

# Comments on DEEP's Proposed Energy Resource Procurement Under Public Act 15-107



September 30, 2015

## Overview

Acadia Center thanks the Connecticut Department of Energy and Environmental Protection (“DEEP”) for the opportunity to submit written comments on its proposed energy resource procurement pursuant to Public Act 15-107, An Act Concerning Affordable and Reliable Energy.

Acadia Center is a non-profit, research and advocacy organization committed to advancing the clean energy future. Acadia Center is at the forefront of efforts to build clean, low carbon and consumer friendly economies. Acadia Center’s approach is characterized by reliable information, comprehensive advocacy and problem solving through innovation and collaboration.

## Impacts of Market Reforms Are Not Yet Known

As an initial matter, we urge caution in moving forward with any major energy resource procurement under this Act, but especially any procurement that ties Connecticut’s electric ratepayers to the risks associated with capital-intensive, fossil-fuel infrastructure. DEEP acknowledges in its August 31st notice that the problem P.A. 15-107 is trying to address is actually one of electric market design – basically, some generators have been unwilling to commit to firm fuel supply that would help relieve capacity constraints during winter peak episodes. The good news is that our region is already pursuing market reforms to remedy this and related design flaws. Two market modifications in particular are worth noting here, although each is only in the initial stages. Both mechanisms will likely have an impact on the relationship between demand for gas and electricity in winter and wholesale electric prices, and it will be difficult to predict the effects of additional natural gas supply on electricity prices until after we see the results of these changes.

First, the New England states and the regional grid operator, ISO-New England (“ISO-NE”), have already achieved promising results from incremental market reforms to alleviate winter price spikes. ISO-NE changed market rules ranging from the frequency of energy bids<sup>1</sup> to compensating generators for advance purchases of LNG through the Winter Reliability Program<sup>2</sup>, to ensure that they had enough fuel on hand to get through winter cold snaps. The Federal Energy Regulatory Commission (“FERC”) has also taken steps to improve coordination of wholesale natural gas and electricity market scheduling, including forthcoming changes to the nomination cycle.<sup>3</sup>

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<sup>1</sup> See, e.g. ISO-NE Press Release on Market Changes, December 18, 2014, available at: [http://www.iso-ne.com/static-assets/documents/2014/12/emof\\_final\\_12182014.pdf](http://www.iso-ne.com/static-assets/documents/2014/12/emof_final_12182014.pdf)

<sup>2</sup> FERC’s approval of ISO-NE’s 2014-2015 Winter Reliability Program also required ISO-NE to implement a stakeholder process to develop proposals to address reliability concerns for future winters. 148 FERC ¶ 61,179 (2014). FERC has made it clear that this program is a temporary fix until market rule changes are fully in effect.

<sup>3</sup> See, e.g. Coordination of the Scheduling Processes of Interstate Natural Gas Pipelines and Public Utilities, 151 FERC ¶61,049 (2015).

The drop in prices for oil and LNG on the global market provides even more leeway to pursue low-risk market reform solutions. Oil prices are about 40 percent lower than they were last summer<sup>4</sup>, and prices for LNG have fallen with them. This has led to more LNG deliveries to New England, allowing the region to use existing infrastructure to meet peak winter demands in winter 2015.<sup>5</sup> As a net result, ISO-NE data show prices this past winter were 40% lower than winter 2014. LNG prices are also forecasted to remain lower than previously expected, as projected growth in demand in Asia has recently been revised downward.<sup>6</sup>

Second, Pay-for-Performance is a recent change to ISO-NE's market rules, creating a two-settlement market design for the Forward Capacity Market that is explicitly aimed at addressing these market design issues.<sup>7</sup> Under the change, a resource that clears the auction will receive base capacity payments, as they previously did. A second settlement happens during delivery – when scarcity conditions exist, resources that perform above their share of capacity get a payment, while those that under-perform must pay a penalty. According to ISO-NE, “by creating incentives for generators to firm up their fuel supply, Pay-for-Performance may indirectly incentivize the development of oil or LNG fuel storage or gas pipeline infrastructure”<sup>8</sup> – in other words, it may address the market design problems underlying this issue entirely.

We will begin to see the effects of Pay-For-Performance soon, when it comes into effect in June 2018 for commitments established by FCA 9 in February 2015. We already know that the market is accommodating the Pay-For-Performance concept, as adequate capacity bid in to FCA9. What's more, by addressing the market design issues directly, market rules like Pay-for-Performance are more likely to result in generators purchasing the right amount and mix of natural gas for the New England grid – efficiently determined by the market, rather than artificial changes to the supply curve, like subsidized purchases by electric distribution companies. When generators are choosing the amount of natural gas to procure under properly incentivized contract structures, it is far less likely that we will have stranded pipeline infrastructure, paid for by ratepayers but no longer needed in our clean energy future.

On a related point, we note that all references to the 2014 Integrated Resources Plan (“IRP”) as supporting evidence for DEEP's proposed evaluation approach must be tempered by the fact that the modeling in the IRP is outdated and does not include the results of this past winter, when some market reforms were in effect, as noted above. Despite record cold, wholesale electricity prices were much more moderate than during the winter of 2014.

Below we address specific aspects of DEEP's proposed implementation of P.A. 15-107's energy resource procurement.

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<sup>4</sup> See, e.g., Jyoti Kainth and Neelendra Nanth, Business Today, “When it comes to oil pricing, politics trumps economics” (May 27, 2015) available at: <http://businesstoday.intoday.in/story/when-it-comes-to-oil-pricing-politics-trumps-economics/1/219759.html>

<sup>5</sup> See, e.g., Jay Fitzgerald, Boston Globe, “Pipeline Opponents Say LNG is Underutilized” (March 23, 2015) available at: <http://www.bostonglobe.com/business/2015/03/22/with-increase-lng-supplies-does-region-really-need-new-pipelines/mrRbwgaiKwYuAJJoGXDIPMN/story.html>

<sup>6</sup> See International Energy Agency, *Despite Decline in Oil Prices, Natural Gas Demand Outlook Revised Down*, June 4, 2015, available at: <http://www.iea.org/newsroomandevents/pressreleases/2015/june/despite-decline-in-oil-prices-natural-gas-demand-outlook-revised-down.html>

<sup>7</sup> See ISO New England Inc., 147 FERC ¶ 61,172 (2014).

<sup>8</sup> ISO-NE, 2015 Regional Electricity Outlook at 37, [http://www.iso-ne.com/static-assets/documents/2015/02/2015\\_reo.pdf](http://www.iso-ne.com/static-assets/documents/2015/02/2015_reo.pdf)

## DEEP's Proposed Implementation of P.A. 15-107

### Ensure Fair Comparative Treatment of Demand-Side Resources

Our comments in this section focus on the evaluation criteria and approach proposed in Section III.A of DEEP's August 31st notice.

At the outset, DEEP should make sure that the resource evaluation approach it uses encompasses all possible quantifiable benefits to the state to ensure an accurate and fair comparison of the relative merits of different resources, but especially for demand-side resources, which offer 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.

We want to underscore that energy efficiency's winter peak shaving benefits are substantial. Acadia Center's recent 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.<sup>9</sup> See Appendix A for more detail on this analysis.

Acadia Center is hopeful that passive demand resources will bid into the P.A. 15-107 procurement because Connecticut can certainly do more with energy efficiency to mitigate electric winter peak issues. An immense amount of cost-effective electric efficiency remains available for procurement in our state. For instance, while Connecticut's energy efficiency programs continue to be strong performers, they remain well below all cost-effective savings levels. Connecticut is incrementally saving about 1.4% of electric retail sales this year (or about 384.1 GWhs).<sup>10</sup> Many states have significantly exceeded that level already, however. Last year's ACEEE state scorecard for energy efficiency identified seven states that achieved a higher annual savings level for electricity.<sup>11</sup> In its current efficiency planning process, Massachusetts looks to be averaging over 2.9% savings for the next three years - effectively double what Connecticut is achieving now.<sup>12</sup>

Cost-effective energy efficiency is almost always the smart economic choice because by definition its procurement cost is less than market prices for power. Connecticut is currently buying cost-effective energy efficiency at prices lower than the generation price for electricity. One kilowatt hour of energy efficiency costs about 4.8 cents through

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<sup>9</sup> See Acadia Center, *Winter Impact of Energy Efficiency in New England* (April 20, 2015) (available at: <http://acadiacenter.org/document/winter-impact-electric-efficiency/>).

<sup>10</sup> See *2016-2018 Conservation & Load Management Plan Update Presentation* (presented at September 24, 2015 Connecticut Energy Efficiency Board meeting; slide 11).

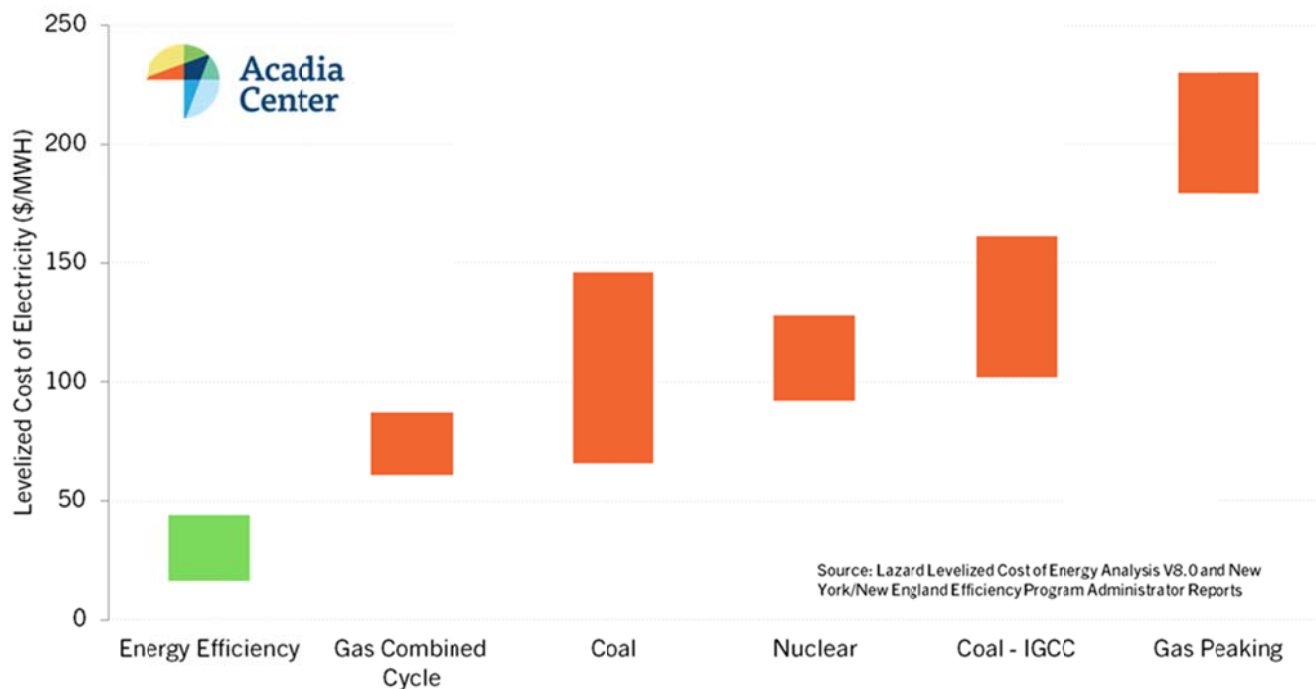
<sup>11</sup> See American Council for an Energy-Efficient Economy, *The 2014 State Energy Efficiency Scorecard*, at page 33, Table 14.

<sup>12</sup> See Massachusetts Energy Efficiency Advisory Council, *2016-2018 Energy Efficiency Plan Term Sheet* (September 23, 2015) (<http://ma-eeac.org/wordpress/wp-content/uploads/Term-Sheet-2016-2018-Plan-9-23-15-Supp.-9-25-15.pdf>).

the state's comprehensive energy efficiency programs.<sup>13</sup> Residential standard offer energy prices for a kilowatt hour through Eversource Energy or United Illuminating are currently at 8.228 cents and 9.1856 cents, respectively.<sup>14</sup>

This "least-cost" opportunity in efficiency procurement is paying off for the New England region. The efficiency plans and investments ushered in by this strategy reap large savings and reduce capital investments in traditional grid infrastructure and spending on fossil fuels, as highlighted in the two charts below.

Cost of new electricity supply vs. energy efficiency

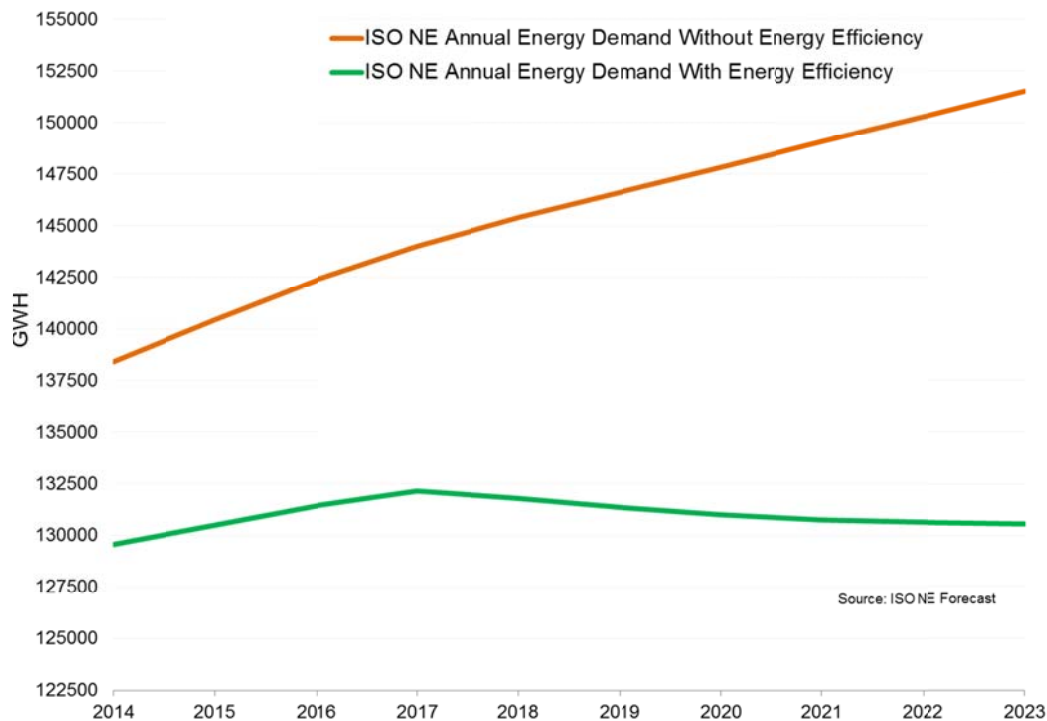


The chart above shows how efficiency procurement is far less expensive than purchasing new supply. The chart below shows how, acting as an energy resource, efficiency lowers power demand on the grid.

<sup>13</sup> See *2016-2018 Conservation & Load Management Plan Update Presentation* (presented at September 24, 2015 Connecticut Energy Efficiency Board meeting; slide 11).

<sup>14</sup> See Eversource Energy (<https://www.eversource.com/Content/ct-e/residential/my-account/my-bill/generation-rates>) and The United Illuminating Company, *Schedule of Rates & Riders* (July 1, 2015), at page 55.

## Reducing demand avoids new capital investments in lines, substations, and power plants



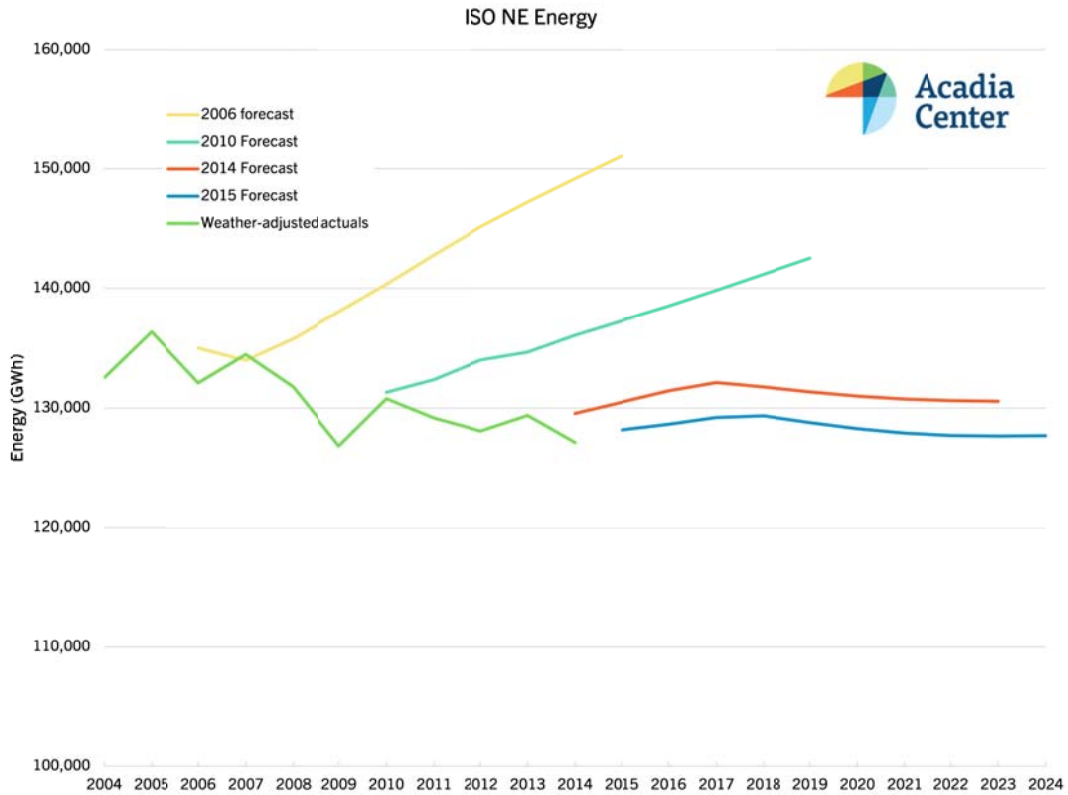
In 2012, ISO-NE began conducting an annual forecast of the New England states' existing and planned energy efficiency investments to determine the impact on forecasted demand and the need for additional transmission. This forecast has led ISO-NE to project near zero growth in annual energy usage across 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.

Energy efficiency and other demand-side resources help to optimize grid costs, and DEEP's evaluation should factor this infrastructure-sizing benefit into its evaluation.

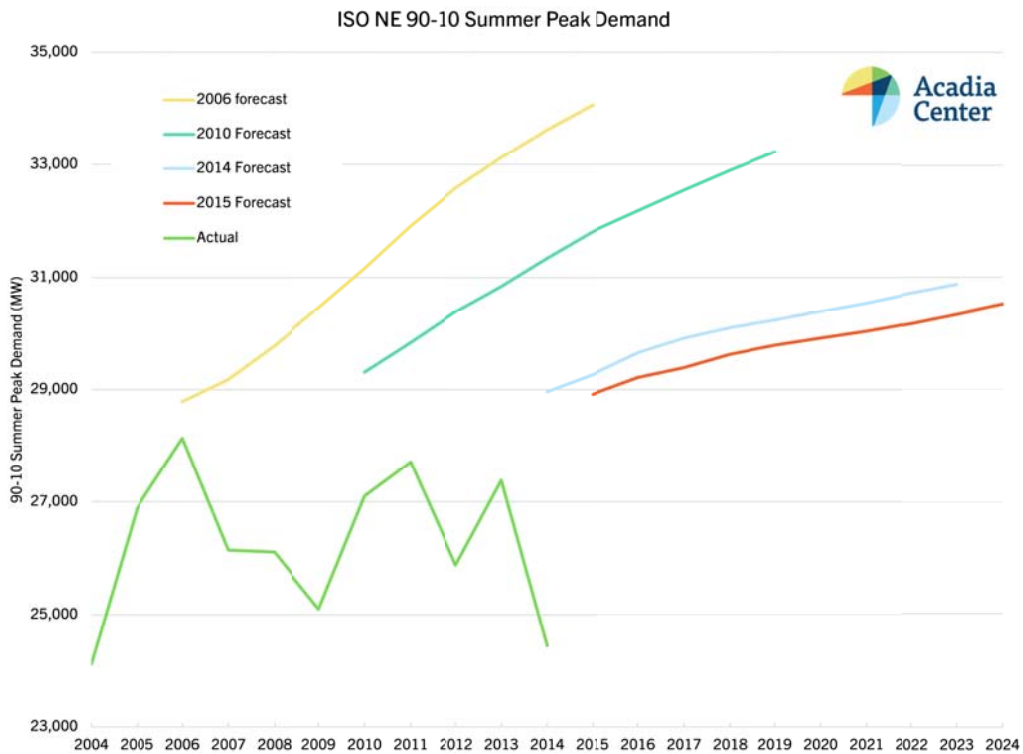
## Modify the CELT Forecast to Correct for Energy and Peak Demand Overestimates

Acadia Center generally supports using ISO-NE's CELT forecast as a reference case for resource evaluation purposes, as proposed by DEEP in Section III.A of its notice, but the forecast should be modified because it consistently overpredicts energy and peak demand in the region.

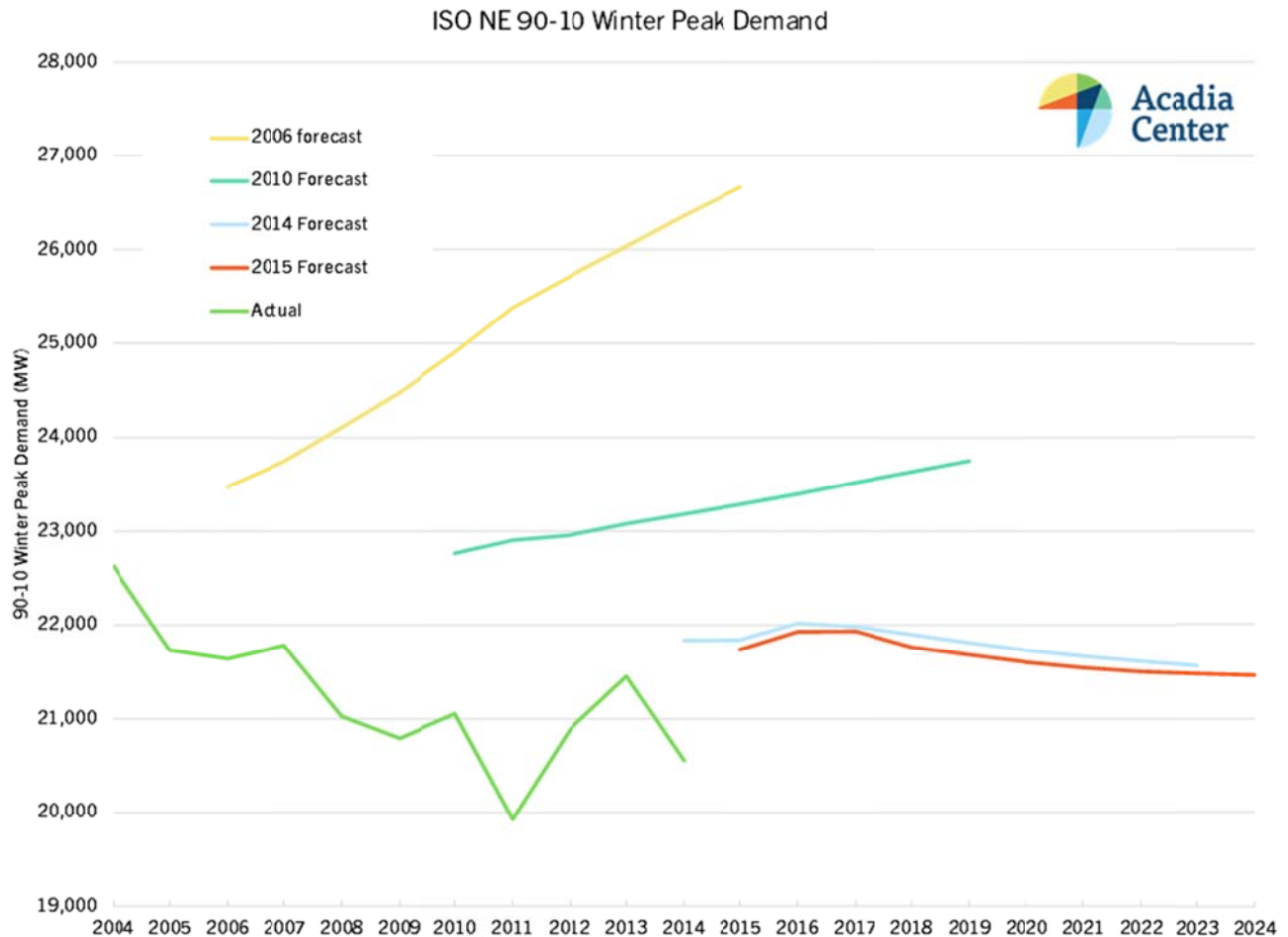
We have recently compared historical energy and peak demand against ISO-NE's regional forecasting and have discovered that their forecasts almost always predict far higher energy and peak demand than actually occurs. The following chart compares actual energy consumption in the region over time to ISO-NE's energy forecasts. The forecasting bias is clear.



The next chart compares historical summer peak demand against ISO-NE’s summer peak demand forecasts. The same pattern of overprediction is again clear.

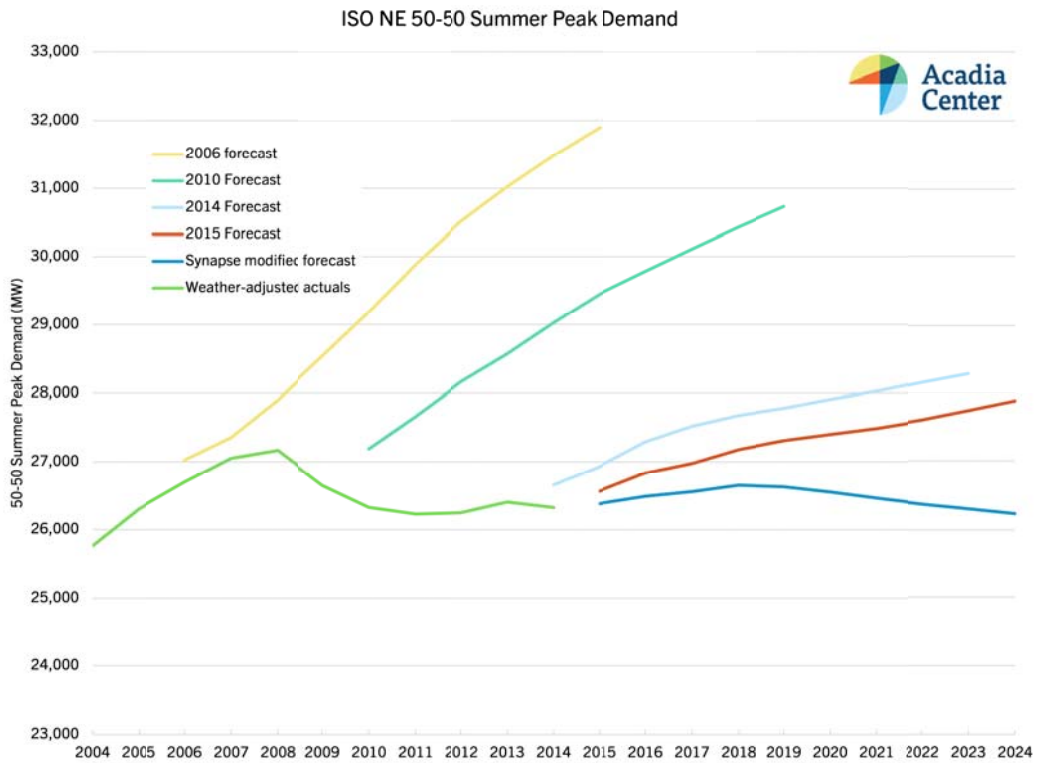
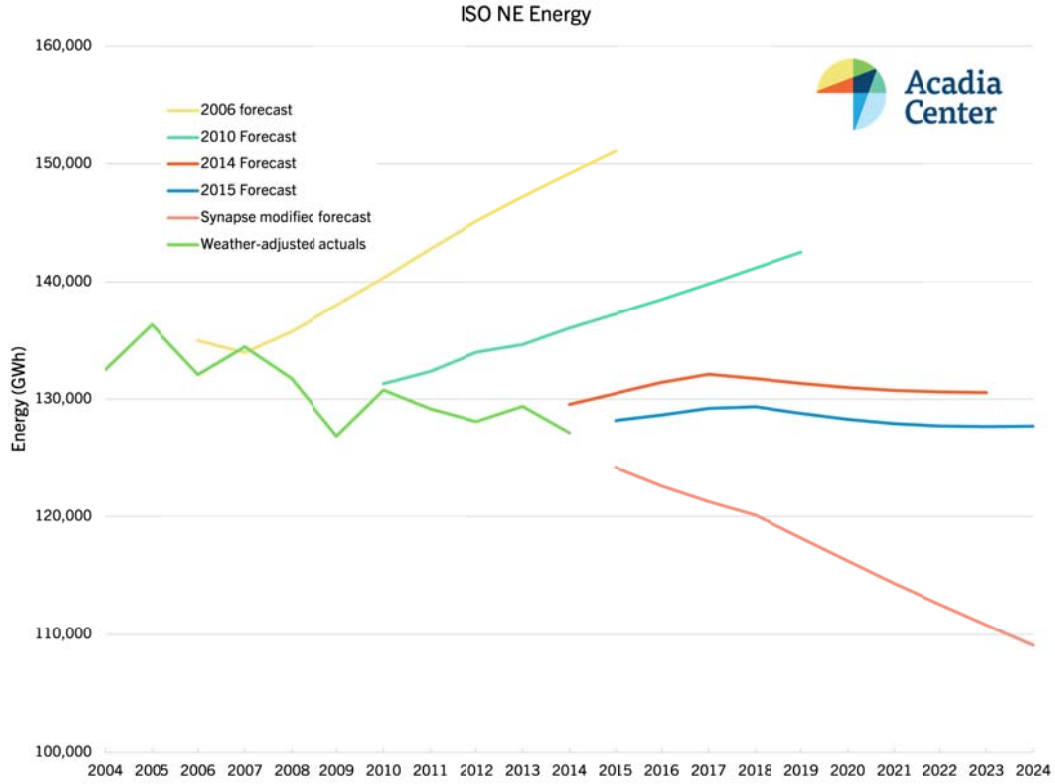


The final chart compares historical winter peak demand against ISO-NE's winter peak forecasts. Not only is the overestimation again present, but it is also interesting to observe that winter peak demand is trending lower and is also forecast to decrease in the future, suggesting that the challenge P.A. 15-107 is intended to address is diminishing over time.



One source of the inaccuracy in the more 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 then constructed regional forecasts that are likely to more accurately predict future demand.<sup>15</sup> These corrected forecasts, shown below, much more closely track 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 conducted under P.A. 15-107. Otherwise Connecticut seriously risks overinvesting in energy resources with major negative consequences for Connecticut's electric ratepayers.

<sup>15</sup> 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](http://www.synapse-energy.com/sites/default/files/Challenges-for-Electric-System-Planning_0.pdf)).





## Additional Considerations and/or Questions for the Proposed Evaluation and Comparison Processes

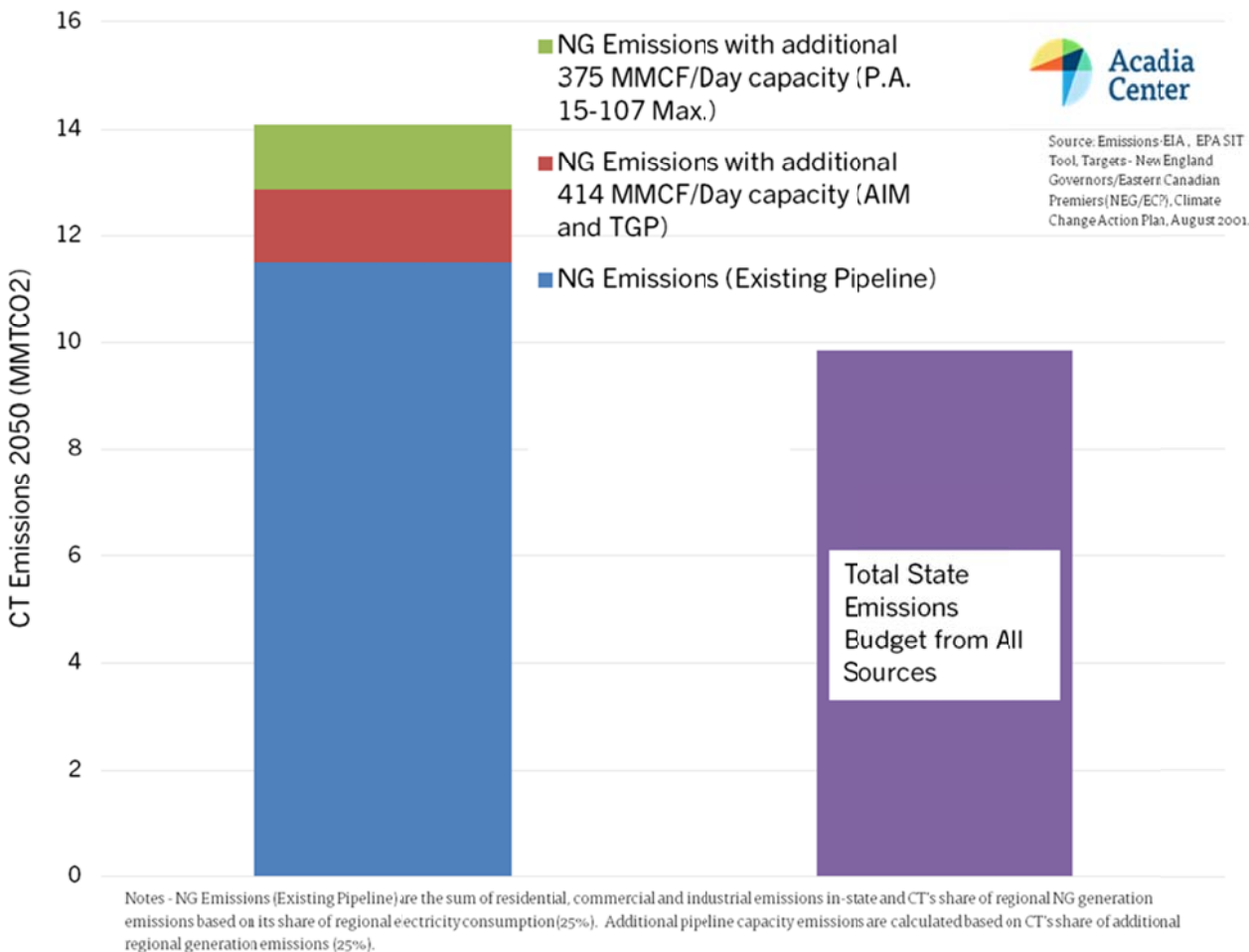
- The term “ratepayers” should be defined. Does DEEP mean Connecticut ratepayers or ratepayers throughout the ISO-NE region?
- Any comparative analysis of benefits should be constrained to those benefits that accrue only to Connecticut. In other words, the benefits that matter for the purposes of this exercise are those that accrue to Connecticut residents and businesses only. Benefits that will occur in other states due to an investment of Connecticut electric ratepayer funds should not be used to select energy resources through a Connecticut procurement process.
- Regarding passive demand resources, “fixed costs”, and the cost-shifting concern raised in DEEP’s notice, we recommend that DEEP does not discount the benefits of energy efficiency and other passive demand resources by other components of the electric system. Passive demand resources provide proven system benefits regardless of the availability of the resource to all system participants. However, if DEEP does decide to discount passive demand benefits, it should not include costs that are in fact influenced by demand reductions. Passive demand resources reduce Connecticut’s load share and thus costs of regional transmission. These costs are not fixed for Connecticut’s ratepayers. Reductions in delivery costs due to avoided infrastructure should also be counted. Similarly, portions of the combined public benefits charge and the FMCC are not fixed and can vary due to load reductions.
- Passive demand sources should be subject to the same level – not “similar” level – of evaluation, monitoring, and verification as the existing Conservation & Load Management programs.
- All passive demand resources should also be evaluated for their fit with the existing Conservation & Load Management programs. We agree that double-counting of efficiency savings should be avoided, but DEEP should also go further and ensure that any passive demand bids are complementary to, or at least not in conflict with, the C&LM programs to avoid undermining existing or planned ratepayer investments in energy efficiency.
- The market simulation model must be calibrated to reflect data from the 2014-2015 winter, as it is the best information available regarding the impacts of the market reform measures that have been implemented to date.
- Indirect benefits in scenarios of “non-baseline” conditions need to be considered in conjunction with the probability of such a scenario occurring.
- The evaluation criteria needs to be clear regarding the indirect benefits – are they the benefits to Connecticut ratepayers? As already noted above, it would be best to define the term “ratepayer” in any RFP documents.
- Under the “direct contract benefits” category, does the sale of “interruptible transportation” include the sales of transportation to LNG export terminals?
- The proposed simulation model discussed in Section III.B should also be used to evaluate non-gas resources as well, as they would change demand or the loading order of dispatch (i.e., renewables sit at the bottom of the dispatch curve).
- The current and projected cost rates for the procurement of energy efficiency through the Conservation & Load Management programs should be considered when developing proxy values for passive demand resources, as mentioned in Section III.B of the notice. Likewise, data on energy efficiency benefits developed through the C&LM programs should also inform the development of quantitative and qualitative assessments of any bid regarding energy efficiency.

## Procurement Must Comply With Connecticut’s Existing Greenhouse Gas Emissions Requirements

In Section III.A of its August 31<sup>st</sup> notice, DEEP proposes to treat “[r]eductions in greenhouse gas emissions” as a discretionary qualitative factor in the scoring of resource bids under any P.A. 15-107 procurement.

Acadia Center recommends that DEEP make greenhouse gas (“GHG”) emissions performance a mandatory quantitative scoring factor for all resources bid into any P.A. 15-107 procurement. This would better align the proposed resource evaluation and selection process with the state’s mandatory GHG emissions targets. Under the Global Warming Solutions Act, the state must reduce GHG emissions to 80% below 2001 levels by 2050.<sup>16</sup> Placing a hard score on GHG emissions performance will give actual scoring value to cleaner energy resources that will help Connecticut achieve its 2050 target.

As it stands now, that 2050 GHG emissions target will be extremely difficult to reach. Connecticut’s GHG emissions from existing natural gas supply already exceed the economy-wide 2050 GHG emissions target, as shown in the chart below.



<sup>16</sup> See Public Act No. 08-98, *An Act Concerning Connecticut Global Warming Solutions*, § 2(a)(2) (stating that “[t]he state shall reduce the level of emissions of greenhouse gas...[n]ot later than January 1, 2050, to a level at least eighty per cent below the level emitted in 2001”).

Notably, the chart does not include Connecticut's GHG emissions from other sectors, such as transportation, which would only worsen the long-term compliance outlook. Adding new natural gas supply infrastructure will only increase the amount of GHG emissions attributable to Connecticut and thus make compliance with the 2050 target even more unlikely.

The scoring approach that DEEP uses with the P.A. 15-107 procurement should guide the state towards making long-term GHG emissions compliance easier, not harder. We therefore strongly recommend that DEEP amend the proposed evaluation approach and make GHG emissions performance an important and mandatory quantitative scoring factor.

### For more information:

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**APPENDIX A: EFFICIENCY IMPACT IN WINTER PEAK STUDY**

Comparisons of actual electric demand, wholesale prices, and costs to estimates without efficiency show the significant value that consumers in the six state New England RTO region accrued from efficiency savings during the winter of 2014 alone. Without savings from electric efficiency program, region-wide demand would have been 13.7% higher, wholesale electricity prices would have been 24% higher, and electricity costs would have been \$1.46 billion higher. The following figures describe electric demand with and without efficiency in the analyzed winter months, and both the real time (RTLMP) and day-ahead (DALMP) wholesale prices.

**Table 1: Monthly Total Demand and Average Real Time and Day Ahead Locational Marginal Prices**

Month	Demand with Efficiency (MWh)	Demand without Efficiency (MWh)	RTLMP with Efficiency (\$/MWh)	RTLMP without Efficiency (\$/MWh)	DALMP with Efficiency (\$/MWh)	DALMP without Efficiency (\$/MWh)
January	8,227,891	9,316,147	175	214	184	212
February	7,218,853	8,205,423	164	199	165	197
March	7,633,616	8,724,035	126	170	118	168

**Figure 1: Daily Electricity Demand With and Without Efficiency**

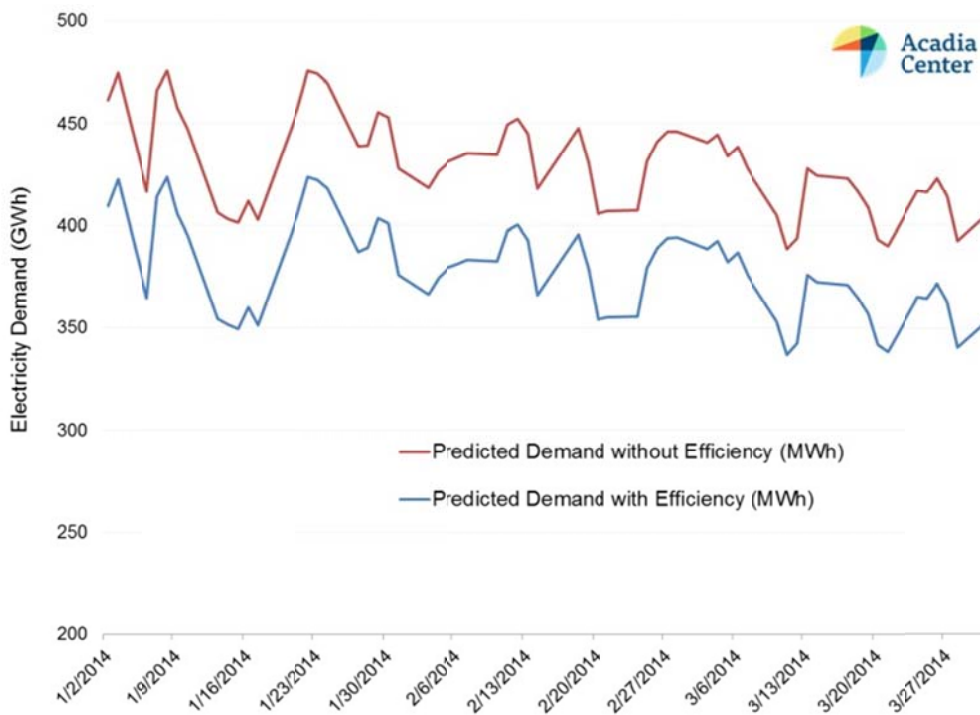


Figure 2: Daily Day Ahead Locational Marginal Prices With and Without Efficiency

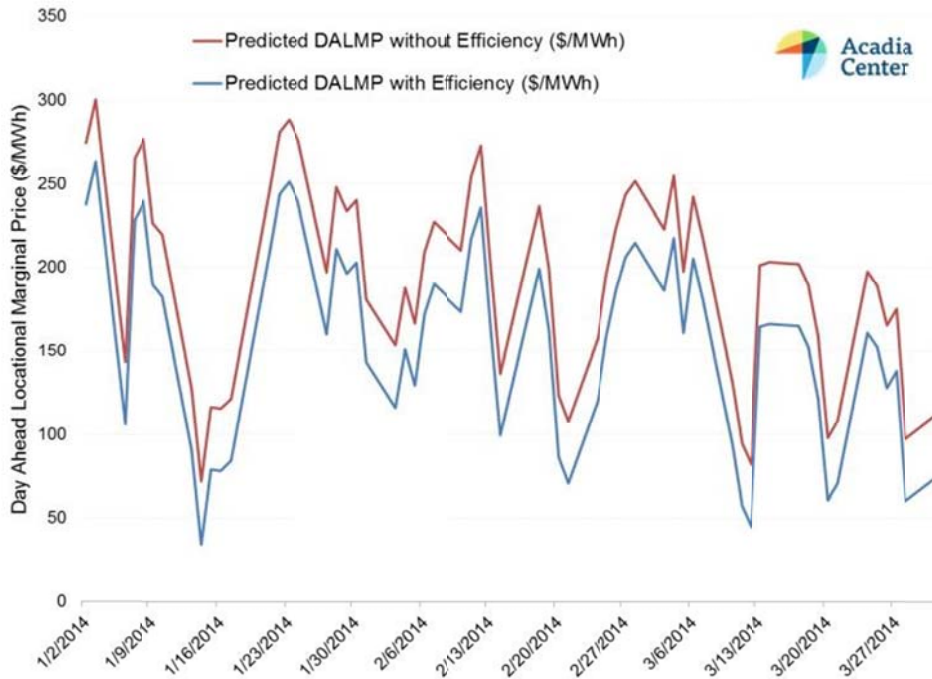


Figure 3: Daily Real Time Locational Marginal Prices With and Without Efficiency

