Estimate of Connecticut's Generator Tax on New England's Wholesale Energy Prices

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Background

ISO New England was requested to provide an estimate of the effect on electricity clearing prices of the generation tax recently passed in Connecticut. While the ISO cannot predict future bidding behavior or wholesale electricity prices, we have developed the following estimate of the impact of this tax, using 2010 market data. In this analysis, the ISO has assumed that each generator in Connecticut adds the full $2.50/Megawatt-hour (MWh) tax to its submitted energy market offer in each hour.

The estimate utilizes the energy offers submitted each day into the New England wholesale electricity market, including imports from outside the region, and the actual demand for electricity in each hour. The analysis calculates a regional energy price, roughly equivalent to the New England hub price for electricity, without transmission line losses or congestion.

Estimate

The analysis shows an estimated $0.44/MWh increase in the average annual New England wholesale electricity price for 2010 with the addition of the Connecticut generation tax. The average New England real-time wholesale electricity price in 2010, as calculated by ISO New England's Internal Market Monitor, was $49.56/MWh.

The total cost of this increase, approximated as the product of the annual net energy load (130,771 GWh) for the region and the increase in the average annual New England wholesale electricity price ($0.44/MWh) for 2010, is approximately $58 million. Net energy load is calculated as total generation (not including generation used to support pumping at pump-storage hydro generators), plus net imports. The New England all-in cost of wholesale electric energy, which includes capacity and ancillary service payments as well as energy costs, was $8.5 billion in 2010.

Of course there is no way to know exactly what the price increase would have been had the Connecticut tax been in place in 2010 because we cannot determine how the tax will be reflected by generators in their energy offers. Depending on the generators' bidding behavior, the range of the increase could be anywhere between zero and $0.44/MWh. Since the ISO analysis assumes that the entire tax is reflected in the generators' electricity market offers, the $0.44/MWh and the cost of approximately $58 million should be considered to be an estimate of the upper bound of any increase in the regional wholesale electricity price.

This estimate is based on 2010 data only; the results for other years may be higher or lower. The estimate also does not consider transmission constraints or losses which could increase or decrease the estimated value, or certain other real-world complexities.