Objectives for today

- Refine focus from region to state
- Detail IRP process and recommendations
- Discuss issues of Politics vs. Policy
Framework for the 2010 Plan – Policy Issues

• Planning to Address Broader “Needs”
  - Reliability, Environment, Cost, Security
  - Vision of the Long Term informing actions for the next decade

• Integrated Assessments To Seek Best Solutions

• Be Proactive to Address Needs on A Timely Basis
  - Procurement and Planning

• Clear Near-Term Action Plan with Milestones and Signposts
  - Will need a careful balancing of politics and policy requiring actions by the legislature, DPUC and energy entities in Connecticut

• What trade-offs are necessary to make in choosing a Plan?
• Can the market provide what Connecticut wants in its Plan?
• What does Connecticut need to do now to enable the recommended Plan?
Integrated Resource Planning Components

Key Objectives (“Challenges”)
- Maintain Reliability
- Manage Costs
- Meet Environmental Requirements
- Secure Supplies

Key Drivers
- Natural Gas Supply
- Renewable Policy
- Carbon Policy
- NOx Emissions
- Resource Finance
- Load & Demographics

Resource Options
- DSM
- Renewables
- CHP
- Repowering
- Transmission
- Imports
- Emerging Technologies
- Nuclear
Key Findings and Recommendations: Resource Adequacy

Key Findings

- With DSM and renewables to meet RPS under current ISO-NE load assumptions there is no resource adequacy need in CT (defined under ISO-NE Forward Capacity Market) through 2030
  - CT load expected to recover slowly leading to limited required investment in electric resources for strict reliability needs.
  - Resource Adequacy tests show CT surplus of requirements through the period (EDC retirement case);
  - Added retirements: With NEEWS, CT OK. Without NEEWS, up to 2,000MW of that capacity needed in Connecticut.

- Significant exposure to retirements over next 5 to 20 years especially oil and coal plants if/when carbon tax comes on line could have different outcomes (5800 MW of additional capacity in New England)
Key Findings and Recommendations: DSM

- All Achievable Cost Effective Energy Efficiency (ACE) offers quantifiable environmental benefits - saves on RECS - Lowers RNS costs.

![Bar chart showing energy sources and costs]

<table>
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<tr>
<th>Energy Source</th>
<th>Levelized Cost</th>
<th>Medium Transmission Adder ($1500/kW)</th>
<th>High Transmission Adder ($3500/kW)</th>
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<td>10.00</td>
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Key Findings

- CT RPS requirements increase significantly by 2020 (20% of CT MWh)
- Limited in-state potential requires CT to seek supplies outside CT (NE/NY) to most cost effectively meet CT RPS
- Regional renewables may require substantial transmission investments
- Under Current RPS statute:
  - Pursue a regional strategy to meet RPS by
- CT should evaluate the impact of reducing RPS targets based on the cost of meeting RPS
Key Findings and Recommendations: Transmission

Key Findings

• Transmission Costs are increasing:
  - $4 B “T” investment in ISO-NE during 2002-2009
  - $5 B “T” investment planned over next 5 years in ISO-NE
  - RNS rates expected to increase from .5 cents/KWh in 2005 to expected 2.5 cents/KWh by 2015 in real terms

• Process: Alternatives assessment needs to be more cost effective and better integrated with ISO process, including a fresh look at proper roles for CEAB/DPUC and CSC.
Key Conclusions and Recommendations: Environmental

Key Findings

- Environmental goals are an essential component of energy planning.
- NOx emissions reductions is a key near-term challenge.
- CO2 emissions reductions is a key long-term challenge economy-wide and to the electric sector.
- Existing generation faces significant costs to comply with NOx emissions and water cooling issues.
- Increasing EE funding (5%), renewables in state (2%) and nuclear (about 10% per 1000MW) all may be needed to be deployed to capture the potential to mitigate emissions.
- The complex and cross sector nature of environmental issues requires integration through comprehensive energy planning coordinated with key stakeholders.
Key Conclusions and Recommendations: Generation and Repowering

Key Findings

- CT has 2,700 MW of aging fossil fired generation capacity nearing retirement and under a carbon regime much of this will be gone.
- Challenges for continued operation include age, NOx and water regulations, and poor market economics.
- Generation sites exist with key locations in CT power system.
- CT and NE Coal units challenged to continue in a cap & trade world beyond 2020.
Key Conclusions and Recommendations: Nuclear

Recommendations
• Despite nuclear power’s hurdles (in particular waste and cost), its potential to achieve meaningful carbon emissions reductions is compelling to support on-going assessment
  - Initiate CEAB sponsored study on nuclear power
  - Create a CEAB nuclear power subcommittee to monitor industry signposts
  - CEAB should request periodic DEP updates on waste issue
  - Convene a stakeholder workshop to reassess and update any changes when conditions warrant (Case nuclear study currently underway)
Key Conclusions & Recommendations: CHP

Key Findings

- Retrofit potential for small scale use is limited: some potential for commercial applications with high reliability requirements e.g. hospitals
- Large scale retrofit faces challenges related to proximate steam uses and large capital requirements
- CHP has its most technical potential in new development over a long term horizon
- Harvesting CHP and District Heating/Cooling potential requires integration of issues beyond power procurement such as economic development policy and changes to building codes

Recommendations

- Determine CHP potential beyond retrofit opportunities through study of best potential sites in concert with local and municipal district heating and cooling
- Reclassification of CHP with fuel cells as Class I renewable
Key Conclusions and Recommendations: State Support for Integrated Resource Planning

- IRP process is valuable and effective for electric planning
  - Should be the starting point for any energy policy initiatives
  - Implementation requires comprehensive statutory interpretation and will require policy changes and legislative solutions
  - This is a legitimate IRP—fully integrated, fully vetted by all stakeholders and at a significant cost to all of us who are electric ratepayers so…. we better use it to our best advantage. To that end, CEAB will continue the communication process with the next governor, legislators, regulators and stakeholders for successful implementation of the plan