New England (ISO-NE) Electric Regions

This map was created using Platts PowerMap.
Overview

Geography

States covered: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont

Reliability region: ISO New England (ISO-NE) sub-region of the Northeast Power Coordinating Council (NPCC)

Balancing authority: ISO-NE

Load zones: Connecticut, Maine, New Hampshire, Rhode Island, Vermont, Northeastern Massachusetts and Boston (NEMA), Southeastern Massachusetts (SEMA) and Western/Central Massachusetts (WCMA).

RTO/ISO

ISO-NE (established 1999) operates the region's power grid and wholesale electric markets:

- Energy market: two-settlement (day ahead and real-time) spot market with locational marginal pricing (an internal hub, eight load zones and more than 500 nodes),
- Interim mechanism for acquiring installed capacity,
- Forward reserves market,
- Regulation market, and
- Financial transmission rights market.

ISO-NE 2006 State of the Markets Report
Market Monitor: Hung-Po Chao – Internal Market Monitor

Updated August 3, 2007
Generation/Supply

Marginal fuel type: natural gas

Generating capacity (summer 2006): 30,895 MW

Very little new generation has been brought on line recently in New England. The ISO states that if this trend continues the region could begin to experience reliability issues as early as 2007-2008.

Capacity reserve (summer 2006): 2,768 MW (declining)

Reserve margin (summer 2006): 10% (declining)

Demand

All time peak demand: 28,127 MW (set August 2, 2006)

In summer of 2006, demand reached record levels on several occasions due to extremely hot weather.

Peak demand growth: 4.6% (2005-2006)

<table>
<thead>
<tr>
<th>Date</th>
<th>Summer Peak Demand (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>24,116</td>
</tr>
<tr>
<td>2005</td>
<td>26,885</td>
</tr>
<tr>
<td>2006</td>
<td>28,127</td>
</tr>
</tbody>
</table>

*Source: Derived from ISO-NE Data*

Load pockets: Southwest Connecticut, Southeastern Massachusetts (SEMA), and Northeastern Massachusetts and Boston (NEMA).
Prices

Annual Average Price (RTO Day-Ahead Mass Hub)

2004: $53.72/MWh
2005: $78.54/MWh
2006: $60.94/MWh

Prices increased in 2005 as a result of disturbances to the natural gas market. Prices declined in 2006 as natural gas storage levels remained above historical ranges throughout the injection season (April through October).

Interconnections/Seams

Coming soon
Focal Points

**Market Upgrades:** In October 2006, the New England Independent System Operator (ISO-NE) enhanced its ancillary services market. It upgraded its forward reserve market to include a locational component to co-optimize the dispatch of energy and reserves and to allow demand resources to bid their resources directly into the energy and reserve markets. ISO-NE also implemented real-time pricing for regulation service.

**Connecticut Power Line:** Due to tight supplies and transmission constraints, southwestern Connecticut has higher congestion costs than other load zones. In summer 2006, as in previous summers, Connecticut had to use emergency resources to meet peak loads and reliability requirements. In October 2006, the Bethel-Norwalk 345-kV transmission line became operational. This line is a part of a two-phase project to improve reliability and increase import capacity for southwest Connecticut.

**Cold Snap Procedures:** Effective Dec. 8, 2006, the ISO implemented a set of procedures to be used during extreme winter weather conditions. Procedures include moving the operating day up by three hours; improving communication protocols and timelines for generators concerning fuel procurement; increasing coordination with the gas industry to ensure adequate pipeline availability; asking dual-fuel generators to switch to a non-gas fuel; and notifying load-response programs to be prepared to interrupt operations.
## Supply and Demand Statistics for ISO-NE

### Supply Demand Statistics

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer Generating Capacity MW</td>
<td>31,143</td>
<td>31,083</td>
<td>30,895</td>
</tr>
<tr>
<td>Summer Peak Demand MW</td>
<td>24,116</td>
<td>26,885</td>
<td>28,127</td>
</tr>
<tr>
<td>Summer Reserves MW</td>
<td>7,027</td>
<td>4,198</td>
<td>2,768</td>
</tr>
<tr>
<td>Summer Reserve Margin:</td>
<td>29%</td>
<td>16%</td>
<td>10%</td>
</tr>
<tr>
<td>Annual Load (GWh):</td>
<td>132,517</td>
<td>136,355</td>
<td>120,828</td>
</tr>
<tr>
<td>Annual Net Generation GWh</td>
<td>129,459</td>
<td>131,874</td>
<td>117,359</td>
</tr>
</tbody>
</table>

Footnote (1)/ "Generating Capacity" is actually generator capacity + firm purchases & sales.
Yearly Average of RTO DA Prices -- All Hours

<table>
<thead>
<tr>
<th>Annual Average Day Ahead Prices ($/MWh)</th>
<th>2005</th>
<th>2006</th>
<th>4 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass Hub</td>
<td>$78.54</td>
<td>$60.94</td>
<td>$61.03</td>
</tr>
<tr>
<td>Maine load zone</td>
<td>$70.82</td>
<td>$57.15</td>
<td>$55.81</td>
</tr>
<tr>
<td>NEMA (Boston) load zone</td>
<td>$79.84</td>
<td>$60.61</td>
<td>$61.18</td>
</tr>
<tr>
<td>Connecticut load zone</td>
<td>$83.15</td>
<td>$67.28</td>
<td>$64.44</td>
</tr>
</tbody>
</table>

Source: Derived from the ISO-NE data.
Daily Average of ISO-NE Day-Ahead Prices - All Hours

Source: Derived from ISO-NE data.
Daily Average of ISO-NE Day-Ahead Prices - All Hours

Source: Derived from ISO-NE data.

Updated December 7, 2007
Eastern Daily Bilateral Day-Ahead On-Peak Prices

Source: Derived from Platts data.

Updated December 7, 2007
Implied Heat Rates at Eastern Trading Points

Source: Derived from Platts data

Updated December 7, 2007
Weekly Electric Generation Output and Temperatures
New England

Source: Derived from EEI and NOAA data.

Updated December 7, 2007
New England Electric Forward Price Curve and New York and Henry Hub Natural Gas Forward Curves

Source: Derived from Nymex data.

Updated December 7, 2007
New England Forward and Swap Volumes

Source: Derived from ICE and Nymex ClearPort data. ICE on-peak forward (physical) and swap (financial) volumes are for the Nepool Mass Hub and include monthly, dual monthly, quarterly, and calendar year contracts traded for each month. Nymex ClearPort on-peak swaps (financial) volume are for the ISO-NE Internal Hub traded by month.

Updated December 7, 2007
PJM, NYISO and ISO-NE Capacity Prices

Source: Derived from PJM, NYISO and ISO-NE data

Update: October 22, 2007
Hourly Real-Time Prices at Long Island (NYISO) and Connecticut (ISO-NE)
Summer 2006 and 2007 (July and August)

Source: Derived from NYISO and ISO-NE data.

R-squared: 2006 0.6997 2007 0.7245
LI-CT Avg. price difference: 2006 48.84 2007 7.40
Number of Hours Long Island Minus Connecticut is < $0 2006 269 2007 703

Created November 5, 2007
Hourly Prices at Long Island (NYISO) and Connecticut (ISO-NE) Summer 2006 and 2007 (July and August)

Source: Derived from NYISO and ISO-NE data.

R-squared: 2006 0.6997 2007 0.7245
LI-CT Avg. price difference: 2006 48.84 2007 7.40
Number of Hours Long Island Minus Connecticut is < $0 2006 269 2007 703