ERCOT Clean Power Plan Report: Energy Efficiency Analysis

Based on our analysis, summarized in the table below, ERCOT's $31 billion estimate overshoots reality by a wide margin; **attaining 7 percent energy efficiency entails net *savings* of $5 billion**. Moreover, while EE implementation entails upfront gross costs, as do most investments, the incremental gross costs due to the Clean Power Plan are zero as utility efficiency programs already are happening, and building codes are required under current law.

Table 1: Cumulative Costs and Benefits of a Sub-set of Energy Efficiency Measures Underway in Texas for 2013-2030

EE Measure	Retail Electricity Sales Avoided Due to EE During 2013-2030 (GWh)	*Gross Cost* of Achieving These Avoided Electricity Sales (Million 2016 US$)	*Net Cost* of Achieving These Avoided Electricity Sales (Million 2016 US$)	These Avoided Electricity Sales as a Percentage of Forecasted Retail Sales for 2030
Current Energy Efficiency Levels for Texas Utilities (IOUs & MOUs) (Sources: EPA, Austin Energy, and CPS Energy)	15,300	$2,430	($2,829)	3.4%
Building Codes (low) (2030 Annual) (Source: ACEEE SUPR)	15,974	$11,665	($2,291)	3.6%
SUM	31,274	$14,095	($5,120)	7.0%

To reach this estimate, we first determined the "Current Energy Efficiency Levels for Texas Utilities (2013-2030)" using the same EPA sources as ERCOT does, adjusted for 2014 energy efficiency sales for Austin Energy and CPS Energy from San Antonio.

Texas' 2020 energy efficiency savings, using the 2013 utility savings rate of 0.20% of retail sales, are forecast to be 800 GWh. In 2014, however, Austin Energy (AE) and CPS Energy combined to achieve 255 GWh in energy efficiency sales, a 50 GWh increase over 2013 levels of 205 GWh. After integrating this more current statistic for AE and CPS current efficiency levels, the current EE level we use is 850 GWh for 2020. (We use the projected 2020 level because it is a midpoint between 2013, when total electricity sales – and thus gross energy efficiency savings – should be lower than in 2020, and 2030, when total electricity sales should be higher; and, it is the year in the EPA data for which there is a forecast based on current levels.)

Multiplied by the number of years during 2013-2030, current EE levels of 850 GWh/year would amount to 15,300 GWh of savings by 2030. The corresponding 2013-2030 gross cost is $2.43 billion, or about $135 million/year, which is the sum of:

> (1) $115 million/year, which averages the cost of the current level of energy efficiency using a 3 percent discount rate and a 7 percent discount rate in order to approximate the cost at a 5 percent discount rate; and,

(2) The extra $20 million/year in annual energy efficiency costs that are incurred after adjusting for Austin Energy and CPS Energy 2014 savings. (As the 255 GWh of combined savings during 2014 for AE and CPS came at a $100 million cost, we conservatively assume that the extra 50 GWh in 2014 over 2013 savings levels – or a difference of about 20 percent relative to 2014 savings levels – came at a proportional 20 percent incremental cost increase relative to 2014 levels – or about $20 million.)

However, after factoring in cumulative annual cost savings of 8.35 cents/kWh (equal to $83,500/GWh), or ERCOT's 2014 retail cost of electricity, the net cost is *negative* $2.83 billion. In other words, we reach our total net cost estimate for EE at 850 GWh/year for the 18-year period 2013-2030, assuming a 5 percent discount rate for EE measures and a constant savings rate of $83,500/GWh, using the equation below:

$$\textbf{2030 Net Utility EE Costs} = G - \sum_{x=1}^{18}(c * x * (1 - (d * (x - 1))) * e)$$

Where:

$G = Gross\ Costs = (\frac{(\$135\ million)}{year}) * 18\ years = \$2.43\ billion$

$x =$ *years 1-18 of the period 2013-2030, where:*

2030 = 1; 2029 = Year 2; … ; 2013 = Year 18.

$d =$ *discount rate = 0.05 = 5%*

$c =$ *Current Annual EE Savings Rate = 850 GWh*

$e =$ *ERCOT 2014 retail price of electricity = $83,500/GWh*

Next, we use the American Council for an Energy-Efficient Economy's (ACEEE) State and Utility Pollution Reduction (SUPR) Calculator to determine the impacts and costs of efficiency resulting from improved building codes. To be conservative, we selected the SUPR tool's "low" scenario, even though building code policies are already in place. Results indicate that these building codes will save Texas 15,974 GWh at a net cost that is *negative* $2.3 billion. The gross cost estimate is $11.7 billion.

The SUPR results and the "Current Utility EE Levels" sum to 2013-2030 cumulative annual energy efficiency savings of 31,274 GWh, or 7 percent of forecasted business as usual retail electricity sales in 2030 ***at a net savings of $5 billion***. Again, these activities would happen in the absence of the Clean Power Plan, so these savings represent a lower bound for energy efficiency activity in Texas occurring at *zero incremental* gross cost.