



**OHIO ENVIRONMENTAL COUNCIL
INTERESTED PARTY TESTIMONY**

PUBLIC UTILITIES OVERSIGHT AND SENATE BILL 221 IMPLEMENTATION

OHIO HOUSE PUBLIC UTILITIES COMMITTEE

NOVEMBER 30, 2011

Good morning, Chairman Stautberg, Ranking Member DeGeeter and Members of the House Public Utilities Committee. I am Nolan Moser, Staff Attorney and Director of Energy and Clean Air Programs for the Ohio Environmental Council (OEC). Thank you for the opportunity to testify today on electric utilities and the implementation of Ohio's Energy Efficiency Standard, and Renewable Energy and Advanced Energy Resource Standards.

Clean energy is cost competitive energy. I'd like to start today by clearing the air on costs. Specifically, I'll discuss the true price of generating electricity from renewable energy resources, the cost of utility-run energy efficiency programs, and how these resources compare to traditional electricity generation in Ohio. In 2008, when the General Assembly passed Senate Bill 221 with overwhelmingly bipartisan support (Ohio House vote 93-1; Ohio Senate vote 32-0), this legislation established Ohio's Energy Efficiency Resource Standard (EERS), Renewable Portfolio Standard (RPS) and Advanced Energy Resource Standard (AERS). Combined, these three policies have saved consumers millions of dollars each year.

Prices for electricity resources range widely. For non-alternative new resources, natural gas combined cycle has an estimated installed cost of 8 cents per kilowatt hour (kwh), traditional coal 11.1 cents per kwh, nuclear power 12.25 cents per kwh, and advanced coal power averages about 12.55 cents per kwh. The most expensive resource is natural gas peaking capacity, which averages 28.35 cents per kwh.¹

Compared to these older technologies, new advanced and alternative energy resources perform very well. Biomass resources, geothermal, and wind have average prices of 8.9, 7.55 and 8.5 cents per kwh, respectively. Solar power is the most expensive alternative energy resource, with costs of 17.8 cents per kwh for crystalline, 15.65 for thin film, and 16.75 for solar thermal, on average. This data clearly demonstrates that clean energy does not necessarily have to be expensive energy, and that the cost of clean energy becomes more and more competitive every day with traditional, mature energy resources.²

Further, as evidenced by long-term trends around the nation, the delivered cost of renewable energy sources continues to decline due to technological improvements and cost efficiencies, while the cost of

¹ See Lazard and Associates, "Levelized Cost of Energy Analysis, Version 3.0." February, 2009. P. 2

² *Ibid.*

mature energy sources, especially coal, is projected to continue to increase.³

Ohio's Energy Efficiency Resource Standard is cost-effective and achievable. What is most compelling when comparing the costs of each of these resources is that, by far, the cheapest single resource across the board is energy efficiency. Energy efficiency resources cost on average 2.5 cents per kwh, which is cheaper than coal, gas, nuclear power, wind, solar, biomass, hydro-electric power, and all other resources. Claims that energy efficiency is costly for customers are flat wrong; energy efficiency is the best option for utility supply from a consumer standpoint, because it is by far the cheapest option; no energy source in Ohio can satisfy power needs at a consistent cost of 2.5 cents per kwh. It is also the cleanest option and the quickest energy resource to deploy.

In Ohio, we deploy energy efficiency programs through requirements on electric distribution utilities. Senate Bill 221 requires utilities to deploy cost-effective energy efficiency programs designed to save consumers an increasing amount of energy each year through the year 2025. By law and rule, the energy efficiency programs must cost significantly less than the electricity that is saved. Accordingly, every utility's program is saving utility customers more than it costs.

Energy efficiency programs provided by utilities in Ohio are available to residential, commercial and industrial customers. Current energy efficiency programs help customers dispose of old, inefficient refrigerators, provide incentives to afford new high-efficiency appliances, provide customers easy access to comprehensive home energy audits and retrofits, and help businesses update lighting systems and modernize production processes.

Energy efficiency programs save energy at less than \$.03 per kilowatt hour (kWh), while as discussed above the cost of energy from the cheapest new power generation facilities varies from \$.06/kWh to \$.12/kWh.⁴ In 2009, energy efficiency programs implemented by three⁵ of Ohio's investor-owned public utility companies massively reduced demand on electric generation, collectively saving enough electricity to power 181,000 homes for one year.

In meeting the standard's annual benchmarks, Ohio utilities are exceeding expectations. In March 2011, these same three utilities' energy savings reports filed with the Public Utilities Commission of Ohio (PUCO) documented tremendous savings – savings that actually exceeded their annual EERS requirement. Specifically, AEP reported 365,000 MW saved in 2010 (160% of the compliance requirement), Duke reported 310,755 MW saved (284% of the compliance requirement) and Dayton Power and Light saved 174,249 MW (243% of the compliance requirement). On account of each of these utilities going above and beyond the minimum savings target, they each will be able to bank their excess efficiency savings toward the utility's 2011 goal.⁶

³ See "Updated Capital Cost Estimates for Electricity Generation Plants" U.S. Energy Information Administration Office of Energy Analysis, U.S. Department of Energy.

⁴ See "Levelized Cost of Energy Analysis" at <http://www.narucmeetings.org/presentations.cfm?cat=Summer>

⁵ The fourth investor-owned utility, First Energy, received an extension on its filing due to delays in the review and approval of their residential program. While this delay for 2011 may mean that First Energy does not meet its targets for the 2010 requirement, there is no reason to expect that they will not be able to meet the benchmarks moving forward.

⁶ *Energy Efficiency: Saving Energy, Saving Money and Creating Jobs for Ohio*, Midwest Energy Efficiency Alliance (MEEA), May 2011.

These savings numbers are impressive. Through the energy efficiency programs AEP developed in its first efficiency plan, its customers are saving over \$400 million. AEP has an updated plan before the PUCO now – that plan is expected to save customers more than \$890 million over the life of the measures. Collectively, that is well over \$1 billion saved by AEP programs through the first two of many future plans; money that would have been spent by customers on utility bills. So, instead of being sent out of state to enrich Wyoming to import low-sulfur coal to Ohio, that's \$1 billion that will be invested right here in Ohio – spent at local hardware and home improvement stores and on local HVAC service providers, on local goods and services, including by businesses for improved operations and more staff, and by industry to boost production. These investments will make Ohio businesses more competitive and Ohio homes and offices more comfortable. AEP, along with Duke Energy and Dayton Power and Light (DP&L) deserve credit for saving customers so much money.

We cannot stress this point enough: As the Ohio General Assembly considers modifying Ohio's energy policies, some stakeholders will assert – erroneously -- that we cannot afford energy efficiency. As years of experience in other states and as the early experience in Ohio proves, we cannot afford **not** to invest in energy efficiency.

Further, Ohio law expressly precludes the implementation of any efficiency program that may exceed the cost of electricity. Under rules adopted from O.R.C. Sec. 4928.66, no utility may propose and implement a set of programs in Ohio that do not result in net savings for all customers. Bottom line, Ohio law requires that these programs save consumers money—period.

Ohio's RPS Targets are achievable, and they are lowering the cost of renewable energy. Another claim that you may hear is that the crafters of Senate Bill 221 somehow got the renewable energy benchmarks wrong, that the benchmarks aren't realistic or attainable. Documented evidence in several independent reports and in the utilities' own reports to the PUCO is contrary to this claim. In fact, Ohio's renewable energy resource standards are achievable, and they are working to lower the cost of renewable energy in Ohio. Once again, the data is compelling.

Right now, Ohio relies predominantly on coal-fired electricity, which makes up 86% of our electricity supply. Nuclear power provides another 11%, and natural gas about 2%. Less than 1% of Ohio's energy is derived from renewable energy resources. Ohio's renewable energy targets will slowly change these percentages, adding new resources over time at a gradual rate.

When fully implemented, the standard will change Ohio's energy mix – but not dramatically. When the law is fully complied with, in 2025, Ohio's supply will most likely still be about 75% powered by coal, and Ohio will still be one of the top producers of coal power in the country. When fully implemented, our law will have helped Ohio diversify its energy supply, ensuring that 12.5% of Ohio's energy is produced by clean, safe renewable energy and at least half of that energy investment will be made in-state, ensuring that Ohio's energy dollars stay in Ohio.

The cost for coal-fired power is increasing. As the focus of my testimony so far demonstrates, we understand that the cost of electricity is critically important. Low costs mean more money for consumers of all types to invest in other areas of economy, making Ohio stronger. Accordingly, efforts by

policymakers and elected officials, as well as regulators, to lower energy costs in Ohio make sense. To effectively accomplish this however, the full costs of an energy source need to be understood to make effective comparisons. When comparing the full costs of resources, two things become abundantly clear:

- First, as discussed earlier, energy efficiency is the cheapest energy cost option by far.
- Second and less obvious but just as important: coal power is not a cheap energy source. It is far from Ohio's lowest cost option. In fact, coal power is very expensive for Ohio.

The true, full and honest cost of coal power includes all its impacts on our economy. This translates into expenses that increase the price of coal power to its cumulative true total. The list of expenses is long—public health impacts, environmental impacts, economic impacts and impacts associated with mining mitigation and reclamation.

Top scientists and researchers recently concluded that coal power costs Americans on average a staggering 17.84 cents **extra** per kwh than the price paid to a utility.⁷ In Ohio, this makes coal more expensive than solar power.

Why is coal so expensive? The answer is simple – coal power creates economic damage that is paid for by someone other than the coal producer. In most cases, that somebody is the taxpayer ultimately pays the bill. Because of this cost to the taxpayer, coal is the most heavily subsidized energy source in America.

Specifically; coal produces 4.36 cents per kwh of public health damage to communities in Appalachia, alone; 0.09 cents per kwh in damage in public fatalities through coal transport; a staggering 9.31 cents per kwh in damage through air emissions; and .48 cents in costs associated with lower productivity due to the health impacts of mercury emissions. In addition, coal power creates great costs due to deadly particle pollution and acid rain from sulfur dioxide (SO₂) emissions; health impacts and lost work productivity from health impacts associated with ozone from nitrogen oxides emissions (NO_x), climate damage from carbon dioxide (CO₂) and nitrogen dioxide (NO₂) emissions, land disturbances and methane emissions from mining and mines, abandoned mine land cleanup, and of course state and federal direct subsidies.⁸

In the United States, an estimated 13,200 people die prematurely each year due to long-term exposure to coal-fired power plant emissions. Ohio accounts for 1,221 of those deaths, second only to our downwind neighbor, Pennsylvania.⁹

Moving away from coal power, in the gradual way that Senate Bill 221 stipulates, will reduce the amount of environmental damage caused by this traditional energy source. Case in point is that the emissions

⁷ See Paul R. Epstein, Jonathan J. Buonocore, Kevin Eckerle, Michael Hendryx, Benjamin M. Stout III, Richard Heinberg, Richard W. Clapp, Beverly May, Nancy L. Reinhart, Melissa M. Ahern, Samir K. Doshi, and Leslie Glustrom. 2011. Full cost accounting for the life cycle of coal in "Ecological Economics Reviews." Robert Costanza, Karin Limburg & Ida Kubiszewski, Eds. *Ann. N.Y. Acad. Sci.* 1219: 73-98, at 92.

⁸ See above.

⁹ See "The Toll From Coal" An Updated Assessment of Death and Disease from America's Dirtiest Energy Source, September 2010, at 5 and 12.

reductions already achieved through Ohio's energy efficiency and clean energy standards are impressive. In the first two years of Ohio's RPS and EERS, significant CO2 savings were realized¹⁰:

- 2009 CO2 savings: .55% reduction or 804,649 MWH = 804,649 tons of CO2¹¹
- 2010 CO2 savings: 1% reduction or 1,462,998 MWH = 1,462,998 tons of CO2¹²
- Total for 2 years: 2,267,647 tons of CO2

All in all, coal is very expensive, and the taxpayer ends up picking up much of the tab. Conversely, reducing Ohio's reliance on coal yields tremendous benefits in public health and mitigating negative environmental impacts. In sum, the claim that coal energy is cheap is a distortion of the actual costs associated with generating electricity from this finite resource. Coal power means that America and Ohio spends millions each year in health, environmental and other costs.

Ground Truthing the Economic Benefits of Energy Efficiency and Renewable Energy. In the past three years, since Senate Bill 221 was enacted, Ohioans have enjoyed smaller utility bills and witnessed new job growth thanks directly to investments by utility companies in energy efficiency programs and renewable energy projects.

With respect to energy efficiency, in the first two years of the programs (2009-2010), Ohio utilities saved consumers a collective \$56 million on their electric bills, over and above the cost to run the programs.¹³ For the average citizen, the savings on their utility bills are substantial. An analysis compiled by efficiency experts in May 2011,¹⁴ demonstrates that for each \$1 that American Electric Power, Duke Energy and Dayton Power & Light spent on energy efficiency programs, customers will save \$4.70 over the lifetime of the implemented technologies. By the end of this year, energy saved through the efficiency standard will be outpacing Ohio's expected average annual growth in electric consumption.

In addition to significant savings for consumers, Ohio's energy efficiency standard has made a tremendous impact on job creation. Over 1,300 businesses in Ohio are active in the efficiency industry, through manufacturing components for the efficiency industry, providing weatherization services, or selling and/or installing energy-saving products. With a continued investment in energy efficiency, businesses can create an additional 8,000 jobs by 2015 and over 32,000 jobs by 2025 and annual savings for consumers will average \$300 by 2015 and over \$1,600 by 2025.¹⁵

In 2009, American Electric Power (AEP) implemented energy efficiency and demand reduction programs that will save consumers and businesses over \$400 million in reduced bills and result in 3,000 new jobs

¹⁰ Figures calculate 1 metric ton of carbon dioxide (CO2) per MWH for Ohio's electric mix and 146,299,793 MWH of electric sales in Ohio annually.

¹¹ OEC calculation, targets for 2009 were: .25 for RE, .3 for EE.

¹² Targets for 2010 were: .5 for RE, .5 for EE

¹³ Based on analysis from the Environmental Law and Policy Center, energy savings of AEP, Duke, and DP&L, as reported to the PUCO, and average rates

¹⁴ *Ibid*

¹⁵ Shaping Ohio's Energy Future: Energy Efficiency Works, March 2009, American Council for an Energy Efficient Economy.

through 2011.¹⁶ As mentioned above, AEP's new proposed plan is anticipated to save customers over 890 million. Duke Energy is offering residents and consumers energy efficiency incentives through its Smart Saver program, which is helping lower utility bills for residential customers and making businesses more competitive.

Now that the energy efficiency programs have been in place close to three years, Ohio is home to many success stories in which the state's Energy Efficiency Resource Standard made a positive difference in a company's bottom line, or in small business job growth, or in a local school district's ability to control energy costs.

One such story begins with the owners of a small grocery chain, Carnival Foods¹⁷, with stores in Fairfield, Licking and Pickaway counties. The company was considering upgrading store lighting. After company officials saw a presentation on LED-lit dairy cases, the grocer took advantage of AEP's gridSMART initiative, which is designed specifically for businesses wanting to purchase and install energy efficient equipment. The lighting retrofit alone is expected to save the company 293,000 kWh annually or a reduction of 46% in energy costs. Additionally, the grocer had new freezer doors installed for its freezer and refrigeration displays, which added additional energy savings—bringing the total annual savings for the grocer's Lancaster store to 459,170 kilowatt hours of electricity.

Good energy efficiency programs provide a financial incentive element that makes sense for businesses. In this case study, AEP's program provided Carnival Foods with enough financial incentive to reduce the project's payback period by a whole year, from 3.9 years to 2.9 years—a significant amount of time for a commercial enterprise that make capital investments every few years as a way to keep its stores attractive and modernized for its customers.

Likewise, the success of Ohio's clean energy economy has real and tangible impacts. The Timber Road Wind Farm in Paulding County is a 99 MW wind project that went online in October 2011. The project will generate enough clean renewable energy to power 27,000 homes and create hundreds of construction jobs and a steady stream of income for farmers who have leased their land for the project.¹⁸

Landowners and construction workers aren't the only ones benefitting from the Timber Road Wind Farm. Paulding County will see nearly \$1 million in additional tax revenue each year because of this project. The local vocational school will benefit from a training partnership with the development company and the school district will receive hundreds of thousands of dollars annually in new support from the project.¹⁹

The response from the community has been overwhelming positive, and it isn't difficult to see why. This is a county that had to close its jail and reduce funding to its economic development agency. Before this project, this community was, for all intents and purposes, struggling in a very real way to make ends

¹⁶ <https://aepohio.com/info/news/ViewRelease.aspx?releaseID=771>

¹⁷ AEP Ohio Case Study, *Ohio Grocer Brightens Store, Keeps its Cool and Reduces Energy Waste*, <https://www.aepohio.com/global/utilities/lib/docs/save/programs/SuccessStories/CarnivalFoods.pdf>

¹⁸ <http://www.timesbulletin.com/main.asp?SectionID=2&SubSectionID=4&ArticleID=169085>

¹⁹ http://www.fwdailynews.com/index.php?option=com_content&task=view&id=14164&Itemid=9

meet. Now, even the local radio station is calling Paulding County the “Wind Energy Capital of Ohio” and local business owners and elected officials see renewed hope for the region’s economy.

Of course, none of this would be possible without Senate Bill 221 and Ohio’s Renewable Energy Portfolio Standard. To quote the CEO of EDP Renewables, the company that developed the Timber Road Wind Farm,

“The one thing you cannot discount is that we are right on the border of Ohio. Three miles away (in Indiana) the wind resources are the same. But why we chose (Ohio) has to do with policy. The alternative energy standard and the right incentives for utilities to buy wind or solar energy. This is very good for us but very beneficial for consumers and AEP Ohio because they are getting fixed prices for 20 years. Policy matters. It was critical for us to get this project done.”²⁰

Most importantly, this \$175 million dollar project is merely the first of more than \$2 billion worth of wind energy investment in our state.²¹ The Timber Road project represents less than 10% of the 1,050 MW already approved by the Ohio Power Siting Board. On top of that, another 800 MW have been proposed and are under review.²² And these projects are not limited to Paulding County. Proposed and already approved projects are in the works in 10 counties, from Ashtabula to Van Wert. All told, these projects will provide clean renewable energy to over 1 million homes, create thousands of good paying jobs, and bring billions of dollars of investments to our state.

Ohio is uniquely situated to benefit from these investments thanks to our strong manufacturing background and skilled workforce. Already, Ohio is home to over 600 companies in the wind supply chain.

Lincoln Electric and Timken are two of these companies who personify the transition that hundreds of companies across Ohio are making as the clean energy economy drives our economic rebound. Lincoln Electric is a global manufacturer of welding, cutting, and joining products. Recently, the company began providing products and services to the wind energy industry and now are involved in three-quarters of all wind energy development. Lincoln electric is generating \$50 million in global revenue from wind energy related work. Another great example is Timken, based in Canton, which makes giant 5-ton bearings for utility-scale wind turbines. They also recently partnered with Stark State College to develop a \$12 million research and development center devoted to wind energy. Investments such as these are helping make Ohio a growing manufacturing leader in the fast-growing, global wind supply chain in America. Many factors are converging to make this happen, and Ohio’s Renewable Energy Standard is one of them.

Wind energy isn’t the only success spurred by Ohio’s energy policies. Northwest Ohio is establishing itself as a hub of solar manufacturing in America, directly employing over 6,000 people in that part of the state, alone.²³ First Solar, which is the largest solar manufacturer in North America, has its American

²⁰ <http://www.timesbulletin.com/main.asp?SectionID=2&SubSectionID=4&ArticleID=169085>

²¹ <http://www.toledoblade.com/Energy/2011/10/16/Local-wind-power-is-churning-up-cash.html>

²² <http://www.opsb.ohio.gov/opsb/?LinkServID=895FE98C-C363-FCF9-6BFDC7DF3A3F7AA2>

²³ <http://www.toledoblade.com/Energy/2011/07/07/Area-to-add-solar-panel-plant.html>

manufacturing operations and research and development facility in Perrysburg, Ohio. They're joined by Willard & Kelsey and Xunlight, two promising companies that have added jobs and continued to grow even as other sectors of our economy shrank. And just this summer, Isofoton announced it would be locating their North American manufacturing operations in Napoleon, Ohio – bringing more than 300 jobs that pay \$45,000 a year on average. And success in the solar industry isn't limited to startups and foreign companies; DuPont with its facilities in Circleville is making the transition to the clean energy economy as well. The company that developed Kevlar and Teflon is investing \$175 million to expand its solar production line.

For commercial consumers of electricity, solar power has proven to be a reliable and increasingly inexpensive way to reduce overall energy costs. Walgreen's has installed 53 solar arrays in 20 counties across Ohio. According to the company's own estimates, these installations will lower the energy costs of each store by 15% - 20%.²⁴ The result of this commitment from a very large commercial customer demonstrates the significant role that solar power can play in off-setting volatile fuel prices that can make a customer's electric bill unpredictable, month-to-month. For businesses in the current economic climate, stabilizing energy costs is absolutely critical in creating consistency and predictability for its investments in capital, labor and operations.

Another compelling example of how renewable energy can be transformative for local communities in Ohio is the Turning Point solar installation planned for eastern Ohio, and the previously mentioned Isofoton manufacturing facility in Napoleon, Ohio. The Turning Point Solar project presents a classic "if you build it, they will come" scenario. In 2010, AEP announced plans to construct Ohio's first utility-scale solar project with almost 50 MW of electricity generated from panels stretching over 750 acres of reclaimed mine land--creating 600 construction jobs. Following this announcement, Isofoton, announced its plans to build a solar panel manufacturing plant in Henry County as a direct result of the Turning Point project. Why are these projects planned for Ohio? Because of Senate Bill 221.

According to the Solar Energy Industry Association, Ohio is the 2nd largest solar manufacturing state in the nation. The products and services of Ohio solar manufacturers benefit not only Ohio projects, these companies are exporting their goods and are competitive on a global scale.

Each of these projects also brings much needed business to local contractors, from concrete mixers and semi-truck drivers to area restaurants and hotels. And with the foundational strength that Ohio has in manufacturing, growth in these industries can be expected to continue, particularly if the public policy supporting such growth and investment remains ambitious and an integral part of Ohio's energy policy.

Meeting Ohio's Future Electricity Needs. In the last *Ohio Long-Term Forecast of Energy Requirements (2008-2027)* (OLTFER), the Public Utilities Commission of Ohio estimated a 17% increase in electricity load from 2010 values by 2027. In terms of megawatts, this predicted consumption will be on the order of 166.5 terawatt-hours (TWh = one billion megawatt hours) in 2027. Concurrently, in roughly the same timeframe, Ohio will likely experience a reduction in electricity generating capacity as aging coal-fired power plants are retired. In fact, it's expected that thousands of Mwh of capacity will be eliminated from Ohio's generation portfolio. In a state where 86 percent of our electricity is generated by coal, it is

²⁴ http://news.walgreens.com/article_display.cfm?article_id=5470

easy to assume that these retirements are going to create a gap in Ohio's generation capacity. However, continuing the current investments in energy efficiency, renewable and advanced energy resources will close this gap.

Meanwhile, the massive regional, national, and global drive towards more clean energy technology and energy efficiency resources will continue. Investments in renewable energy and energy efficiency technologies are not a matter of "if," but a matter of "where" and "how much." Companies, governments and individuals worldwide are pouring real dollars and human capital into developing cleaner, better, and cheaper ways to generate electricity in a sustainable way. These types of investments will be made on an exponentially growing scale. Therefore, the question becomes, how do we position Ohio to take advantage of this growth? How can policymakers ensure that Ohio is a leader and a serious player in clean energy development? Private sector leadership and the power of markets to determine where investments should be made is a critical driver, and public policy must be in place to support such investments.

Importantly, we don't have to mortgage our future in order to see these investments pay off. Meeting Ohio's future energy needs through a combination of strong efficiency, advanced and renewable standards can benefit more sectors of Ohio's economy right now. For example, for every \$1 million spent on energy efficiency, 21 jobs are created – compare that to traditional coal, which only creates 7 jobs per \$1 million of investment.²⁵ And, remember, renewable energy and energy efficiency installation jobs cannot be exported or outsourced to other states or countries.

Recommendations for keeping Ohio on track. Beginning this past spring with informal hearings in the Senate Energy and Public Utilities Committee and continuing into this Fall with Governor Kasich's energy summit, and now informal hearings here in the House Public Utilities Committee, many stakeholders have weighed in on Ohio's energy efficiency, renewable and advanced energy standards. The committee has heard testimony that these standards are fair and achievable; but you've also heard that the standards are too costly and the targets are unrealistic. There are some with the opinion that the standards are still too new and should be left alone in order for the markets to mature, but others who would like to take a step back, and require less of Ohio's utilities. That noted, the impressive successes achieved through our standards are clear and compelling evidence that now is the time to be doubling down, increasing energy efficiency budgets, driving more private sector investment, tapping into the manufacturing resources that Ohio has to offer and asking for more from our utilities. It is for this reason that we make the following recommendations to this committee:

1. Retain cumulative targets and annual benchmarks for the RPS and the EERS. Since the enactment of Senate Bill 221, the renewable energy credit markets as well as the integration of supply chain companies has been building and testing itself, as markets naturally do. It is to be expected that there will be fluctuations in prices, changes in the availability of renewable energy credits and the time required for project development models to emerge. Adjusting the cumulative goal of 25% alternative by the year 2025, or even modifying the intervening year benchmarks at this point in time would be irresponsible. The effect of a weaker standard could devastate projects in the pipeline and stymie investments that have already been made. In fact, you might even see projects currently in the early

²⁵ Source: American Council for an Energy Efficient Economy (ACEEE)

stage of construction just fold, close up shop, lay off workers and look to other states where the policy is in harmony with the development.

The same can be said for the Energy Efficiency Resources Standard. Investor-owned utilities have invested millions in their programs, and Ohio residents and Ohio businesses are realizing the benefits, today. To roll back this standard would waste an exorbitant amount of ratepayers' dollars and prohibit industrial and commercial customers from inoculating themselves against sometimes volatile energy and fuel prices. The bottom line is that this law is still young, but it's already demonstrating a ripple effect on jobs, Ohio's economy and the budgets of Ohio families. Let the law continue to work on all these fronts.

2. No More Exemptions to the EERS Requirement. When the state's EERS was being developed and debated in the Ohio General Assembly, quite a bit of consideration was given to utilities and their largest customers' ability to make reasonable arrangements on electricity prices, stand-by rates and interconnection charges. The impetus behind these discussions was to ensure that the new energy efficiency standard did not place undue cost on Ohio's manufacturers and commercial customers. Without a precedent in Ohio that demonstrated the tremendous benefits of implementing energy efficiency measures at commercial and industrial sites, it is understandable that the policy decisions made at the time would provide for adequate safeguards to increasing costs.

The result of this consideration is a provision in Senate Bill 221 that allows for industrial customers to self-direct efficiency programs. Section 4928.66 (A)(2)(c) of the Ohio Revised Code states that "[a]ny mechanism designed to recover the cost of energy efficiency and peak demand reduction programs ... may exempt mercantile customers²⁶ that commit their demand-response or other customer-sited capabilities... for integration into the electric distribution utility's demand-response, energy efficiency, or peak demand reduction programs..."

How well Ohio's self-directed energy efficiency programs for industrial customers are working is demonstrated by the fact that industrial customers are heavily participating in utility-run programs. Additionally, utility reporting demonstrates that the savings produced through industrial programs are remarkably low-cost, meaning that *all customers* are benefiting from a cheap capacity resource that is on average costing customers one-fifth of the price of power purchased on the wholesale market.²⁷

Large industrial and commercial customers already have ample flexibility in 1) designing their own programs and 2) a choice on whether they participate at all in their utility provider's EERS programs. Increasing this flexibility or applicable exemptions on some of the largest consumers of electricity in Ohio would, in effect, mean that serious opportunities for very low cost energy efficiency resources would be missed. The OEC's recommendation is to leave industrial customers within the programs and targets as designed; energy efficiency investments directly benefit manufacturers, and the low-cost savings that manufacturers can provide a utility benefit all customers, as that savings is significantly cheaper than the lowest cost resources a utility could purchase in the wholesale market.

²⁶ "Mercantile customer is defined in ORC Section 4928.01(A)(19) as "a commercial or industrial customer if the electricity consumed is for nonresidential use and the customer consumes more than seven hundred thousand kilowatt hours per year or is part of a national account involving multiple facilities in one or more states."

²⁷ Costs for industrial programs range from less than a cent up to 3 cents.

3. Increase Opportunities for Industrial Customers. In a global marketplace, competition can make or break domestic manufacturing. Industrial energy efficiency is a low-cost option for Ohio's energy-intensive businesses that will not only save megawatts of electricity, but by lowering the energy-cost-per-unit-produced, directly improve competitiveness. Implementation of energy efficiency measures improves a company's control over its energy costs, which in terms of fuel prices for natural gas, oil or coal, can be volatile and unpredictable markets.

In Ohio, the amount of energy consumed by industries totals about 1,341.0 trillion BTU, placing Ohio 4th in the nation for total energy consumption attributable to the industrial sector.²⁸ A recent study conducted by the Midwest Energy Efficiency Alliance (MEEA) estimated that through full implementation of Ohio's EERS, between 2011 and 2027, electricity savings could add up to 318 terawatt-hours (TWh = a billion kilowatt hours).²⁹ Equally so, using the same projected savings, by the year 2027 Ohio customers will experience an annual energy savings of approximately 42.9 TWh, of which 15.8 TWh can be realized from the industrial sector. In all, the capacity for netting energy savings is large within Ohio's industrial base.

As the EERS ramps up over time, and if efficiency programs available for industrial customers remain self-directed and voluntary, the pool from which utilities can draw to account for their savings could precipitously shrink. Therefore, the OEC recommends that more programming and policies be developed specifically for industrial customers. Other utilities, like Xcel Energy in Minnesota, have demonstrated that aggressive collaboration between industrial customers and utilities can forge effective partnerships in realizing true savings—both kWh and money—for industrial customers.³⁰

4. Enable on-bill financing for energy efficiency projects. On-bill financing is a tried and tested tool for successfully deploying energy efficiency services to the general public and can be adapted to the residential, commercial or industrial sectors. Home and business energy efficiency upgrades generally have very quick payback periods; but due to a variety of factors, adoption of energy efficiency measures by home and business owners, and especially lessees and renters, has been remarkably low.

On-bill financing programs directly attack barriers such as poor information on costs of retrofits, lack of access to up-front capital, or ownership of the building (in cases where renters or tenants pay the utility bill). On-bill financing programs work as follows: capital is first allocated to a program, through borrowing from banks, bonding, or utilities. Next a program is marketed to utility customers, which can then respond for completely voluntary participation. Following this, a customer's property is reviewed and savings opportunities are identified, and in return for a legally-binding pledge to payback the improvements through a utility bill, the customer signs on to the program. After this, investment in energy efficiency is made, and the customer pays back the costs of the retrofit on their bill, receiving a net savings even during the payback period.

²⁸ United States Energy Information Administration: <http://www.eia.gov/state/state-energy-profiles.cfm?sid=OH>

²⁹ *Energy Efficiency: Saving Energy, Saving Money and Creating Jobs for Ohio*, Midwest Energy Efficiency Alliance (MEEA), May 2011. Cumulative savings projections are based on the Public Utilities Commission of Ohio's Ohio Long-Term Forecast of Energy Requirements 2008-2027 (OLTFER).

³⁰ For more information on Xcel's energy efficiency programs for businesses, visit: <http://business.responsiblebynature.com/>

5. Establish Efficiency Standards for all State Facilities. Ohio's own capital facilities, vehicle fleets, and operations offer a prime opportunity for our government to lead by example, building energy efficiency option into facility operation and achieving significant energy cost savings that improve state budgets. Ohio can be a leader with its own state buildings by legislation or executive order, simultaneously saving taxpayer money and promoting energy efficiency to the general public.

As a start, Ohio's reforms should begin with new state building construction. Wherever state funds are in whole or in part utilized to construct new facilities, those facilities – whether office buildings, public schools, colleges, universities, or another specific type of infrastructure – should be energy efficient from the start. Over time, the savings to the state and taxpayer can be substantial.

After Ohio takes action to develop energy efficiency resources in new construction, Ohio should look to optimize energy usage in existing buildings. In Texas, state law requires that all state facilities looking to a major renovation evaluate the feasibility and cost of adding commercial building combined heat and power (CHP) resources. In New Mexico, state law requires that renovation of existing buildings between 5,000 and 15,000 square feet must achieve a minimum delivered energy performance standard of 50% of the average consumption for that building type.³¹

Ohio's best strategy for existing facilities should start with a state-wide assessment, looking, first, at the largest state-users of energy. Building retrofits can then be prioritized according to payback periods. Ohio should lead by example, setting standards for new state facilities, and looking to retrofit existing facilities through a variety of methods.

6. Increase deployment of Combined Heat and Power and Waste Energy Recovery for Industrial and Commercial Customers. Combined Heat and Power (CHP or cogeneration) technologies, when implemented on site or near industrial or commercial facilities, produce electricity and recycle the heat energy from the on-site electric generation process simultaneously to meet both power and heating/cooling needs, all from a single source of energy.

Similarly, Waste Heat Recovery (WHR) technologies capture waste heat from a pre-existing process within an industrial facility and turn it into electricity and/or recycle the thermal energy for other uses.

Both CHP and WHR technologies increase efficiency with which we use scarce resources and can provide the commercial or industrial facility with lower utility costs, higher utility reliability, and a more energy efficient and environmentally friendly operation.

Ohio is recognized as a state with high technical potential for CHP and WHR; in fact Ohio ranks 5th in the nation for CHP potential. However, Ohio lags significantly behind other states (43rd in the nation) in terms of adoption. In 2011, 50 sites across Ohio were operating CHP systems with a combined generating capacity of about 766.6 MW. The estimate for Ohio's potential is large—approximately 9,800 MW of power could be generated, based on the latest United States Department of Energy assessment.

³¹ For more information on other states' programs, see <http://www.aceee.org/sector/state-policy>

The OEC recommends the barriers to project development be removed so that WER and CHP are further developed in the state. Barriers such as lack of utility support, lack of long term contracts with utilities for excess power purchases and the lack of recognition of CHP and WER in the states financing or energy development programs prevent many projects from reaching the installation phase.

Thank you again for inviting us to testify today and I would be happy to answer any questions you may have at this time.