

August 21, 2015

Dear Senator Balderson and Representative Roegner, Members of the Energy Mandates Study Committee, and Chairman Porter:

Environmental Law & Policy Center, Natural Resources Defense Council, Ohio Environmental Council, League of Conservation Voters, and Environmental Defense Fund hereby submit the following information regarding the Energy Mandates Study Committee's statutory charge of conducting "[a] cost-benefit analysis of the renewable energy, energy efficiency, and peak demand reduction mandates . . ." ¹

The witnesses that have testified before the Committee over the last year discussed many of the costs and benefits of Ohio's renewable and energy efficiency standards, and outside sources offer further valuable information. In this letter we provide an overview of this evidence and other key data relevant to the Committee's task.

Taken as a whole, the evidence demonstrates that Ohio's clean energy standards have been delivering significant net benefits to consumers since they were first enacted and will continue to do so through 2026 and beyond.

CONSUMER SAVINGS

Both energy efficiency programs and renewable energy offer substantial economic value for Ohio, delivering direct and indirect savings to consumers.

Energy Efficiency is a Low-Cost Resource

All four major Ohio utilities have themselves documented the significant consumer benefits of the energy efficiency standards through annual reports filed with the Public Utilities Commission of Ohio (PUCO). These benefits add up to over \$1 billion in savings to date from energy efficiency programs, with an additional \$4 billion projected over the next decade.² The utility reports show that efficiency programs implemented since 2009 have been exceedingly cost-effective, delivering a 2:1 return on investment for homeowners and businesses.³ Furthermore, the PUCO retains an independent evaluator to verify these results each year, with the most recent evaluation confirming that the benefits of these programs outweigh their costs to customers.⁴ This means more dollars in the wallets of Ohio families and the budgets of Ohio businesses.

¹ S.B. 310, Section 4(C)(1).

² See, e.g., <http://www.dispatch.com/content/stories/editorials/2014/04/12/no-policy-has-helped-to-save-billions-for-ratepayers.html>. Represents conservative estimate based on 2009-2014 energy efficiency program data from utility status reports, which are filed every year with the PUCO and available via the PUCO's online docketing system at <http://dis.puc.state.oh.us>. The utilities' own reports verify annual energy savings and confirm that energy efficiency programs are saving consumers money and are valuable resources for Ohio.

³ See, e.g., Case No. 14-0853-EL-EEC, AEP Ohio 2012 Portfolio Status Report of the Energy Efficiency and Peak Demand Response Programs (May 15, 2013).

⁴ See Case No. 13-1027-EL-UNC, Report of the Ohio Independent Evaluator (May 3, 2013); see also Case No. 14-0569-EL-UNC.

The Committee has already received extensive expert testimony confirming these cost savings, notably from Chuck Goldman, staff scientist for the Electricity Markets and Policy Group at Lawrence Berkeley National Laboratory (LBNL).⁵ In fact, in a recent LBNL study of energy efficiency programs in 34 states, Ohio led the nation for the cheapest and most cost-effective programs, beating out top-performing states like New York, Massachusetts, and Rhode Island.⁶ The Ohio Consumers’ Counsel gave similar testimony, stating that energy efficiency is essential to maintaining affordable utility services in Ohio and recommending that the standards be reinstated.⁷

This testimony is consistent with the PUCO’s requirement that utilities implement energy efficiency programs only where they are cost-effective.⁸ Based on the four Ohio utilities’ most recent program reports, each of their program portfolios delivers energy savings at a price significantly less than the comparable price of generation—making energy efficiency the lowest cost alternative, even cheaper than natural gas and coal-fired power:

	Cost of Energy Savings*	2014 Average Price (EIA Form 861)
American Electric Power	3.5 cents/kwh	9.4 cents/kwh
Dayton Power & Light	4.6 cents/kwh	9.0 cents/kwh
Duke Energy	5.8 cents/kwh	8.1 cents/kwh
FirstEnergy**	--	6.5 cents/kwh

* These numbers reflect *both utility and customer costs* under the “Total Resource Cost” test, obtained from either the utility’s filings with the PUCO or through personal communications with each utility.

**FirstEnergy has not disclosed the data necessary to calculate a cost per kwh for savings from its programs.

Energy efficiency investments also lower energy costs for every single person in Ohio, even those who do not take the affirmative step to participate in their utility’s programs. As explained by another witness before the Committee, although customers pay for energy efficiency programs upfront, those efficiency measures are typically less expensive than building new power plants to meet demand.⁹ Moreover, efficiency also lowers wholesale energy prices. Looking beyond the direct savings from the avoided cost of buying electricity, the American Council for an Energy Efficient Economy (ACEEE) reports that efficiency investments reduce wholesale energy prices in Ohio.¹⁰ LBNL confirms this effect, noting that even consumers who do not take advantage of the programs, such as rebates for efficient appliances, still benefit.¹¹

⁵ Chuck Goldman Testimony to EMSC, <http://emsc.legislature.ohio.gov/Assets/Testimony/5715-charles-goldman-powerpoint.pptx>.

⁶ Id.

⁷ Bruce Weston Testimony to EMSC, <http://emsc.legislature.ohio.gov/Assets/Testimony/6115-bruce-weston.pdf>

⁸ Ohio Administrative Code, 4901:1-39-04 (B): “Each electric utility shall demonstrate that its program portfolio plan is *cost-effective* on a portfolio basis. In general, each program proposed within a program portfolio plan must also be *cost-effective*, although each measure within a program need not be cost-effective.” (emphasis added)

⁹ Gary Swanson Testimony to EMSC, <http://emsc.legislature.ohio.gov/Assets/Testimony/5715-gary-swanson.pptx>.

¹⁰ American Council for an Energy Efficient Economy, *Ohio’s Energy Efficiency Resource Standard: Impacts on the Ohio Wholesale Electricity Market and Benefits to the State* (April 2013),

As PUCO Commissioner Haque explained to the Committee in response to questions on his February 5, 2015 testimony,¹² the basic economic concept of supply and demand means that lowering demand through energy efficiency results in lower electricity prices for everyone.

It is important to note that, even though energy efficiency investments generate significant benefits both for participants in the programs and all customers in Ohio, homeowners and businesses are far less likely to make these investments on their own. Utility energy efficiency programs are essential to overcome market barriers, such as lack of information, high capital costs, transaction costs, and split incentives for landlords and tenants. Energy efficiency standards and associated programs are critical vehicles for realizing the huge potential for cost-effective savings.¹³

Significant Opportunities Still Exist to Save Energy in Ohio

Ohio has the potential to continue this track record of cost-effective energy savings well into the next decade and beyond. ACEEE recently submitted a report to the Committee that summarizes the four major Ohio utility's own analysis of the cost-effective energy efficiency savings that are still available for consumers over the next 10-15 years. The report concludes that Ohio will be able to meet the current trajectory of efficiency targets through cost-effective programs that provide net benefits to the state.¹⁴ Moreover, ACEEE has identified even more high potential areas not yet considered by the utilities that can offer additional cost-effective savings.¹⁵

There is plenty of fertile ground remaining for all customer classes. For instance, American Electric Power's (AEP) 2014 "Potential Study" identified opportunities in an array of residential and industrial programs, enabling the utility to cost-effectively meet the efficiency benchmarks as originally enacted by SB 221 through 2025 and beyond. The ACEEE report also identified substantial additional savings opportunities not yet fully considered by AEP and other Ohio utilities, such as adoption of "smart" thermostats, multifamily and behavioral programs, and more ambitious deployment of LED lighting, which has seen an over 80% price drop in the last five years.

And as the Committee has heard several times in testimony, Ohio's industrial facilities have deep potential to save energy by installing combined heat and power projects. These projects were made possible by SB 315, but Ohio has yet to even scratch the surface of their potential. Senator Seitz's PACE financing bill, proposed SB 185, would make it even easier to achieve such energy savings by improving the financing options for projects with large up-front costs. It is important to note, however, that even with the presence of enabling policies like financing, Ohio's existing

http://www.ohiomfg.com/legacy/communities/energy/OMA-ACEEE_Study_Ohio_Energy_Efficiency_Standard.pdf.

¹¹ See Chuck Goldman's testimony as reported in Gongwer, http://www.gongwer-oh.com/programming/news.cfm?article_id=840840201.

¹² Commissioner Haque Testimony to EMSC, <http://emsc.legislature.ohio.gov/Assets/Testimony/2515-commissioner-haque.pdf>.

¹³ Chuck Goldman Testimony to EMSC, <http://emsc.legislature.ohio.gov/Assets/Testimony/5715-charles-goldman-powerpoint.pptx>.

¹⁴ ACEEE, Energy Efficiency Potential in Ohio (August 10, 2015).

¹⁵ Id.

standards remain an essential foundation. They remain critical to ensuring that Ohio realizes the wealth of cost-effective efficiency opportunities.

Opportunities also extend to low-income customers, who are of particular concern for our organizations and for several Committee members. Ohio has yet to even scratch the surface of programs for this community, such as multi-family retrofits. For example, the *Energy Efficiency For All* initiative developed by National Housing Trust in partnership with Natural Resources Defense Council and other groups recently estimated that programs for apartments and other rental dwellings could cut electricity use by as much as 32% and save customers \$21 billion by 2034.¹⁶ Ohio's utilities currently offer scant programs for multi-family residences, if any at all.

The Committee could also consider specific carve-outs for low-income residential programs, to ensure greater availability and opportunities for cost-effective savings in some of the least efficient housing stock in the state. Illinois uses this approach; 25% of the total funding for energy efficiency programs is administered by the Illinois Department of Commerce and Economic Opportunity specifically for programs serving government facilities, low-income households and market-transformation-oriented information and training programs.¹⁷

Renewable Energy

There are many reasons why Ohio should restore its Renewable Portfolio Standard.

While the renewable energy sector has advanced rapidly in recent years, and the Committee has heard ample testimony confirming that the costs of renewable energy sources like wind and solar have declined significantly over that time, the standard ensures that renewable projects will secure the necessary financing and contractual commitments to move to construction and operation.¹⁸ The American Wind Energy Association (AWEA) and Solar Energy Industries Association testified that wind and solar costs have decreased significantly, within range of traditional resources, noting that renewable energy is at times the cheapest option available.¹⁹

This means that Ohio's standards are cheaper than ever for consumers. LBNL found that the cost of implementing Ohio's renewable energy standards is small, in the last few years accounting for less than 1% of retail rates (which for an average FirstEnergy customer would translate to approximately \$2 to \$3 per month).²⁰ Currently, renewable costs for a typical residential customer have dropped even further, to—at most—85 cents per month.²¹

¹⁶ Energy Efficiency For All, *The Potential for Energy Efficiency Savings in Multifamily Housing* (May 2015), <http://www.energyefficiencyforall.org/sites/default/files/EEFA%20Potential%20Study%20EXECSUM.pdf>.

¹⁷ See ACEEE, *State and Local Policy Database, Illinois: Utilities Summary*, <http://database.aceee.org/state/illinois>.

¹⁸ Tom Vinson Testimony to EMSC, <http://emsc.legislature.ohio.gov/Assets/Testimony/6115-tom-vinson.pdf>.

¹⁹ Id; Sean Gallagher Testimony to EMSC, <http://emsc.legislature.ohio.gov/Assets/Testimony/41615-sean-gallagher.pdf>.

²⁰ National Renewable Energy Laboratory & LBNL, *A Survey of State-Level Cost and Benefit Estimates of Renewable Portfolio Standards* (May 2014), <http://emp.lbl.gov/sites/all/files/lbnl-6589e.pdf>.

²¹ This number is calculated from the utilities' current alternative energy resource rider rates, based on a residential customer using 750 kwh of electricity per month, consistent with the PUCO's monthly utility rate survey. As of August 2015, Cleveland Electric Illuminating Company had the highest renewable rider rate, although these rates

Renewables also operate as an essential part of a balanced generation portfolio. As resources with zero fuel cost, wind and solar are valuable hedges against the risks associated with fuel sources like natural gas, such as volatile prices and potential supply disruptions that may arise again in the future. AWEA offered the Committee one very specific example of this benefit: during the 2014 Polar Vortex, the availability of cheap wind resources at a time when the price of electricity from coal and natural gas had skyrocketed saved customers over \$1 billion in just two days.²² More generally, the PUCO has previously concluded that, by bidding into the market as “price takers,” and displacing other generation sources with higher fuel costs, renewables lower wholesale energy prices overall – keeping energy costs low for everyone.²³

These benefits can continue even as Ohio’s standards provide for more renewable resources. A May 2013 study by Synapse Energy Economics found that doubling the use of wind energy in the PJM region—which covers 12 states (including Ohio) and D.C. —beyond existing requirements would save consumers \$6.9 billion per year, even after accounting for infrastructure investment costs.²⁴

And this does not mean sacrificing reliable electric service. A recent PJM assessment found that Ohio’s electric system could support 30% renewable energy while still maintaining reliability and reducing pollution and costs.²⁵

Ohio in particular has modest renewable goals compared to other Midwest states that have already successfully achieved high levels, even in past years when renewable costs were higher. For example, Michigan is on track to achieve 10% renewable generation in 2015, and the Michigan Public Service Commission has calculated that this renewable power has come at costs that compare favorably with new fossil generation.²⁶ In 2013, Wisconsin met its 10% renewables goal *two years early*,²⁷ at an average annual consumer cost of 2.5%.²⁸ And Illinois and Minnesota both have renewable standards more than twice that of Ohio—25% by 2025.

may vary over time to reflect past utility over- or under-collection of costs of compliance with the renewable standard.

²² Tom Vinson Testimony to EMSC, <http://emsc.legislature.ohio.gov/Assets/Testimony/6115-tom-vinson.pdf>.

²³ PUCO, Renewable Resources and Wholesale Price Suppression (August 2013), http://www.ohiomfg.com/wp-content/uploads/2013-08-16_lb_energy_renewable_resource_and_wholesal_price_suppression.pdf.

²⁴ Synapse Energy Economics, Inc., The Net Benefits of Increased Wind Power in PJM (May 2013), http://www.synapse-energy.com/sites/default/files/SynapseReport.2013-05.EFC_.Increased-Wind-Power-in-PJM.12-062.pdf.

²⁵ PJM, Executive Summary of Renewable Integration Study, 2014, <http://www.pjm.com/~media/committees-groups/committees/mic/20140303/20140303-pris-pjm-cover-letter.ashx>.

²⁶ Michigan Public Service Commission, Report on the Implementation of the P.A. 295 Renewable Energy Standards and the Cost-Effectiveness of the Energy Standards (Feb. 13, 2015), http://www.michigan.gov/documents/mpsc/PA_295_Renewable_Energy_481423_7.pdf

²⁷ Wisconsin Public Service Commission, Electric Provider Renewable Portfolio Standard Compliance for Calendar Year 2013 (June 3, 2014), http://psc.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=%20206461.

²⁸ Wisconsin Public Service Commission, Report on the Rate and Revenue Impacts of the Wisconsin Renewable Portfolio Standard (DRAFT) (July 1, 2014), <http://psc.wi.gov/DL/document/ViewFile.aspx?id=C6C06B509DDD4C4E9BBFEF5F409600E8>.

JOBS AND INVESTMENT

In addition to saving Ohioans money on their electric bills, the state's efficiency and renewables standards drive investment and job creation. As of 2013, Ohio was home to over 400 advanced energy companies that employed over 25,000 Ohioans and was leading the country in the number of facilities manufacturing components for wind technology and second in the number of solar equipment providers. A report by the Pew Charitable Trusts shows Ohio attracted \$1.3 billion in private clean energy investment from 2009 to 2013.²⁹

Renewable and efficiency standards are vital to provide policy certainty for job creators that their decision to invest in Ohio will pay off. As AWEA testified to the Committee, the level of wind energy and investment in Ohio is significantly lower than in most of its neighboring states.³⁰ Without certainty about the long-term future for renewables, Ohio may continue to lose out to other states on these investments.

ENVIRONMENTAL BENEFITS

Zero-emissions renewable energy and energy efficiency offer a clear environmental advantage over fossil fuel generation, and Ohio's clean energy standards ensure that these resources will continue to displace power from sources like coal and natural gas.

The resulting reduction in harmful emissions translates into a tangible benefit for all Ohioans—particularly the low-income and minority populations disproportionately exposed to high levels of air pollution—by averting public health impacts such as asthma attacks, hospital admissions, heart attacks, and premature deaths. A forthcoming report on these public health benefits in Ohio finds that the renewable and efficiency standards could help improve the health of tens of thousands of children and adults over the next decade.

Similarly, Ohio's renewable and energy efficiency standards are an important part of national action to fight climate change. A warming climate is already adversely impacting the state by increasing the likelihood of events such as toxic algal blooms on Lake Erie.³¹

EFFICIENCY AND RENEWABLES ARE CRITICAL FOR MEETING THE CLEAN POWER PLAN

The Committee should also consider the connection between Ohio's renewable energy and energy efficiency standards and the recently finalized Clean Power Plan—the first-ever limits on carbon emissions from our nation's power plants.

It is critical that we reinstate Ohio's standards so that they can play a central role in meeting the Clean Power Plan targets. Study after study shows that using efficiency and renewables to reduce carbon emissions can be affordable and even improve the reliability of the grid. By

²⁹ Pew Charitable Trusts, *Clean Energy Spurs Investment in Ohio* (January 2015),

<http://www.pewtrusts.org/en/about/news-room/news/2015/01/13/clean-energy-spurs-investment-in-ohio>.

³⁰ Tom Vinson Testimony to EMSC, <http://emsc.legislature.ohio.gov/Assets/Testimony/6115-tom-vinson.pdf>.

³¹ U.S. Global Change Research Program, *2014 National Climate Assessment: Midwest*, <http://nca2014.globalchange.gov/report/regions/midwest#intro-section-2>.

utilizing the renewable energy and energy efficiency options in the Clean Power Plan, Ohio can even reduce the impact of costly retrofits and upgrades to the existing fleet and will have more flexibility in the potential retirement of baseload generation.

A soon to be released analysis shows that Ohio's renewable and energy efficiency standards would be sufficient to achieve the carbon emissions limits in the final Clean Power Plan. In addition, early projections indicate that using these state-level policies would lower electric bills for the average Ohio household.³² *These savings are the direct result of the significant economic value of including clean energy as part of a diverse portfolio.* As detailed above, even in the absence of carbon emissions limits, clean energy lowers electricity prices for all Ohioans, and is increasingly a sound investment for the state.

These findings are consistent with the experience of states that have already gone down this path: a recent audit by the Regional Greenhouse Gas Initiative (RGGI), a carbon trading partnership including nine states in the Northeast and Mid-Atlantic, shows that over the last six years the RGGI states have cut carbon emissions by 1/3 while generating nearly \$3 billion in economic growth region-wide, including over 14,000 new jobs and hundreds of millions of dollars in electricity bill savings.³³ The audit makes clear that state-level clean energy requirements in the RGGI states were critical to this success.

Finally, the Committee should not wait to reinstate these policies. While the final Clean Power Plan gives state more time to cut emissions and a smoother glide path, energy efficiency and renewables investments made *today* will help get Ohio closer to its emissions limit even earlier. EPA set limits using 2012 as the baseline year, and assumes that states would reduce emissions from that point through 2030. If Ohio presses the "restart" button on its clean energy policies, the state's investments in efficiency and renewables today will continue to reduce carbon emissions, and as a result push Ohio closer to its final target.

If Ohio reinstates the standards by at least 2017, we will be ahead of the game in building up a store of clean energy resources and programs that deliver cost-effective emissions reductions, and in positioning Ohio as a leader in the clean energy economy. This is an opportunity to develop a new, innovative path in the state that will create well-paying jobs and protect human health and the environment.

³² See, e.g., PJM Interconnection, *PJM Economic Analysis of EPA's Proposed Clean Power Plan: State-Level Detail*, March 2, 2015, www.pjm.com/~media/documents/reports/20150302-state-level-detail-pjm-economic-analysis-of-epas-proposed-clean-power-plan.ashx; see also Natural Resources Defense Council, *Ohio and the Clean Power Plan: Affordable, Reliable, Achievable*, June 2015, <http://www.nrdc.org/energy/files/oh-clean-power-plan-IB.pdf>; Public Citizen, *Ohio: Clean Power, Clear Savings; The EPA Clean Power Plan Will Cut Ohio Electricity Bills*, June 16, 2015, <https://www.citizen.org/SSLPage.aspx?pid=6568>. Natural Resources Defense Council, Union of Concerned Scientists, and others will be releasing data in the coming weeks demonstrating how achievable the final Clean Power Plan targets are in Ohio when energy efficiency and renewables are deployed as the primary tools to cut carbon.

³³ Analysis Group, *The Economic Impacts of the Regional Greenhouse Gas Initiative on Nine Northeast and Mid-Atlantic States* (July 2015), <http://www.analysisgroup.com/news-and-events/news/energy-report--states-that-limit-carbon-emissions-through-markets-see-economic-benefits>.

CONCLUSION

The original intent of SB 310 was to do a “gut check” on Ohio's clean energy policies and ensure that the state is moving forward on the smartest path to deliver safe, reliable and affordable energy to consumers.³⁴

A review of the data available to the Committee on Ohio’s renewable and energy efficiency standards demonstrates that these policies are cost-effective for consumers and that the best path forward for the state is to thaw the SB 310 “freeze” and reinstate these policies as soon as possible.

Should you have any questions, please do not hesitate to contact Madeline Fleisher at (614) 670-5586, or Samantha Williams at (312) 651-7930.

Sincerely,

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Cc:

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³⁴ See SB 310 Sponsor Testimony, http://www.ohiomfg.com/wp-content/uploads/2014-04-04_lb_energy_Balderson_Sponsor_TestimonySB310.pdf.