

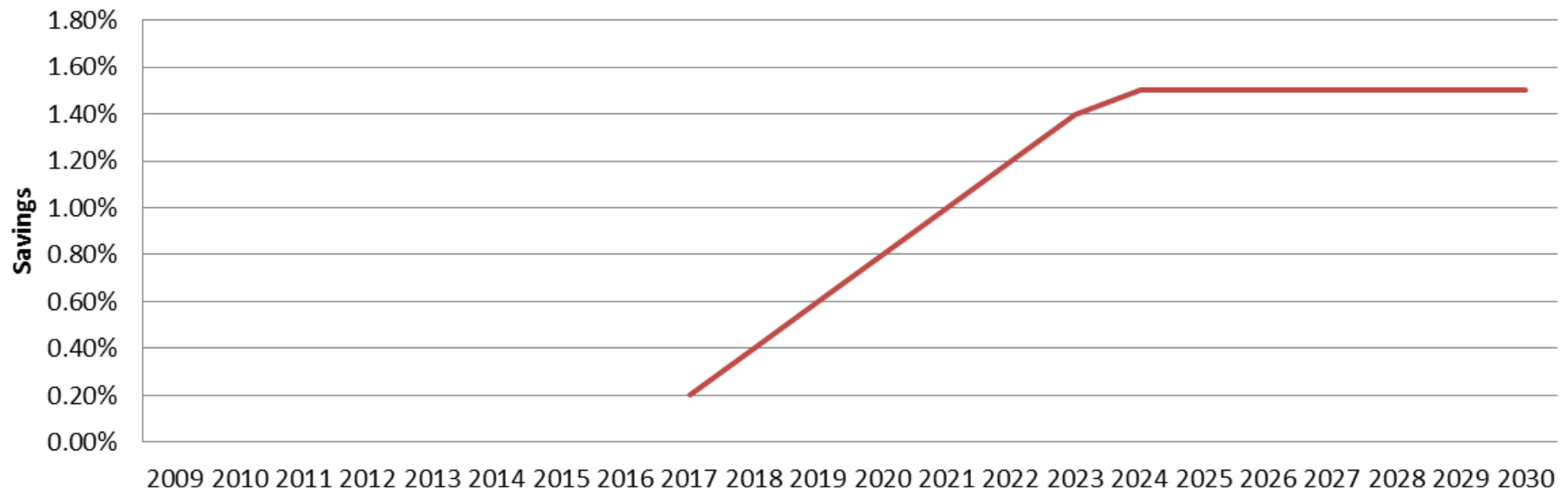


**Expanding Energy Efficiency in WV  
Second Biennial Conference**

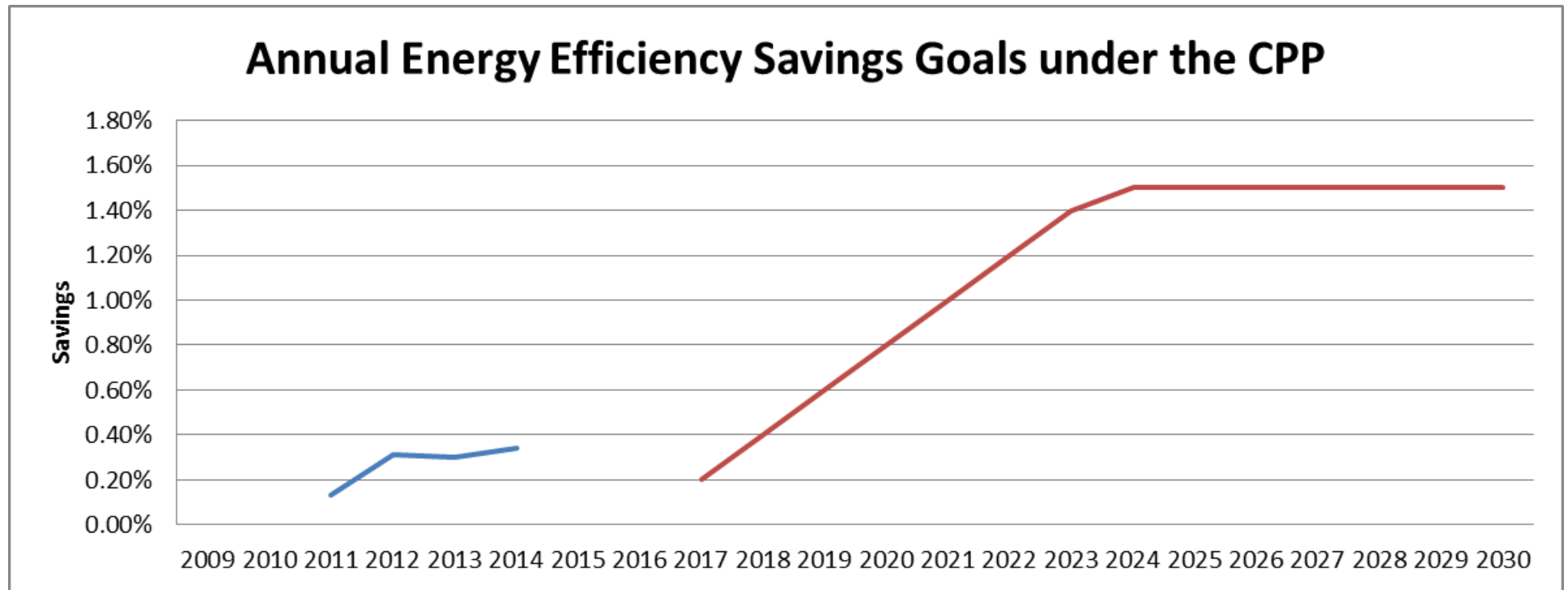
Thursday, May 21, 2015  
Embassy Suites  
Charleston, WV

# Clean Power Plan Overview

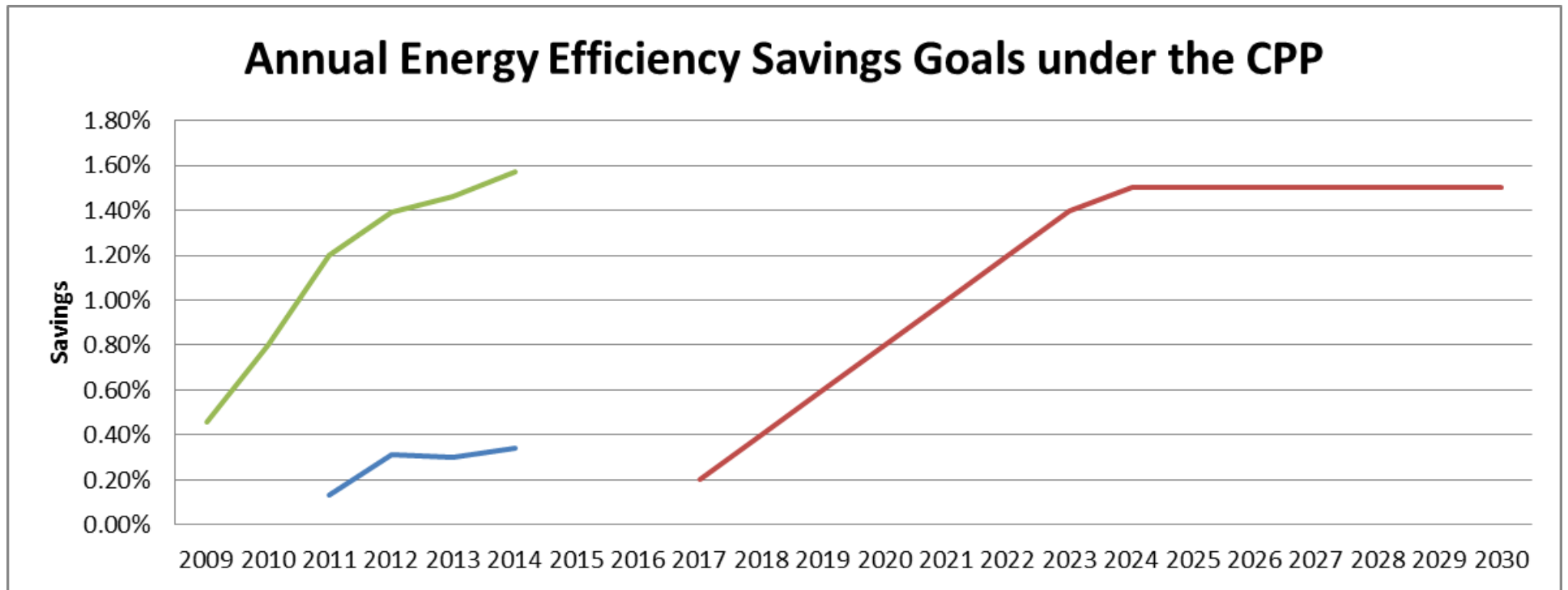
## Annual Energy Efficiency Savings Goals under the CPP



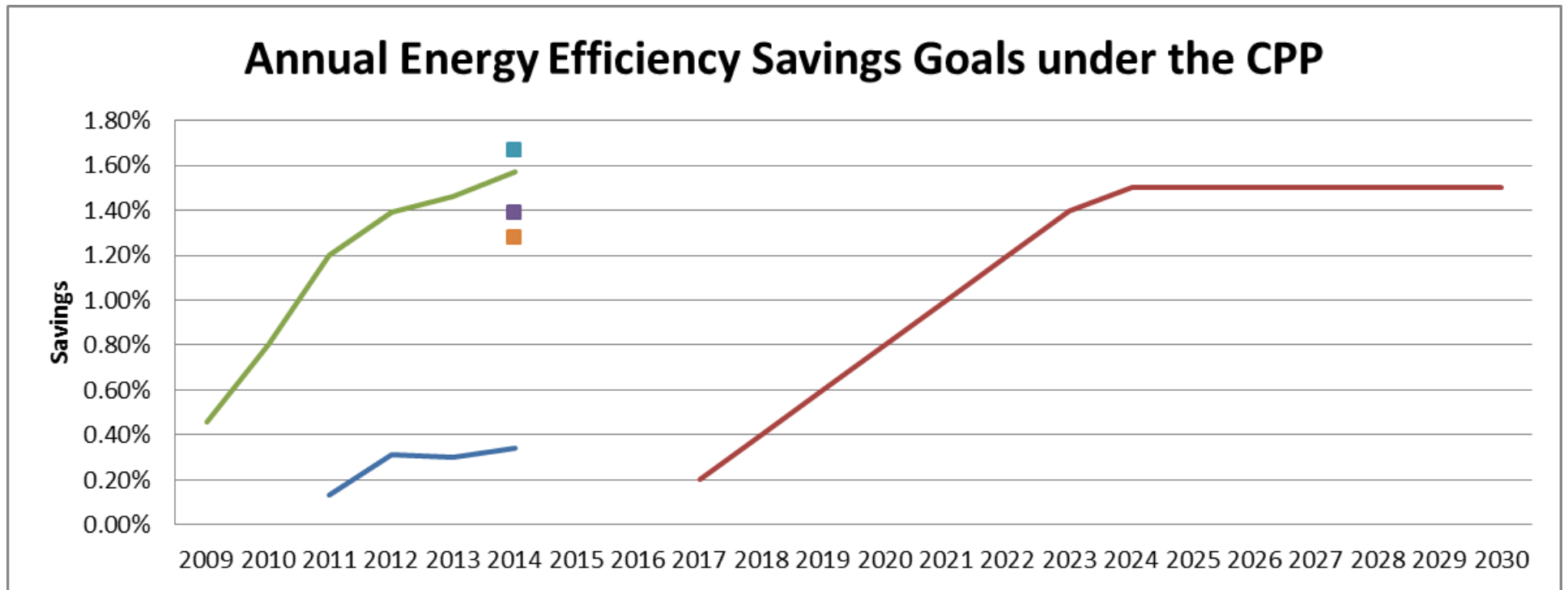
# Clean Power Plan Overview



# Clean Power Plan Overview



# Clean Power Plan Overview



# Ohio Power EE Accomplishments

- Ohio Power attained an annual savings of 1.5% in 2014, building up from less than half a percent savings five years prior.

Year	Goal %	Benchmark GWh	Realized %	Realized GWh
2009	0.3%	137 GWh	0.46%	209 GWh
2010	0.5%	228 GWh	0.80%	365 GWh
2011	0.7%	307 GWh	1.20%	528 GWh
2012	0.8%	340.7 GWh	1.39%	593.3 GWh
2013	0.9%	387.9 GWh	1.46%	632.7 GWh
2014	1.0%	431.8 GWh	1.57%	678.7 GWh

# Ohio EE Programs

FIGURE 6: TOTAL RESOURCE COST RATIOS AND LEVELIZED COSTS, 2014

Program	Benefit-Cost Ratio	Levelized Cost per kWh (¢)
Efficient Products	3.5	1.9
Appliance Recycling	2.9	0.8
<i>e<sup>3</sup> smart</i> <sup>SM</sup>	1.7	3.8
In-Home Energy	0.8	8.3
Community Assistance	0.7	9.3
EfficiencyCrafted <sup>SM</sup> New Homes	1.0	9.5
Home Energy Reports	1.9	2.5
Prescriptive	0.9	7.7
Custom	2.7	2.6
Self Direct	1.8	4.0
Business New Construction	3.8	2.1
Express	1.8	5.0
Retro-Commissioning	2.9	2.0
Data Center	1.3	5.3
Bid to Win	2.6	2.7
Continuous Energy Improvement	2.8	2.0

# What will the costs be to ratepayers?

**TABLE 4: Key Modeling Assumptions Related to Programmatic Energy Efficiency and Overall Power Consumption** ¢/kwh

STUDY	SOURCE FOR EFFICIENCY COSTS	AVERAGE EFFICIENCY COSTS	LIMITS TO EFFICIENCY DEPLOYMENT	EFFICIENCY IS ENDOGENOUS?	POWER CONSUMPTION IS ENDOGENOUS?
EPA	Eldridge, EPA	7.8	Up to 1.5 percent of annual retail sales, max 506 TWh of foregone generation in 2030	No	No
CATF	Did not model efficiency	N.A.	N.A.	N.A.	Yes
EVA	EPRI	3.5	Up to 179 TWh of annual foregone generation by 2020.	No	No
NERA	Alcott and Greenstone	12.5	Up to 1.5 percent of annual retail sales.	Yes	Yes
NRDC	LBNL, Synapse	2.7	Up to 2.0 percent of annual retail sales, max 709 TWh of foregone generation in 2025	Yes	Yes
Rhodium	EPA	7.8	Up to 1.32 percent of annual retail sales.	No	Yes

Across the models, the costs of energy efficiency ranged from a low of 2.7 to a high of 12.5 cents per kWh, and was assumed to deploy up to 2 percent incremental energy efficiency per year. While most models assume a fixed rate of energy efficiency rather than have the model choose an optimal level of energy efficiency over time, it was more common to allow a model to choose the optimal level of power consumption than assume a fixed level of consumption.



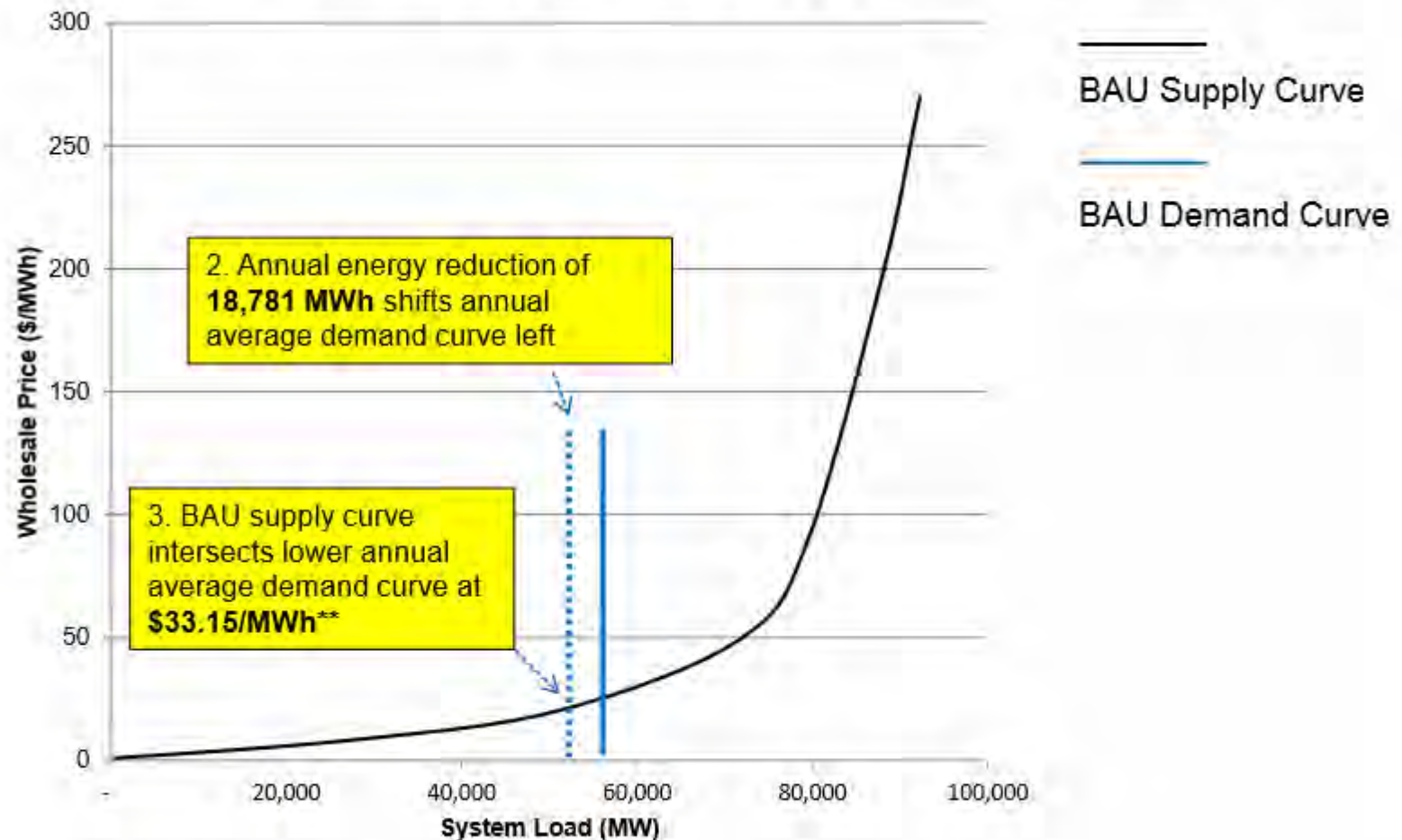
# Synapse Report on price suppression

## EXAMPLE of Study Results

	<b>Savings 2010-2020 (Million \$2012)</b>
<b>Program participants – savings from lower energy use</b>	<b>\$3,370</b>
<b>All OH ratepayers – savings from lower prices for wholesale capacity and energy (Price Mitigation)</b>	<b>\$2,200</b>
<b>Gross Savings</b>	<b>\$5,570</b>
<b>Utility Program Administration Costs</b>	<b>(\$2,800)</b>
<b>Net Savings</b>	<b>\$2,770</b>

# Synapse Report on price suppression

## Step 2 – Lower Energy; BAU Supply; Lower Price



\*\*annual load weighted effect from regression fitted to hourly loads and prices

# Non-energy benefits



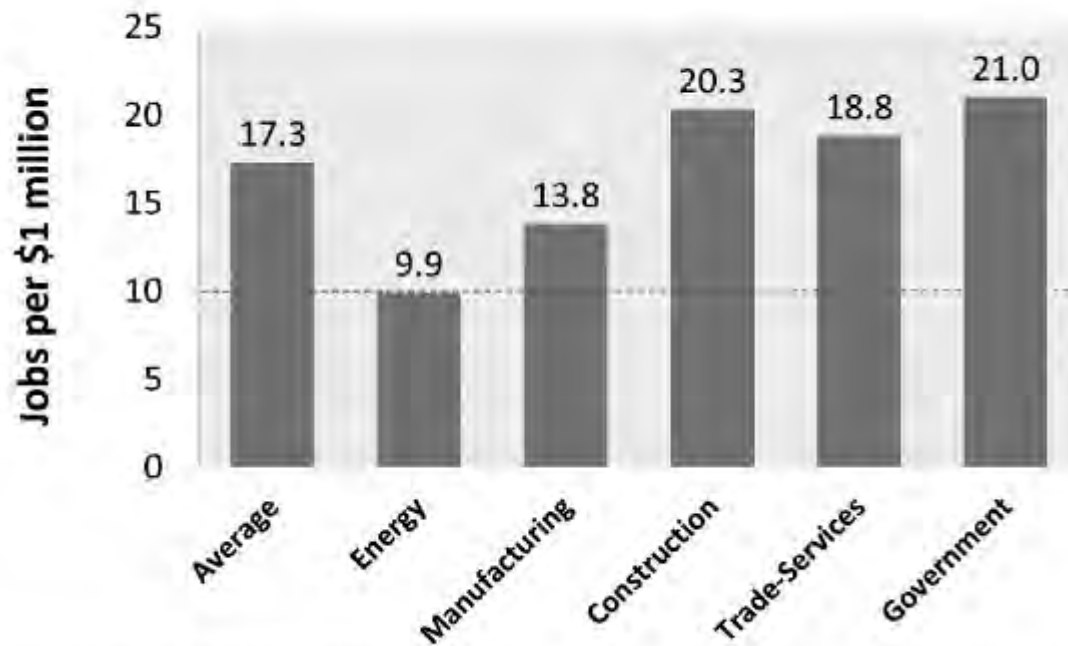
# Non-energy benefits

- Higher satisfaction from tenants / ability to pay/stay in a rented space
  - Lower maintenance
  - Better lighting
  - More comfortable
  - Aesthetically better
- Worker productivity increases by 6-16%
- Health benefits (less mold, extreme temps, etc.)

# Non-energy benefits

## JOBS: “The economy, stupid”

Figure 1. Jobs per Million Dollars of Revenue by Key Sectors of the US Economy



Source: MIG 2011 and ACEEE 2011

# Questions?

Emmett Pepper  
304-346-5891  
[emmett@eewv.org](mailto:emmett@eewv.org)

[www.eewv.org](http://www.eewv.org)