

April 21, 2015

To: Senate Committee on Natural Resources and Energy

From: Asa Hopkins, Director of Energy Policy and Planning, Public Service Department

Re: Updating the PSD's model of H.40 to incorporate the 2015 Annual Energy Outlook forecast of oil prices

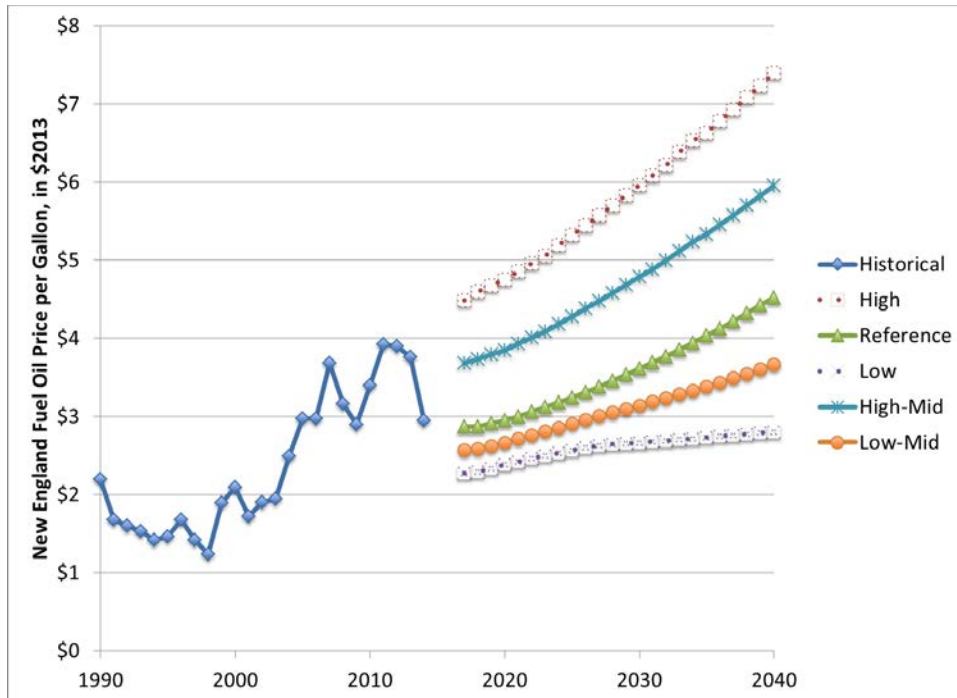
In response to comments from Senators on the Committee, and at their request, I am submitting this memo to confirm that the Department has now updated our modeling and analysis of H. 40 to incorporate fuel price sensitivity to high and low price forecasts. This update is also responsive to comments in the JFO Fiscal Note on H. 40 which suggested the following:

“The U.S. Energy Information Administration (EIA), which is one of the most credible sources of energy price estimates, draws attention to the inherent volatility in energy prices and the wide confidence intervals that exist in making even near-term energy projections. For longer term projections, such as those used in the subject analysis to 2032, market uncertainty leads to possible outcome ranges that can be extremely wide. Given the importance of energy price assumptions in calculating the long term return on investment (ROI), and depending upon the mix of energy saving measures pursued, it may be beneficial to run various pricing scenarios so as to generate a range of potential cost/benefit outcomes in evaluating program risks.”

The U.S. Energy Information Administration released their 2015 Annual Energy Outlook (AEO) on April 14. The Department has taken advantage of the year-by-year forecast of U.S. regional heating oil prices included in that publication to improve our H.40 cost and benefit model's treatment of annual variation in prices. The AEO also includes both High and Low price forecasts, in addition to the Reference case. This has allowed us to produce an estimate of the range of possible energy cost savings outcomes for Vermonters if oil prices are higher or lower than the Reference case.

The AEO Reference forecast of oil prices begins lower than our previous model had assumed, but two factors increase the expected savings in the reference case compared with our previous estimates: the AEO forecasts oil prices to rise faster than inflation (we had previously assumed level prices in “real” terms) and we have used the AEO forecast of the ratio of propane to fuel oil prices to capture the increased savings that propane customers see from Energy Transformation (“tier 3”) measures because of the higher cost of their fuel.

To hedge against extremes in price assumptions, we have not used the straight Low and High oil price forecasts from AEO in order to set a bound for our analysis, as they are so low and high, respectively, as to be outside the bounds of a “business as usual” understanding of energy costs. (The AEO Low case reflects a world in which fuel oil prices in 2017 are about 50 cents/gallon lower than we saw this last winter, and prices stay very low for decades to come. The AEO High case reflects a world in which fuel oil prices are \$4.50/gallon in 2017, and rising steadily.) In order to create more reasonable low and high bounds for our analysis, we averaged these prices with the Reference case to make a “low-mid” case that starts with 2017 prices close to the lowest we saw last winter, rising slowly, and a “high-mid” case than starts with 2017 prices close to the level we had seen in the last few winters before the most recent one, and rises from there.



While the Department’s model allows for the adjustment of many other factors, no factor beyond the price of oil has as large an effect on the aggregate state energy cost savings resulting from the bill. The Department notes that the oil price has only indirect effects on the electric ratepayer impact of the bill. A lower oil price might require utility programs that aim to reduce oil use to be more generous to encourage action, but other factors would be expected to have a larger effect on the electric rate impact.

This table presents the net present values of costs and benefits to electric ratepayers, customers who participate in “Tier 3” energy transformation programs, and the net energy cost savings for the state as a whole. All values are in millions of 2015 dollars. In all cases, the state sees a significant net energy cost savings.

| | Low-Mid | Reference | High-Mid |
|--------------------------------|----------------|------------------|-----------------|
| Electric ratepayer cost | 69 | 39 | 39 |
| Tier 3 customer savings | 220 | 429 | 943 |
| Net state savings | 150 | 390 | 904 |