Layton, Kimberly

From: Robert Johnson [rjohnson@utilitylaw.us]
Sent: Monday, June 09, 2014 10:31 PM
To: Comments, Urc
Subject: GAO 2014-1 EE comments of Hoosier Environmental Council
Attachments: Comments Final.pdf

Ms. Roads,

Please accept the attached comments for consideration.

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June 9, 2014

General Counsel Beth Krogel Roads
Re: IURC's EE/DSM Recommendations
Indiana Utility Regulatory Commission
101 West Washington Street, Suite 1500 E
Indianapolis, IN 46204

Re: Comments of the Hoosier Environmental Council with Technical Assistance from ACEEE regarding IURC Energy Efficiency and Demand-side Management Recommendations

Via email to urccomments@urc.in.gov

Dear Ms. Roads,

Please accept the *Comments of the Hoosier Environmental Council with Technical Assistance from the American Council for an Energy-Efficient Economy regarding IURC Energy Efficiency and Demand-side Management Recommendations.*

Thank you for your kind consideration.

/s/ Jesse Kharbanda
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Comments of the Hoosier Environmental Council with Technical Assistance from the American Council for an Energy-Efficient Economy regarding IURC Energy Efficiency and Demand-side Management Recommendations

INTRODUCTION

In its General Administrative Order 2014-1 "GAO 2014-1"), dated April 9, 2014, the Indiana Utility Regulatory Commission ("Commission"), with the support of Gov. Mike Pence, recognized the need for input on the state's energy efficiency policy following the passage of SEA 340[1] by the 2014 General Assembly. It directed its staff and General Counsel to "establish an open, transparent process for interested stakeholders to submit written comments to the Commission" on five issues raised by the Commission (and discussed in more detail below). These comments are the first step in providing public input in that process.[2]

In developing energy efficiency and demand-side management recommendations for the Governor[3] to consider and the agency to implement as appropriate, the Commission advised commenters that those recommendations shall:

1. Include appropriate energy efficiency goals for Indiana;

2. Reflect an examination of the overall effectiveness of current DSM programs in the State;

3. Reflect any and all issues that may improve current DSM programs;

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[1] SEA 340 effectively eliminated current Commission DSM programs operated under Cause No. 42693.

[2] GAO 2014-1 does not expressly provide what steps may follow these submissions. These commenters suggest that the opportunity for additional public comment should be a part of whatever policy proposals the Commission proposes to follow.

[3] In a letter to the Commission setting this process in motion, Gov. Pence noted a recognition of the value of efficiency, writing: "Energy efficiency measures reduce demand for electricity, which reduces the need to build new generation facilities and avoids the costs associated with those new facilities. The State Utility Forecasting Group's 2013 Forecast estimates that Indiana will need to add 1,450 megawatts of generation resources in the near term and 3,600 megawatts in the longer term in order to meet forecasted demand. Demand-side management (DSM) can help reduce that gap and is a critical part of ensuring that our public utilities provide electricity at the lowest cost possible." GAO 2014-1, App. A.

4. Reflect a thorough benefit-cost analysis of the cost impact to ratepayers of possible DSM programs;

5. Allow for an opt-out whereby large electricity consumers can decide not to participate in a DSM program.

THE COMMENTERS

These comments are provided by the Hoosier Environmental Council, Inc. ("HEC") with technical assistance from the American Council for an Energy-Efficient Economy ("ACEEE").

HEC is Indiana's largest non-profit environmental policy organization. Its principal offices are at 3951 N. Meridian St., Ste. 100, Indianapolis, IN 46208. HEC also has offices in Valparaiso and Lafayette. Its members are geographically dispersed throughout the state, from big metro areas to small rural towns. HEC and its members rely on Indiana electric utilities to provide consistent, reliable, and reasonably priced electric power service. HEC also has an interest in seeing that electric power is in Indiana is generated in a manner consistent with environmental principles that reasonably limit emissions from carbon-based sources and encourage efficiency and renewable generation. HEC has been an active participant in many Commission proceedings dealing with resource development and allocation.

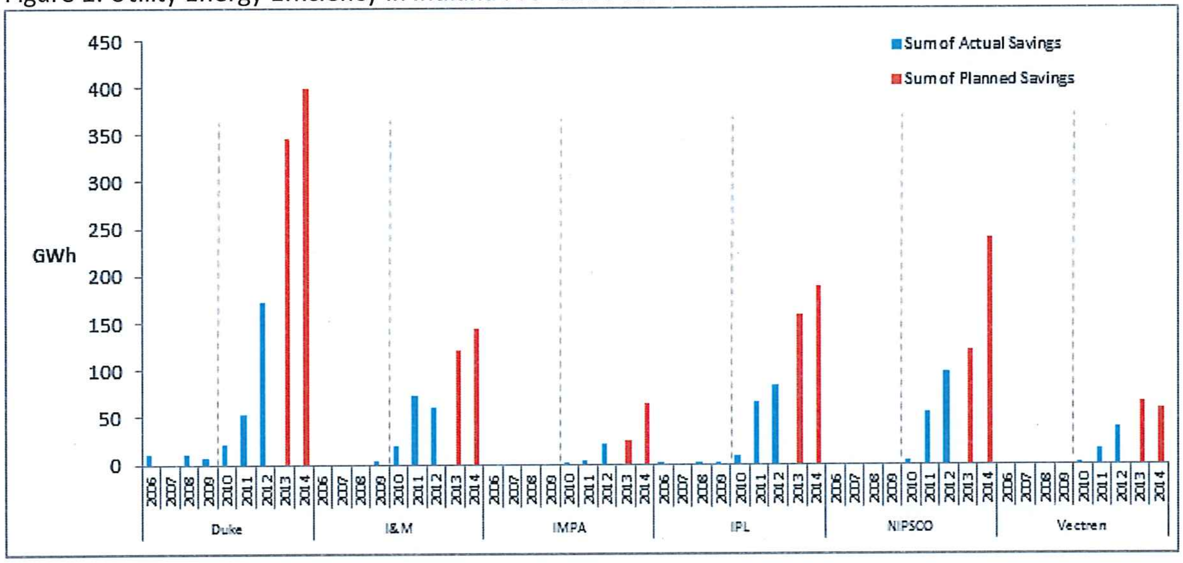
ACEEE a nonprofit, 501(c)(3) organization, acts as a catalyst to advance energy efficiency policies, programs, technologies, investments, and behaviors. ACEEE believes that the United States can harness the full potential of energy efficiency to achieve greater economic prosperity, energy security, and environmental protection for all its people. ACEEE has been a frequent contributor to proceedings before this Commission and other energy regulatory agencies throughout the nation.

RESPONSE TO THE ISSUES

1. Inclusion of EE goals

Even a cursory examination of this Commission's now-stymied energy efficiency program over the past decade produces one overwhelming conclusion—goals matter, especially when they are perceived as enforceable. In fact, without them, even a well-designed and well-intentioned program may languish. A look at data from Indiana's recent experience confirms this. The gross amount of megawatt-hours saved through efficiency ramped up significantly with the start of the state's DSM mandate in 2010. The gross savings and rate of growth both increased more starting in 2012 with the introduction of the Energizing Indiana program.

Figure 1: Utility Energy Efficiency in Indiana Pre- and Post- Phase II Order in Cause 42693

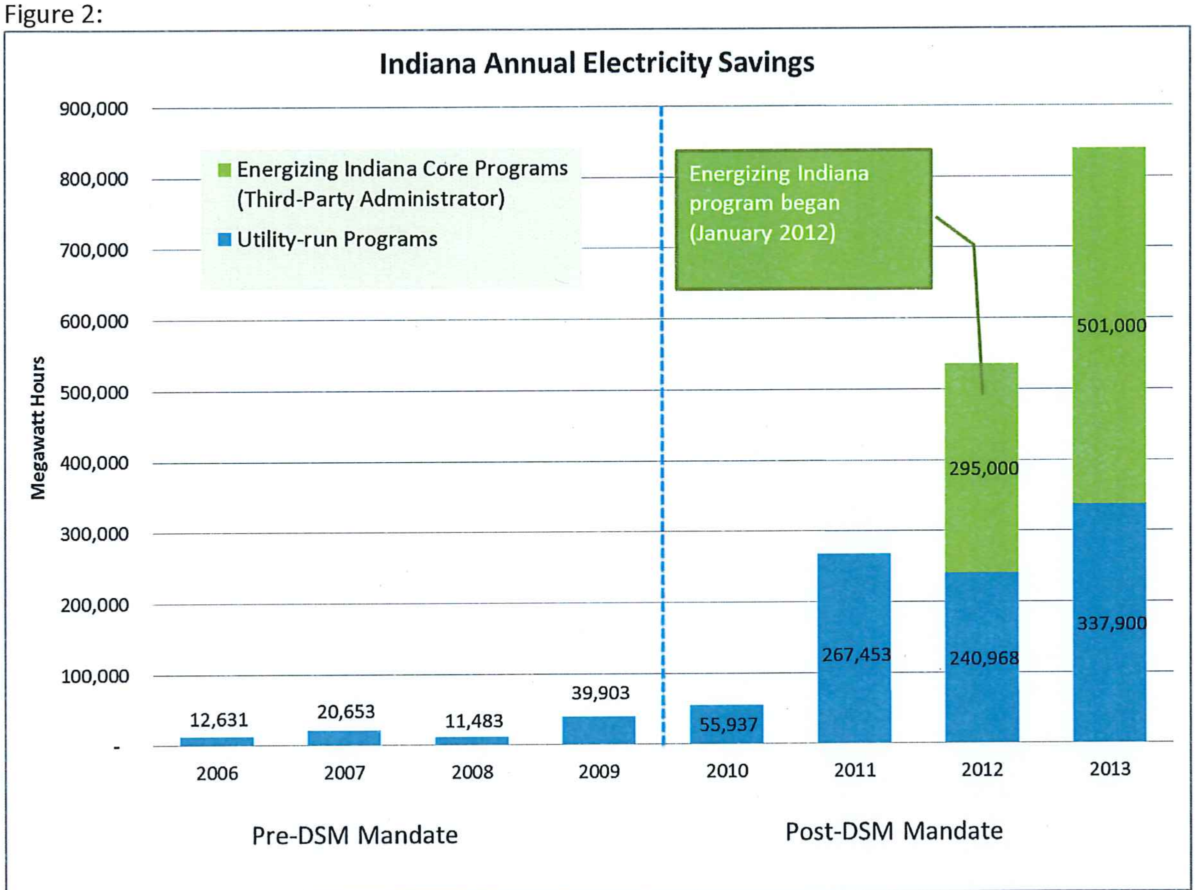


Sources:
2006-2009: Energy Information Administration. Form EIA-861. File 3. Sum of fields "ENERGYEFFINCRES", "ENERGYEFFINCCOMM", "ENERGYEFFINCIND", "ENERGYEFFINCOTH." *Zero values indicate either a blank for the fields or an absence of any listing for utility in the data file for the given year. (Note: Vectren listed in EIA-861 as Southern Indiana Gas & Electric Co.)*
2010-2014: Utility annual report scorecards & plans filed in Cause 42693-S1.

As Figure 1 illustrates, the five IOUs and IMPA were woefully slow to produce GWh savings from DSM before the 2010 mandate (marked by the vertical dashes). After the mandate, savings increases exponentially for each of these entities. The inescapable conclusion is that there was not sufficient compulsion to produce DSM savings absent a target or mandate.

The larger statewide impact, including the overarching DSM benefits of Energizing Indiana, is seen in Figure 2.

Figure 2:



Source: American Council for an Energy Efficient Economy (ACEEE) and Midwest Energy Efficiency Alliance (MEEA)
Note: Sources for spending and savings calculations include docketed reports and plans under Cause 42693 S1, ACEEE Scorecards, and Form EIA-861. Some calculations include planned savings numbers for 2013; actual data has not been released.

The impact of the DSM mandate is quite evident. From 2009, the last year without a mandate, to 2011, the second year of the requirement, MWh savings from Utility-administered DSM increased by more than 450 percent, from 39,301 to 267,452 MWh. In 2012, Energizing Indiana alone produced more MWh savings in just its first year than the more mature utility-administered programs had done in their best year. The majority of these savings could be attributed to commercial and industrial customers.[4]

Collectively, these two figures demonstrate that Indiana's IOUs have not be willing to set aggressive goals on their own and that the Energize Indiana program was successful at providing cost-effective energy efficiency resources and could reach the 2% per year target. Now that the programs have been returned to the utilities for management, the challenge of securing significant energy savings will only be further exacerbated by the proposed exclusion of medium and large businesses from mandatory participation as these facilities represent some of the most cost-effective opportunities. For energy efficiency measures to play a meaningful role in Indiana's energy future—and help the state meet carbon emission goals, as discussed in more detail below—mandatory targets and goals must be re-established.

2. Analysis of Effectiveness

As part of its work in analyzing markets for a number of research projects, ACEEE has reviewed the cost of conserved energy for decades. The results consistently return at 3 cents nominal per kWh or less. This indicates that even in the face of rising energy prices, the cost of efficiency is stable. Major national reviews were conducted in 2004, 2009 and 2014.

In 2004, ACEEE reviewed the cost-effectiveness results from nine leading states. On the costs of "saving" kilowatt-hours (kWh) through utility ratepayer-funded energy efficiency programs, the reported utility costs of saved energy (CSE) ranged from $0.023 to $0.044 per kWh (with a median value of 3.0 cents/kWh).

This report was updated and expanded upon in 2009. It found that the energy efficiency programs in 14 states had utility CSEs ranging from $0.016 to $0.033 per kWh, with an average

[4] IURC 2013 Annual Report to the Regulatory Flexibility Committee at p. 43

cost of $0.025 per kWh. The six natural gas efficiency programs covered in this report also saved energy cost-effectively – spending $0.27 to $0.55 per therm, with an average of $0.37 per therm.[5] A further update in 2014 shows an average cost across 20 states of 2.8 cents/kwh.[6]

From that same 2014 report, reproduced below, the per kWh cost of energy efficiency for twenty states is listed. The cost of efficiency in all four Midwest (IA, IL, MI and PA) states is below 2 cents per kWh. Ohio is not included in this study, but it is possible to extrapolate data from IOU filings to suggest similar economies from investment in DSM. [7]

Table 1. CSE in $ per levelized net kWh at meter

State	2009	2010	2011	2012	4-year average (2009-2012)
Arizona	$0.016	$0.019	$0.020	$0.021	$0.019
California	$0.039	$0.041	$0.056	n/a	$0.045
Colorado	$0.023	$0.029	$0.027	$0.027	$0.027
Connecticut	$0.037	$0.050	$0.045	$0.047	$0.045
Hawaii	$0.025	$0.024	$0.033	$0.040	$0.031
Illinois	n/a	n/a	$0.019	n/a	$0.019
Iowa	$0.019	$0.018	$0.020	$0.018	$0.019
Massachusetts	$0.056	$0.048	$0.037	$0.051	$0.048
Michigan	$0.017	$0.016	$0.017	$0.018	$0.017
Minnesota	$0.021	$0.027	$0.029	$0.026	$0.026
New Mexico	$0.025	$0.024	$0.022	$0.018	$0.022
Nevada	$0.013	$0.014	$0.016	$0.020	$0.016
New York	$0.020	$0.020	$0.020	n/a	$0.020
Oregon	$0.028	$0.025	$0.029	$0.026	$0.027

[5] http://www.aceee.org/research-report/u092
[6] http://www.aceee.org/research-report/u1402
[7] From AEP-Ohio's Peak Demand/Energy Reduction Plan (March 26, 2014): The lifetime cost of saved energy is estimated to be $0.013/kWh for the 2015 to 2019 EE/PDR Plan. The lifetime cost of saved energy is more comparable to a supply-side generation investment alternative. At current supply-side generation investment alternatives including non-dispatchable technologies such as wind and solar, the EE/PDR Plan cost compares favorably and is the lowest cost alternative. Plan at 7.

State	2009	2010	2011	2012	4-year average (2009-2012)
Pennsylvania	n/a	n/a	$0.017	n/a	$0.017
Rhode Island	n/a	$0.040	$0.044	$0.050	$0.045
Texas	$0.025	$0.026	$0.028	n/a	$0.026
Utah	$0.029	$0.033	$0.024	$0.029	$0.029
Vermont	$0.043	$0.041	$0.042	$0.037	$0.041
Wisconsin	n/a	n/a	$0.022	$0.015	$0.019
Average	**$0.027**	**$0.029**	**$0.028**	**$0.030**	**$0.028**
Median	**$0.025**	**$0.026**	**$0.026**	**$0.026**	**$0.026**
Minimum	**$0.013**	**$0.014**	**$0.016**	**$0.015**	**$0.016**
Maximum	**$0.056**	**$0.050**	**$0.056**	**$0.051**	**$0.048**

Note: The analysis uses 2011$ and assumes a 5% real discount rate. N/A means that we were unable to track down sufficient data for the calculation. Average for each year represents a varying number of states, so they are not directly comparable.

Source: Table 3, page 18: Molina 2014. *The Best Value for America's Energy Dollar: A National Review of the Cost of Utility Energy Efficiency Programs*, ACEEE research report #U1402. American Council for an Energy-Efficient Economy, Washington, D.C.

In short, whether measured in Indiana, across the region or across nation, energy efficiency is an effective component of a resource plan. Indeed, given the price stability of this resource and its effective penetration through programs like Energizing Indiana, it provides a foundational building block for future plans.

3. Suggestions for Improvement

To address situations where the "standard" program doesn't meet the needs of particular industrial customers (usually the largest and most energy-sophisticated firms), many states have developed a "self-directed" energy efficiency option. A qualifying industrial firm still pays the DSM/EE charge (because energy efficiency is the lowest-cost "resource" and all customers pay for that resource), but the customer is entitled to receive back those funds to pay for qualifying energy efficiency projects in their own facilities. That way the firm can design its own custom projects, but the utility system (and all customers) still benefit from achieving those lower-cost energy efficiency resources. See excerpts of prior testimony below.

Combined heat and power (CHP) should be an eligible technology in a self-direct program. As the Commission is well aware, CHP has the potential to provide many benefits to customers, electric grids and the environment. With respect to a DSM program, the energy savings is the key benefit. The savings from CHP is the difference between the additional fuel required by a CHP system to produce a given amount of power and the average fuel required to produce an equal amount by conventional electricity generation in the state. Conventional utility generation is around 33% efficient at delivering electricity to customers, while the conversion of the incremental fuel required for a CHP system over that required for conventional boilers is about 80% efficient. As an eligible technology, self-direct customers investing in CHP would receive credit for the net difference between the incremental fuel required for the CHP system compared to the average grid generated electricity in the state. As the savings is on-going, credit could be performance based for a predetermined period of time and provided upon a quarterly or annual verification. Some CHP is occurring without such an incentive. As the Commission is aware, major CHP facilities have been announced recently by SABIC near Evansville and by GM near Ft. Wayne.[8]

Indiana is especially well-suited for CHP expansion. It was one of a dozen states ACEEE analyzed in 2012 to determine the technical potential for additional CHP investments. ACEEE determined that there exists approximately 56 MW of CHP that is currently economically viable

[8] Projections call for GM's $11 million CHP investment to save $3.5 million a year in energy costs and prevent the annual release of 39,000 metric tons of carbon dioxide – roughly equal to the emissions of 8,126 passenger vehicles. *See* Ft. Wayne Journal-Gazette (June 5, 2014).

under existing regulations and utility policies but that the potential increases to 611 MW with proper market recognition of the value provided by CHP. It found that Indiana could meet up to 21% of the 1957-2966 MW of projected coal retirement capacity with CHP if the market was provided the proper incentives.[9] CHP can be a compliance mechanism for facilities to meet air permit limits required by the State Implementation Plan (SIP) for reducing NOX levels. Since CHP is at least 40 percent more efficient than conventional central generation, it can be used as an eligible technology for the energy efficiency set-asides permitted within this regulation. The Midwest Energy Efficiency Association (MEEA) working with the U.S. Department of Energy identified 22 industrial boilers in Indiana with a total rated capacity of 15,000 MMBtu/hr that will be subject to the new Boiler MACT.[10] Converting these assets to natural gas fueled CHP provides the hosts with the ability to meet the new clean air regulations while also reducing energy costs that would most likely increase if the boilers were just switched over to natural gas.

4. Cost-benefit analysis

The cost-benefit analysis of a DSM program has been the subject of ongoing attention, with the results invariably establishing that a properly structured program meets this test. Most recently, a Cadmus evaluation of Focus on Energy's 2012 Calendar Year Programs found a TRC ratio of 2.89 for 2012 programs, with non-residential programs showing the greater return at 3.08, and residential programs returning $2.41 in benefits for every dollar spent.

This direct benefit does not consider the system-wide benefit of DSM. It is important to keep in mind that all customers benefit when the utility system acquires low-cost energy

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[9] Chittum, Anna. 2012. "Coal Retirements and the CHP Investment Opportunity". ACEEE Research Report IE 123. Washington, D.C. American Council for an Energy-Efficient Economy.

[10] "Combined Heat and power as a Boiler MACT Compliance Strategy Webinar." MEEA, 2012. < http://www.slideshare.net/MidwestEfficiency/combined-heat-and-power-as-a-boiler-mact-compliance-strategy-16406830>.

efficiency resources rather than higher-cost supply, regardless of which customers' facilities are the source of those savings. The reason is that because total system costs are reduced, and in a state where all system costs are eligible for full cost recovery, lower system costs result in lower rates for all customer classes.

5. Large customer opt-out option.

As noted above, SEA 340 effectively answered the opt-out question in the affirmative for customers with more than 1 megawatt of demand. This is a decision that ought to be reversed as this does not address the issue of how to fully tap the efficiency potential in this sector. It has often been argued that industrial customers are already energy efficient. They pursue energy efficiency because it is in their interest to be efficient. This sounds logically appealing, but it is based on a fundamental misunderstanding of individual industrial firm economics vs. utility system economics. Industrial customers will pursue energy efficiency improvements, but only up to a very limited point - - well below the potential for cost-effective energy efficiency from the utility resource perspective.

A common 'rule of thumb' for large firms is that they will only make investments with a 2-year payback or less. (Actually, in the current economy it's more like one year or less.) At typical industrial rates, a 2 year payback on an energy efficiency investment works out to about 1.3 cents per kWh. That means any energy efficiency project that costs more than 1.3 cents won't get done. That means the utility system will have to procure additional power at a much higher cost (recall, power from new generating plants will cost 8 – 12 cent/kWh) to serve load that could have been avoided through energy efficiency at perhaps 2, 3 or 4 cents/kWh. All customers, including industrials, will have to pay to procure those higher cost resources.

A utility energy efficiency program can solve this "payback gap" problem. For example, an industrial customer might have a potential energy efficiency project, but it has a 4 year payback. Given a 24 month payback requirement, such a project would not get funded. However, a utility program could pay a rebate to 'buy down' the cost from a 4 year to a 2 year payback, so the industrial customer could proceed. Per the math above, the "cost" to the utility to obtain those savings would be only 1.3 cents per kWh which is far below the cost of obtaining new supply. This is a good deal for the industrial customer (who in effect gains revenue by "selling" energy efficiency resources to the utility, and also ends up with a more efficient facility), and for all customers in the utility system (who avoid having to pay for more expensive supply).

Typical DSM/EE rate charges are only about 2% of total electricity costs for a firm. For most industrial customers, electricity costs in total are a very small fraction of total costs (land, labor, materials capital, taxes, etc.) to a firm (perhaps 5% as a representative national figure). If DSM/EE charge is 2% of 5%, that is only one-tenth of one percent of total costs faced by a firm. It is unlikely that a business will relocate or go out of business due to an incremental increase of an incremental cost of production. Moreover, if the customer participates in an energy efficiency program, energy savings will actually reduce total electricity costs....resulting in a net savings to the customer. [There are a few specific industries where electricity costs are a very high proportion of total costs, but those are the exception not the rule. Those firms could be addressed on a case-by-case basis.

Large industrial and commercial facilities represent the greatest opportunity to mitigate future investments in new generation and transmission through the siting of customer-located combined heat and power (CHP) facilities. By virtue of its ability to provide both thermal and electrical power, CHP is more efficient than traditional generation technologies and as such has the ability to lower costs for host facilities as well as utilities and all other customers. Eligibility of CHP within a self-direct program will provide larger facilities a mechanism to invest in these cost-effective and beneficial facilities.

OTHER CONSIDERATIONS

On June 2nd, 2014, EPA released a set of CO2 emission limits for existing power plants under Section 111(d) of the Clean Air Act. The language in Section 111(d) gives EPA broad authority, including the opportunity to consider flexible compliance strategies to meet emissions standards. One of the most promising compliance strategies for low-cost pollution abatement is end-use energy efficiency.

In April 2014, ACEEE completed an analysis (Hayes, et al. 2014) of the implications of using end-use energy efficiency to reduce greenhouse gas emissions from the power sector. It did so by quantifying the energy, economic, and pollution-reduction impacts of selected energy-saving policies on a state-by-state basis. The analysis included evaluation of four of the most common and effective energy efficiency policy options available to a state:

- Implement an energy efficiency savings target
- Enact national model building codes
- Construct combined heat and power systems
- Adopt efficiency standards for products/equipment

The results are graphically presented below are excerpted from the larger study and presented here to focus on Indiana data.

Table 1. Energy savings in Indiana by policy (megawatt hours).

Policy	Incremental annual energy savings in 2020	Annual energy savings in 2020	Cumulative energy savings in 2020	Incremental annual energy savings in 2030	Annual energy savings in 2030	Cumulative energy savings by 2030
Building codes	157,000	495,000	1,317,000	166,000	2,167,000	15,486,000
CHP	31,000	140,000	390,000	18,000	432,000	3,482,000
EERS	816,000	5,829,000	14,873,000	994,000	19,901,000	156,426,000
Appliance standards	10,000	140,000	514,000	-	197,000	2,348,000
All four policies	1,015,000	6,605,000	17,095,000	1,178,000	22,697,000	177,742,000

Table 2. Economic impacts in Indiana from efficiency, all four policies.

	2020	2030
Net gross state product impact (2011$)	$161,719,000	$179,685,000
Net jobs impact	5,500	11,900

Table 3. Total cost and savings in Indiana from efficiency, all four policies (2011$).

Average cost per MWh saved	$51.14
Cumulative cost of energy savings by 2030 (millions)	$9,100
Cumulative avoided electricity purchases by 2030 (millions)	$15,700
Cost of energy savings in 2030 (millions)	$1,200
Avoided electricity purchases in 2030 (millions)	$2,000

Table 4. Emissions impacts from a 1.5% annual energy savings target in Indiana, selected years.[11]

	2020	2030
Annual energy savings (MWh)	5,829,000	19,901,000
SO_2 (lbs)	21,364,400	73,247,300
NO_x (lbs)	7,941,500	27,054,100
CO_2 (tons)	4,483,700	15,324,700

Table 5. Emissions impacts from all four policies in Indiana, selected years.[12]

	2020	2030
Annual energy savings (MWh)	6,605,000	22,697,000
S02 (lbs)	24,216,700	83,577,900
Nox (lbs)	8,996,500	30,829,500
C02 (tons)	5,081,900	17,480,500

The results of this study show that an emissions standard for existing power plants set at 26% below 2012 levels can be achieved at no net cost to the economy. This standard will create 11,900 new jobs in Indiana, and it will have a positive economic impact on the state of almost $180 million. If enacted, the energy efficiency policies, all of which have been deployed in other states, can significantly reduce greenhouse gas emissions in Indiana while still giving Indiana utilities the flexibility to make use of all of existing energy resources.

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[11] The emissions impacts of efficiency were calculated using EPA's Avoided Emissions and generation Tool (AVERT). According to EPA AVERT is not intended to produce forecasts more than five years into the future. The data presented here is only intended to convey an order of magnitude estimate of the potential avoided emissions from energy efficiency policies. More information on AVERT is available here: http://epa.gov/avert/

[12] The emissions impacts of efficiency were calculated using EPA's Avoided Emissions and generation Tool (AVERT). According to EPA AVERT is not intended to produce forecasts more than five years into the future. The data presented here is only intended to convey an order of magnitude estimate of the potential avoided emissions from energy efficiency policies. More information on AVERT is available here: http://epa.gov/avert/

CONCLUSION

Hoosier Environmental Council, with technical assistance provided by ACEEE, appreciates the opportunity to comment on the significant role that demand-side management and energy efficiency can continue to play in Indiana's energy future. As Gov. Pence correctly noted in his letter to the Commission establishing this review, DSM can play a critical part in providing least cost energy to ratepayers in the state. Indeed, with the realities of environmental costs now captured in a series of legislative and regulatory actions, most recently EPA's announced carbon emission rules, efficiency (and its supply-side compatriot, renewable energy) will play an increasingly role. Those states that seize the new energy paradigm will prosper. Those that cling to a carbon-centric energy infrastructure will lag behind.

For that reason, this Indiana review is particularly timely. Even though the precursor was legislative action that temporarily frustrates the state's drive toward a more energy-efficient resource mix, it also provides an opportunity moving forward. The slate is clean. The economics and vitality of both EE and renewables are largely untapped. This is an unparalleled juncture in state energy policy. The benefits of low-cost, stable and boundless EE and renewable energy supplies are waiting for a state that sets the proper policies to encourage their growth. The time is now for Indiana to seize this energy moment.