Procuring Demand-Side Resources

Appendix to "Requests for Proposals Pursuant to D.P.U. 15-37"

November 13, 2015

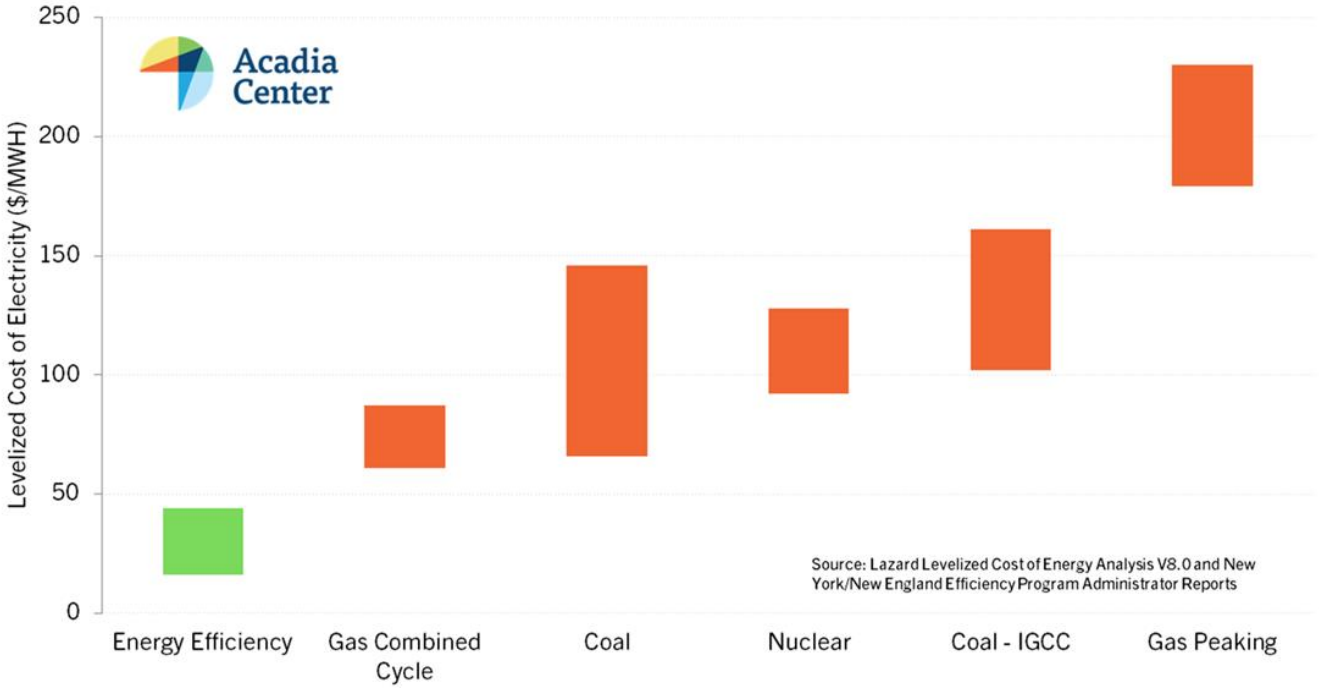
Acadia Center

Advancing the Clean Energy Future

Energy Efficiency and Demand Reductions Are Cost-Effective

New England's investments in energy efficiency have already proven to be valuable in winter: without the demand reductions achieved since 2000, ratepayers would have paid an additional $1.46B in winter 2014 alone.[1] Moreover, efficiency in Massachusetts will cost around 4.5c/kWh in 2016-2018[2] – over three times cheaper than winter 2014, when the average price of wholesale supply jumped; well under half the cost of residential standard offer prices for this coming winter;[3] and by far the most cost-effective resource we have.

Cost of new electricity supply vs. energy efficiency



[1] Acadia Center's analysis of price and demand benefits of efficiency in ISO-NE demonstrated that in the winter of 2014, without savings from electric efficiency procurement, demand would have been 13.7% higher, wholesale electricity prices 24% higher, and electricity costs $1.46 billion higher. Acadia Center, Winter Impacts of Energy Efficiency In New England, April 15, 2015, available at: http://acadiacenter.org/document/winter-impact-electric-efficiency.

[2] 2016-2018 Draft EEIP, filed with DPU October 30, 2015, Term Sheet, Appendix D. Available at: http://ma-eeac.org/wordpress/wp-content/uploads/Exhibit-1-Gas-and-Electric-PAs-Plan-2016-2018-with-App-except-App-U.pdf.

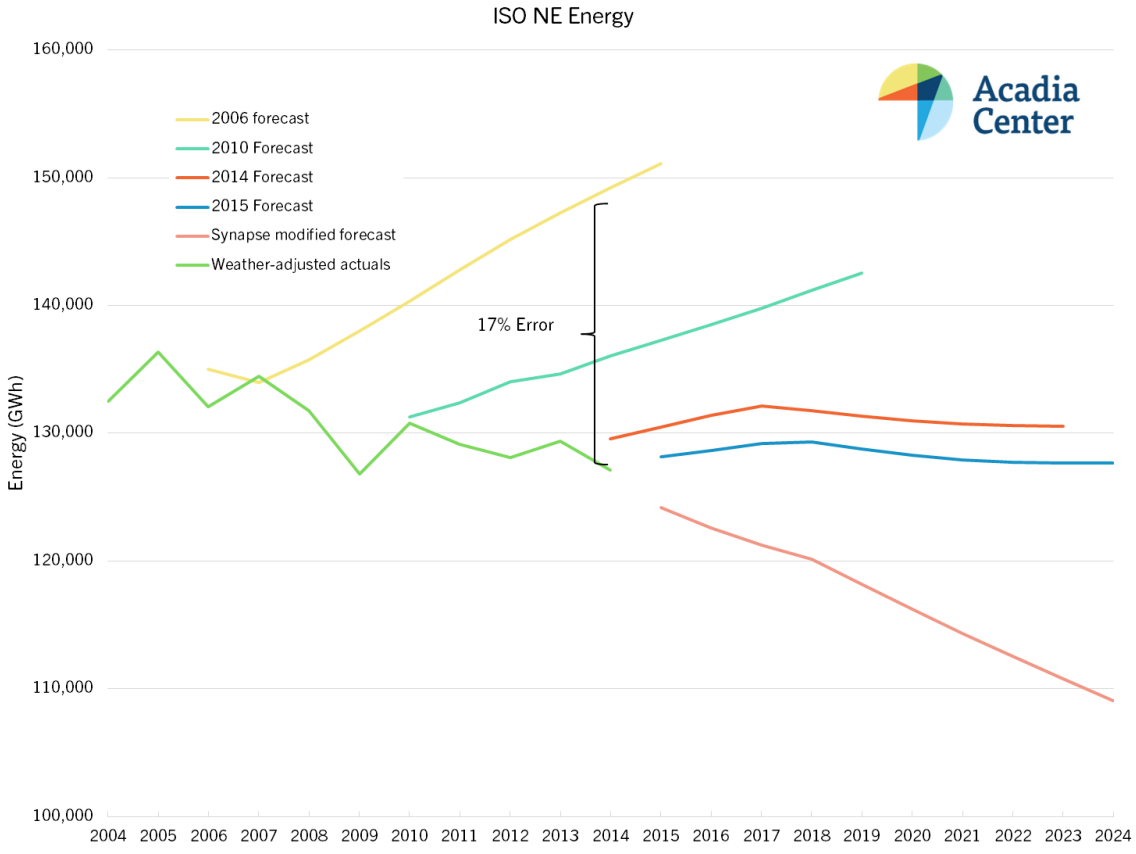
[3] Eversource's winter rates are set at 10.394 c/kWh, with National Grid's at roughly 13c/kWh. *See, e.g.* http://www.gazettenet.com/news/specialcoverage/goinggreen/19214881-95/eversource-requests-winter-rate-hike-for-electricity-which-is-substantially-less-than-last-year

As the above chart demonstrates, efficiency procurement, even at levels that far exceed the Massachusetts energy efficiency programs, is far less expensive than purchasing new supply. Demand-side resources also offer other unique benefits that often make them the superior economic choice to any new supply-side energy resources. For example, passive demand resources can often provide both summer and winter peak shaving benefits, while new natural gas capacity will likely impact only winter peak prices.

Reduced demand also avoids new capital investments in lines, substations and power plants. In 2012, ISO-NE began conducting an annual forecast of the New England states' existing and planned energy efficiency investments to determine the impact on forecasted demand and the need for additional transmission. This forecast has led ISO-NE to project near zero growth in annual energy usage across the region and even negative annual energy usage in several New England states. Energy efficiency investments in the region have caused ISO-NE to indefinitely defer at least 10 planned regional transmission upgrades in Massachusetts and Vermont that would have cost ratepayers an estimated $416 million. Because energy efficiency and other demand-side resources help optimize grid costs, benefits like savings on infrastructure should factor into the evaluation of the relative costs of resources that the Commonwealth has available.

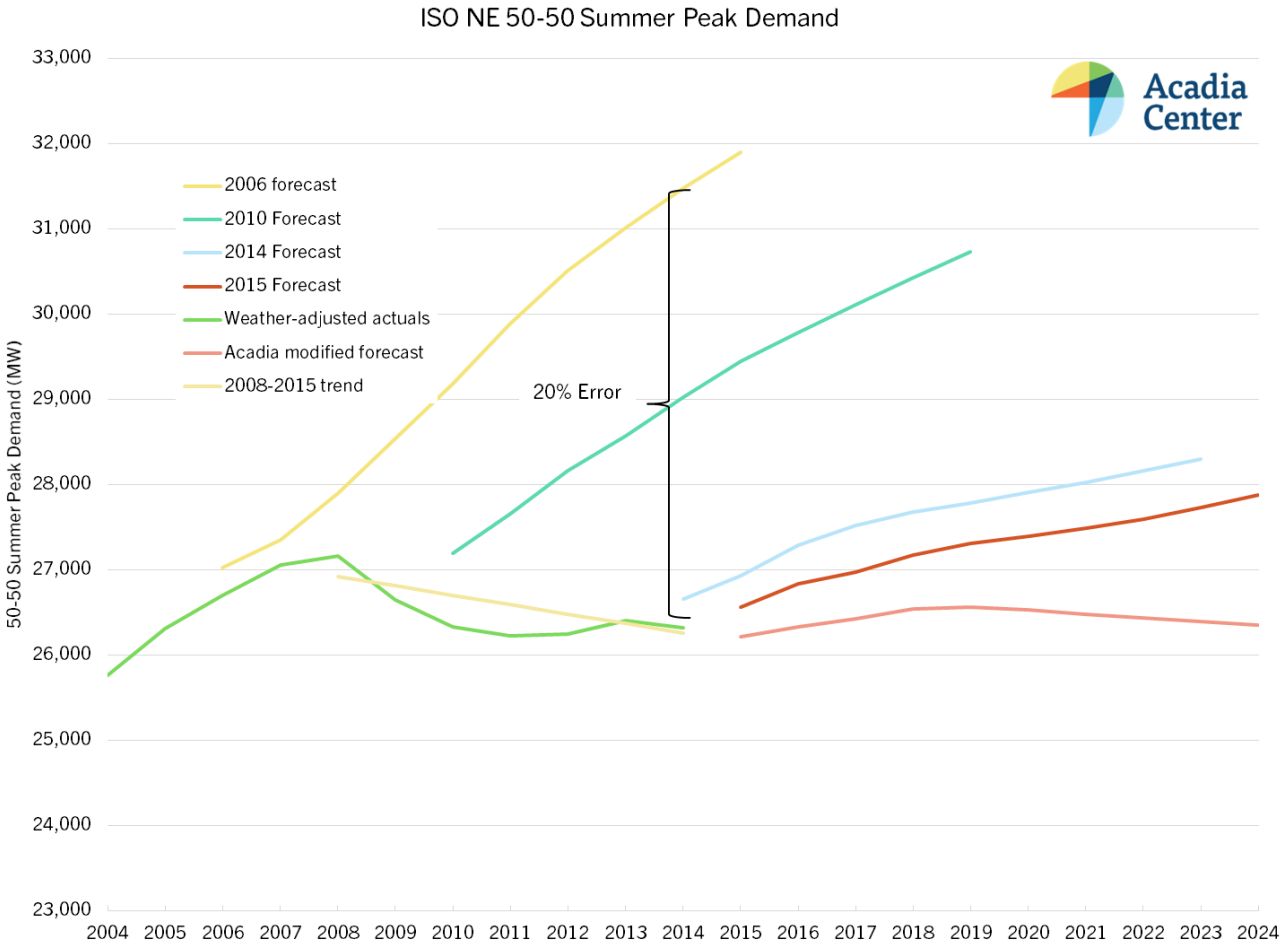
Over-Estimating Energy & Peak Demand Can Lead to Over-Procurement

Acadia Center has recently compared historical energy and peak demand against ISO-NE's regional forecasting and discovered that their forecasts almost always predict far higher energy and peak demand than actually occurs, even after ISO's adjustments for future energy efficiency. The following chart compares actual energy consumption in the region over time to ISO-NE's energy forecasts. The forecasting bias is clear and significant, at a 17% error for 2014.



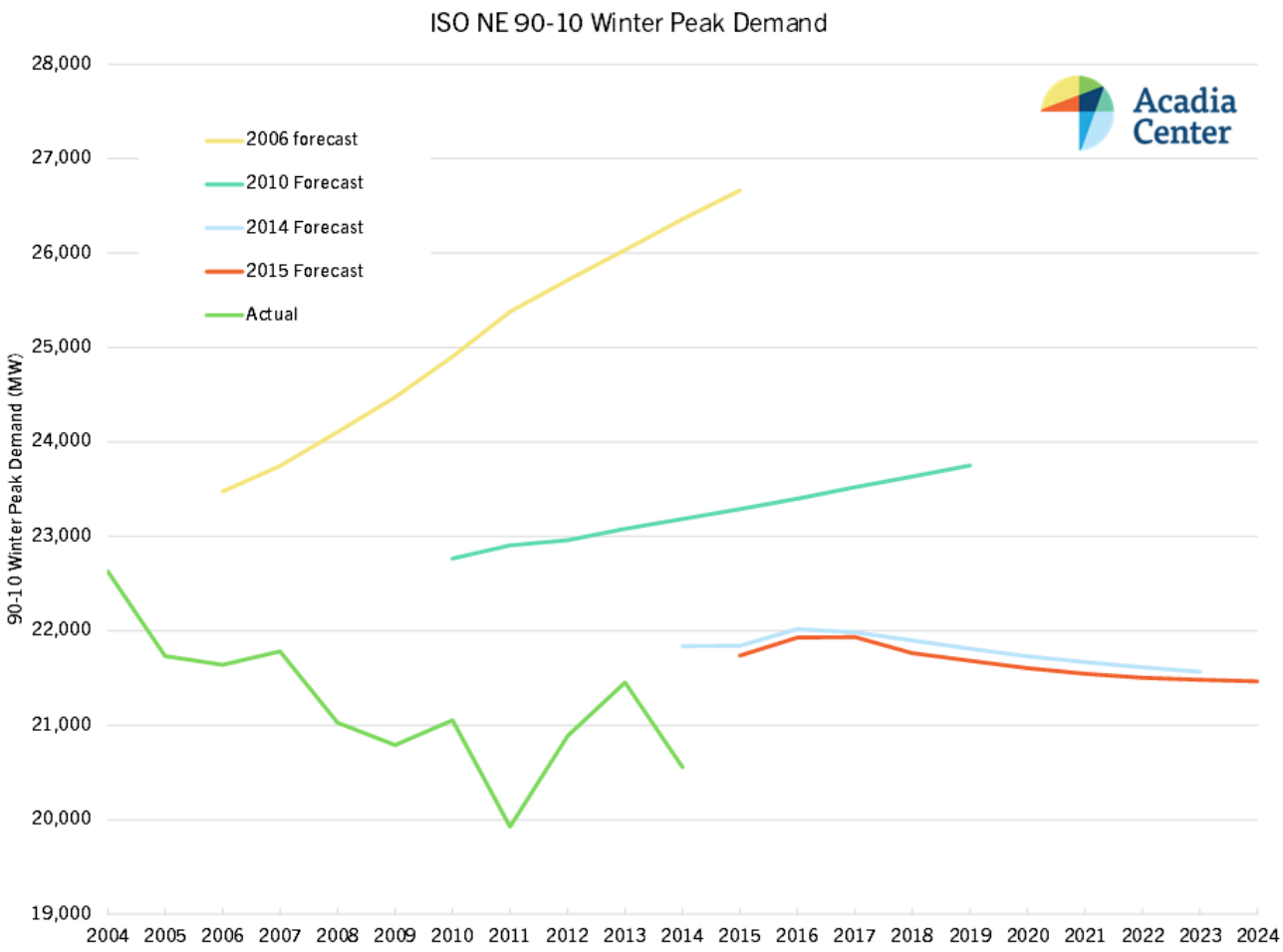
One source of the inaccuracy in ISO-NE's recent forecasts is the heavy discounting of future energy efficiency and distributed generation that occurs during the ISO-NE forecasting process. A recent study by Synapse Energy Economics examined the impact of those and other sources of inaccuracy and constructed a regional forecast that is likely to more accurately predict future demand, shown in the chart above.[4]

Acadia Center also constructed a revised regional forecast for summer peak demand. This corrected forecast, shown below, closely tracks recent historical data. These, or similar forecasts, should be used as the basis of the modeling scenarios for resource evaluation, proxy pricing, and selection for any procurement for energy resources conducted under D.P.U. 15-37. Otherwise Massachusetts seriously risks both overestimating the benefits that that the resources will provide, and procuring far more resources than are truly needed, with major negative consequences for electric ratepayers.



The next chart compares historical winter peak demand against ISO-NE's winter peak forecasts. Not only is the significant overestimation again present, but winter peak demand is trending lower and is also forecast to decrease in the future, suggesting that the challenge D.P.U. 15-37 intended to address is diminishing over time.

[4] *See* Synapse Energy Economics, Inc., *Challenges for Electric System Planning: Reasonable Alternatives to ISO-NE's Discounts for Uncertainty* (July 24, 2015) (http://www.synapse-energy.com/sites/default/files/Challenges-for-Electric-System-Planning_0.pdf).



Given that demand-side resources are cost-effective, reduce costs of electric infrastructure, and have already reduced energy and peak demand sufficiently that additional gas infrastructure may not be needed, such resources must play an important role in Massachusetts' energy future. A solicitation for resources to support electric reliability that restricts competition from these electric resources cannot be considered a fair and reasonable procurement that places the interests of Massachusetts ratepayers ahead of the utilities' shareholders.

For more information:

Amy Boyd, Senior Attorney, aboyd@acadiacenter.org, 617.742.0054 ext. 102
Peter Shattuck, Massachusetts Director, pshattuck@acadiacenter.org, 617.742.0054 ext. 103