scenario analyses
  - Different scenarios analyzed with their certain impacts (outcomes) tracked
  - Metrics allow for comparison of different scenarios
  - Many metrics will be relevant for policy makers; others of interest may be difficult to calculate
- Process to identify and pick metrics
  - Some are automatic products of tools
  - Other will be identified by stakeholders
    - New Stakeholder Metric Working Group
    - ISO to solicit participation by representatives of technical committees