

Energy Management Solutions, Incorporated, Exhibit No. _____

**BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of Ohio)	
Edison Company, the Cleveland Electric)	
Illuminating Company, and the Toledo)	
Edison Company for Approval of the)	Case No. 16-743-EL-POR
Energy Efficiency and Peak Demand)	
Reduction Program Portfolio Plans for)	
2017 through 2019.)	

DIRECT TESTIMONY

of

GARY A. SWANSON, P.E.

On Behalf of

ENERGY MANAGEMGENT SOLUTIONS, INCORPORATED

September 13, 2016

1 **I. INTRODUCTION**

2 **Q. Please state your name and business address.**

3 A. Gary A. Swanson, 684 Excelsior Boulevard, Suite 200, Excelsior, MN, 55331.

4 **Q. By whom are you employed and in what capacity?**

5 A. Energy Management Solutions, Incorporated (“EMS”), as the President.

6 **Q. How long have you been associated with GJM?**

7 A. Approximately twelve years. I have been involved with utility rates and industrial customer
8 savings for over 27 years.

9 **Q. On whose behalf are you offering testimony in this proceeding?**

10 A. I am appearing and offering this testimony on behalf of Energy Management Solutions, an
11 intervenor in this case.

12 **Q. Please outline your educational background and business experience.**

13 A. I graduated from the University of Minnesota in 1984 with a degree in Mechanical
14 Engineering. I received my Professional Engineer Certification in 1990. I have worked with
15 industrial customers to modify and lower utility rates and complete various energy efficiency
16 and peak demand reduction retrofits. EMS has worked in every state in the US and
17 identified/submitted more energy efficient incentives than anyone else in Ohio. Last year
18 alone EMS identified and submitted over 120,000,000 kWh in energy savings.

19 **Q. Have you ever offered testimony in Ohio prior to this case?**

20 A. Yes. I presented testimony to the Ohio General Assembly, House of Representatives in May
21 of 2014, regarding Senate Bill 310 and other information regarding energy efficiency. I also
22 testified before the Ohio Energy Mandates Study Committee in May of 2015 on the subject

1 of industrial efficiency and to explain the utility rebate process. These are attached to my
2 testimony.

3 **Q. What is the purpose of your testimony in this proceeding?**

4 A. The purpose of my testimony is to present an alternative incentive proposal for adoption for
5 Combined Heat and Power (“CHP”) projects in order to encourage these kinds of distributed
6 generation projects in Ohio. I am also asking the Commission to encourage the First Energy
7 Companies to add additional administrator agreements to specialized entities like EMS that
8 have the ability and potential to increase participation in FirstEnergy’s proposed industrial
9 programs.

10 **II. ADOPTING APPROPRIATE INCENTIVES FOR COMBINED HEAT AND POWER**
11 **PROJECTS.**

12 **Q. What is “combined heat and power” (CHP)?**

13 A. Combined heat and Power, or “CHP,” is a form of distributed generation. These facilities are
14 commonly employed in commercial and industrial settings that have high electrical and
15 thermal heat load factors. Industrial customers can reduce procurement of power from the
16 grid and save energy on the thermal side of the business.

17 **Q. Why should these projects be encouraged in Ohio?**

18 A. All of Ohio’s electric distribution utilities have programs that include or may potentially
19 include CHP facilities. My understanding is that these projects became eligible for energy
20 efficiency incentives as a result of Ohio Senate Bill 315 in 2012. I attended some of the CHP
21 workshops hosted by the Public Utilities Commission of Ohio in 2012 and 2013. Because
22 customers – including industrial customers – have the potential to save money on energy and
23 power through power interruptions, these projects should be encouraged. In order for

1 industrial customers to make such significant investments, the incentive structure must be
2 appropriate to encourage investment in CHP.

3 **Q. What are the overall costs for a CHP project?**

4 A. The cost of a CHP project will vary, but generally, the cost is between \$1,000 and \$2,000 per
5 kW.

6 **Q. What are the FirstEnergy Companies' currently proposing for CHP Incentives?**

7 A. FirstEnergy proposes a maximum rebate of \$250,000 per project, with a minimum of
8 \$500,000 per customer per year.¹ These amounts are inadequate for encouraging and
9 developing larger projects. In my opinion, these amounts are not enough to incent mercantile
10 customers from developing projects that would produce significant savings within the
11 FirstEnergy Company's service territories.

12 As stated in our objections, CHP projects will greatly benefit customers utilizing this
13 technology, allowing them to be individually more competitive in a global economy in
14 accordance with express, statutory purpose.² Encouraging mercantile customers to adopt and
15 employ distributed generation³ is significant in facilitating the Ohio's effectiveness in a
16 global economy. In addition, the proposal states that CHP projects will be "rebated per the
17 Commission's direction."⁴ It is not clear from the Companies' application whether CHP
18 projects will be subject to the limits FirstEnergy seeks to impose on all mercantile projects.
19 EMS would like to see the above statement clarified, and would like CHP projects to be
20 incented differently.

¹ See FirstEnergy Application, Attachment A, pp. 72-74 (April 15, 2016).

² R.C. 4928.02 states in part: "It is the purpose of this state to [...] (N) Facilitate the state's effectiveness in the global economy."

³ R.C. 4928.02 also states in part: "It is the purpose of this state to [...] (C) Ensure diversity of electricity supplies and suppliers, by giving consumers effective choices over the selection of those supplies and suppliers **and by encouraging the development of distributed and small generation facilities....**" (Emphasis added).

⁴ FirstEnergy Application, Attachment A, at 74 (April 15, 2016).

Q. What does EMS propose for a CHP Incentive Structure?

A. As stated in our objections, EMS recommends that the value of the credits or rebates for these projects should not be limited to a \$250,000 per project, but rather defined by the kWh output. This is how Ohio Power recently approached a pair of CHP projects approved by the Commission.⁵ In order to encourage CHP projects, a project incentive should be tied to the kWh output and not an arbitrary maximum amount of \$250,000.

In addition, the rebate maximum for other energy efficiency projects should be not limited to \$250,000 per project and \$500,000 per customer per year. If a customer is willing to make significant investment and generate a greater amount of kWh savings – benefitting their operation, providing greater savings credits for the Companies and additional system-wide benefits, that customer should be able to receive appropriate, corresponding rebate amounts. The idea of the rebate program is to help provide incentive for customers to do more energy efficiency projects, not to discourage investment in energy efficiency projects once the \$500,000 level is reached. EMS respectfully recommends that the Companies clarify that these arbitrary amounts do not apply to CHP projects, or that these caps be eliminated for CHP projects in order to encourage maximum participation by mercantile customers and increase energy efficiency savings produced within the Companies' service territories.

III. EXTENDING ADMINISTRATOR AGREEMENTS TO SPECIALIZED ENTITIES.

Q. What are administrator agreements?

A. Administrator agreements are agreements between FirstEnergy and some customer representatives. These agreements were approved in Case No. 09-553-EL-EEC and included agreements with the Ohio Manufacturer's Association, the Ohio Hospital Association, and

⁵ See the Applications of Solvay Specialty Polymers (14-2296-EL-EEC) and Kraton (14-2304-EL-EEC). The amount per year paid to Solvay was greater than the per-project limit proposed by FirstEnergy here; and the

1 other customer representatives. The agreements pay these groups a fee for bringing in
2 projects that produce savings that the FirstEnergy Companies may count toward their energy
3 benchmarks.

4 **Q. What modifications does EMS propose for these administrator agreements?**

5 A. As noted, the Companies have already selected certain entities to be administrators. EMS
6 recommends, as stated in our objections, that FirstEnergy consider and allow other qualified
7 entities to take on this role as well. A segment that is not strongly represented in the
8 Companies' current results is the Industrial segment. There were not many rebates that were
9 funneled through this program. EMS would like to see the opportunity to seek savings
10 among this customer group opened up to more entities - like EMS - who have a strong
11 presence in the Industrial market. EMS respectfully recommends that the Commission
12 review this process and allow additional entities to apply for this status to boost participation
13 in the Industrial customer segment.

14 **Does this conclude your testimony?**

15 A. Yes, it does. But I reserve the right to supplement the testimony as needed. Thank you.

Testimony – House of Representatives
Opponent to SB 310

Presented by: Gary A Swanson, PE
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(612) 819-7975

Qualifications:

Gary A. Swanson, PE – President of Energy Management Solutions (EMS), Professional Engineer in Ohio and other states, worked in Ohio market for 12 years, presently working with 50 large industrial customers ranging from 1,000 kW to 100,000 kW. Mr. Swanson has over 27 years experience working with utility rates and industrial customers. EMS has worked in every state in the US and identified/submitted more energy efficient incentives than anyone else in Ohio. Last year alone EMS identified and submitted over 120,000,000 kWh in savings. Our objective is to help customers identify energy saving projects and help them apply for energy efficiency incentives that are needed to help pay the improvements.

This Program can be a Win – Win for Everyone.

Summary – This program can actually be a win-win for all parties. This bill is not about Republicans VS. Democrats, it's about keeping the lights on, energy costs down and industrial customers competitive. Who doesn't want this for everyone in Ohio? The problem is that energy efficiency is grouped together with renewable energy and they need to be analyzed separately. Energy Efficiency is the lowest form of generation. (See Berkley National Laboratory report from March 2014) All Companies in Ohio can use the energy efficiency program to become more efficient. Killing this program, which a two year freeze will accomplish, will harm large energy users as well as residential users. Large industrial companies can use Energy Efficiency to reduce energy costs by 30%, increase production and increase jobs. Residential customers need Energy Efficiency to offset the lack of generation in Ohio. This will help avoid blackouts and the 20-30% energy cost increases that will occur as a result of the lack of power available in Ohio. There is no near term solution for filling the void left behind after the coal plants are closed.

- **The Freeze** will actually kill the momentum and trust companies have in the Energy Efficiency Program. It will take 5 years before this program can make up for the lost momentum.
- **Misinformation** – People, who are trying to sell this bill, are using incorrect information. Energy Efficiency is cost competitive and in everyone's best interest. No single company is paying millions on this program. They could be spending \$200,000 a year but they can easily recover this from simple projects.
- **Black Outs and 20% to 30% Increase to Energy Costs** – Ohio is closing more coal plants than any other state. Ohio will be reducing generation by more than 15% of their energy needs this year. If we have a similar year as last year, there will most likely be blackouts and energy costs will increase 20-30%. Who, going through an election, wants to face their people and say "I voted to kill/Freeze this program and this is why you are seeing energy costs increases and blackouts"
- **Opt Out** – Let large companies opt out if they want to as long as they can show they have done all they can for conservation.
- **Analyze the Program** – The program needs tweaks but don't kill something that is essential for many companies to remain competitive. Analyze the program in 2015. If it is found to be a bad program, then kill it officially. Many companies already have projects planned to use the Energy Efficiency program in 2014, 2015 and 2016. Don't let them down.

- **31 States Have Similar Energy Efficiency Programs** – If 31 states are spending over \$5.3 billion a year, are all of these states wrong?
- **Utility Transmission and Distribution Energy Efficiency Credits** – If utilities are allowed to claim past and future transmission and distribution projects, they could use this to obtain 100% of their energy efficiency credits, pay themselves the rebates and still charge the customers.

1. The Freeze is a Kill – Not a pause, coffee break or temporary stop.

- a. Companies need to plan 1-3 years out for projects. How can they plan for conservation, when incentives are needed, if they don't know the program will be there?
- b. What about companies who are already planning for this year and the next? Some have already ordered equipment for 2015 projects that have been preapproved.
- c. Companies will never trust that an Energy Efficiency Incentive will be available for their projects.
- d. **Example** – One company has ordered 3-7000 HP adjustable speed drives because the energy efficiency incentives will lower the payback. This will cost them \$3,000,000 and save 18,000,000 kWh. This could save the company \$1,000,000 per year and the local utility \$1,300,000 in avoided infrastructure improvements.
- e. It has taken 5 years to develop the Energy Efficiency market, educate customers and develop trade allies needed to achieve goals. A two year freeze will totally dismantle all of these efforts. Who is going to wait around hoping that everything will be fine in 2017? It will take at least another 5 years to get this program going again and that is if customers still want to participate.
- f. Missed Opportunities – Some Companies shut down loads every 3-5 years. If we miss the opportunity, due to the Great Freeze, it will be lost forever.
- g. If a **plant wants to tweak** or study a process, does it shut down the plant to analyze or review the process while operating?
- h. No one says this program doesn't need to be looked at for changes but you don't shoot first and ask questions later. How do you know if it is broken or not?
- i. **Solutions:** Create a study group made up of people from the industry and fast track the analysis so that recommendations can be done in 2015. If it is found that this is not a good program, it can be killed officially.

2. Misinformation (See article <http://aceee.org/blog/2014/05/misleading-ohio-clean-energy-freeze>)

- a. None of the people who testified yesterday are paying for the renewable portion that is being debated. This is only for customer's not shopping power in the market. The Tariff for renewable energy is called Alternative Energy Rider and is by-passable if you shop for your electricity, meaning you don't pay for this renewable rider if you are shopping for power. So all of these people complaining about paying for renewable are not even paying.
- b. Companies who use the Energy Efficient program support it. Yes and they are saving more energy and cost. This is how it should be used.
- c. Conditions have changed since 2008 when so many passed the 221 bill. Conditions always change. There is more natural gas today but it is not producing electricity. You need to get it from the ground, ship it if space is available in the pipelines, build a power plant (if anyone wanted to build one) and then ship the electrons over the transmission lines which are very full right now. The question that should be asked "Is Energy Efficiency the cheapest form of energy" and the answer is absolutely! Also all of the

natural gas that we are being told will save us is not always what it seems... According to an article on Article April 29th "BP America abandoning plans to develop Utica shale, including mineral rights on 80,000 acres in eastern Ohio"

- d. We have picked all of the low hanging fruit **(NOT TRUE)**. Most companies can still save 30% more energy in their plants. We have audited over 10,000 facilities and there are always new areas for improvements, not just lighting but compressed air, motors, adjustable speed drives, synchronous belts, HVAC, chillers, air distribution and others.
- e. Indiana Program abandoned their rebate programs **(NOT TRUE)** The state is closing one of the small programs but all of the 5 investor Owned Utilities are keeping their voluntary programs which make up 90% of the savings because they see the value of the program.
- f. Costing residential customers \$900 per year **(NOT TRUE)** (Senator Seitz – Ohio Energy Management Conference – 2/18/14 and 2/19/14). It is costing only \$2.41 per month for Energy Efficiency and \$1.25 for Renewable if they are not shopping.
- g. Some Individual Industrial Customers are paying over \$1 Million into this program. **(NOT TRUE)**. Even a huge customer with a peak load of 100,000 kW and using 700,000,000 kWh per year is only paying \$269,000 per year into the energy efficiency program. And there are only a few of these large companies in the whole state of Ohio. All others are paying less. It only takes one large project to overcome this cost. (AEP - GS4 EE Rider \$ 0.0003845/kWh vs. \$0.002677/kWh for GS3)
- h. Why would AEP still want to still have an Energy Efficient program if Sb 310 passes if it wasn't good for the customers? This is also why all of the Indiana investor owned utilities are voluntarily keeping their programs.

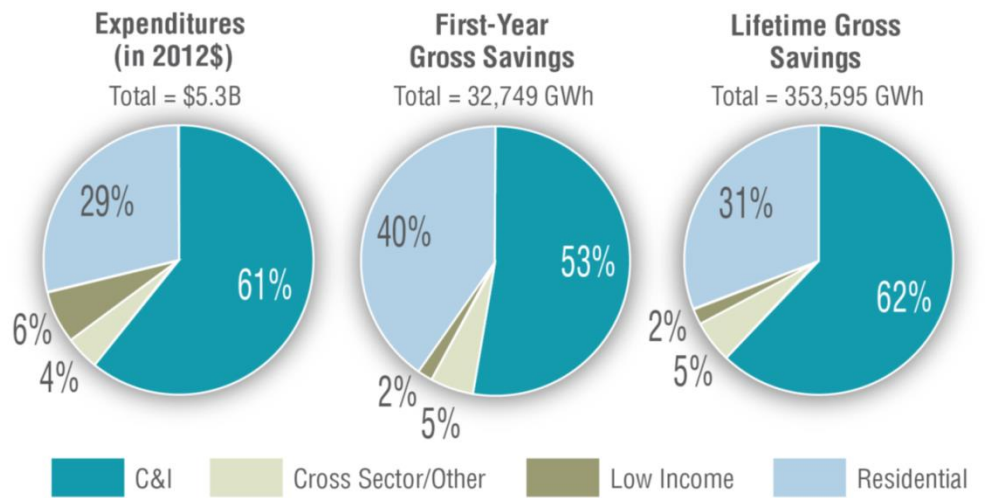
3. Energy Prices Increasing and Blackouts

- a. Ohio is closing more coal plants than any other state.
- b. Energy prices will increase 20-30% if we kill the Energy Efficiency programs that cost less.
 - i. AEP Feb Auction - \$.04278/kWh – 14 month starting 4/14 **(including summer)**
 - ii. AEP May Auction - \$.0500/kWh – 7 month starting 11/14 (No summer)
 - iii. Increase of costs 17% and 25% if adjusted for summer.
 - iv. This is due to less coal generation in the market and in anticipation for higher energy costs which includes dirtier oil and natural gas.
- c. Residential Energy Efficiency costs will average \$2.41/Month according to DOE average residential usage and AEP's tariff rate for the Energy Efficiency rider.
- d. Residential costs will increase by \$200 to \$300 per year if you kill the rebates due to increased cost for energy.
- e. The chart below shows the true costs for EE/PDR (Energy Efficiency and Peak Demand Rider) as well as the AER (Alternative Energy Rider) per customer class.

			Average				
Class	Rate	EE/PDR	kWh/Month	kW	EE/PDR \$	AER**	AER \$
Residential	RS	\$0.002890	833		\$ 2.41	0.001501	\$ 1.25
Commercial	GS1/2	\$0.002677	10,000		\$ 26.77	0.001501	\$ 15.01
Industrial	GS3	\$0.002677	18,396,000	3,000	\$ 49,251.61		
Industrial	GS4	\$0.000385	70,080,000	10,000	\$ 26,945.76		
Industrial (Large)	GS4	\$0.000385	700,800,000	100,000	\$ 269,457.60		
* GS4 over 8000 kW							
** Only if they don't buy energy from the market (Renewable portion)							

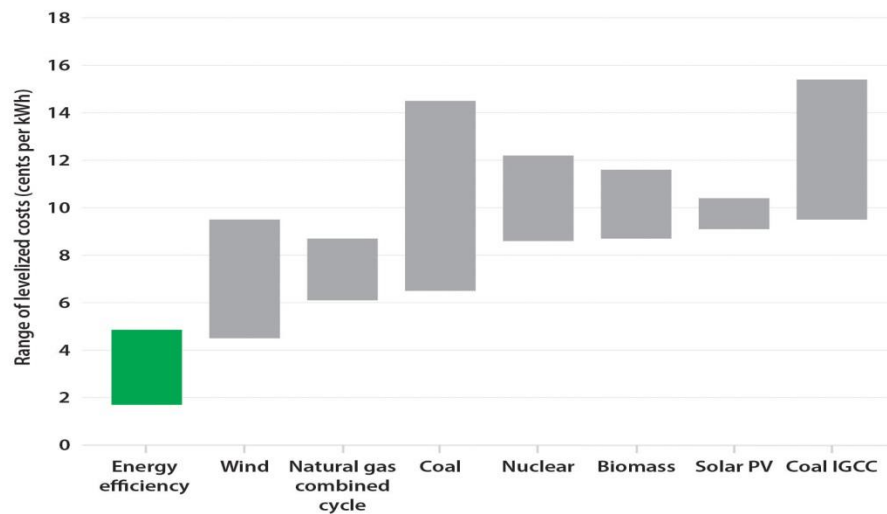
4. Competitiveness of Ohio Companies

- a. 31 State spend \$5.3 Billion per year in conservation programs.



- Are all of them making wrong decisions?
- We have worked in all of the other states and Ohio's Energy Efficiency program is the best for industrial customers.
- Why kill something that you are the best at in the country?

5. **Energy Conservation is the lowest form of generation** – Berkeley National Laboratories Study 3/14 – Paid for by DOE.



- i. Energy Efficiency costs for Ohio is about \$.02/kWh levelized vs. \$.06 to \$.15/kWh for conventional generation. Incremental Oil generation (emergency) can be as high as \$.40/kWh.
- ii. AEP, alone, is losing 1500 MW of coal generation and only had a surplus of 700 MW this last January.
- iii. If Ohio sees similar weather this year, Ohio (in AEP's service territory alone) will be short by about 800 MW of generation and may not be able to find replacement energy or deliver it into the Ohio system. It is even worse in other areas of Ohio.
- iv. We are already seeing the costs increased due to market anticipation. (AEP Auction)
- v. It takes over 100 Units of energy to deliver 9.5 units of energy as the source. This is due to the losses at the plant, lines, transformers...So it is even more important to save at the source.
- vi. PUCO released a study showing that these programs cost \$456 million (2009-2013) and save \$1.03 Billion or \$4.1 Billion over the life of the improvement.

6. **Utilities Claiming Their Own Infrastructure Costs for Energy Efficiency Goals.**

- a. This is one of the amendments the Senate rushed through last week and no one had a chance to review it before voting.
- b. (Lines 1273) Utilities are allowed to go back to 2006 to capture savings from past infrastructure projects. (Transformers, Transmission lines and Distribution Lines)
- c. Utilities can bank these savings and used for future years.
- d. Here is what will happen if SB 310 is passed...Utilities already get a guaranteed rate of return on infrastructure investments (10 – 12%). They will be able to claim conservation credits from these past projects, pay themselves rebates, collect on the guaranteed rate of return and allow themselves to exceed goals so they can get paid millions of dollars in bonuses. They will be able to essentially double their rate of return on all infrastructure projects while still charging the customers for this program. Since the program's goals are met they do not have to allow customers to capture any rebates for projects. I am

pretty sure this is not what you thought this bill was about but it is all possible with the present bill language.

7. Other Miscellaneous items.

- a. Show the costs on the bill. This is fine but shows all of the costs and benefits.
- b. Energy Mandates Study Committee (line 1417) This should be studied by people who actually use the program which should include utilities, consultants and customers. Legislatures should also be involved along with PUCO. All members should be voting. It is difficult selecting the right people but simply legislatures is not enough to come up with a better program.
- c. Digesters or Heat Recovery (line 74) – It is not fair to include this and allow electric customers to subsidize gas savings unless it makes electricity.
- d. Utilities can still charge for their programs if they don't file an amendment. If they file for an amendment they can still charge for a large portion of their program for costs they still have. **Customers are still going to pay the rider fees. The freeze does not eliminate this rider fee.**
- e. Opt out should only be for large customers that can prove they have done all they can to save energy by an independent source.
- f. (Line 1250) SB 310 will only allow future savings if the project can save kWh and Demand so projects like night lighting would not qualify for incentives.

8. Customer Benefits

The Importance of Energy Efficient Incentives		
Metal		
Description	kWh Saved	Process Increase
Process	15,000,000	25%
New Motor/Drive	2,000,000	10%
Other Projects	500,000	
Total	17,500,000	40%
Energy Savings Per year	\$ 1,050,000	
KW Saved	2,497	kW
Utility Infrastructure Cost Avoided	\$ 1,248,573	
Cost of Energy Efficiency Rider	\$ 18,000	
Four Bio Plants		
Description	kWh Saved	Process/Product Increase
Variety of Projects	32,000,000	30%
Total	32,000,000	30%
Energy Savings Per year	\$ 1,920,000	
KW Saved	4,566	kW
Utility Infrastructure Cost Avoided	\$ 2,283,105	
Cost of Energy Efficiency Rider	\$ 98,000	
Large User		
Description	kWh Saved	Process Increase
Three Large Drives	18,000,000	22%
Total	18,000,000	22%
Energy Savings Per year	\$ 1,080,000	
KW Saved	2,568	kW
Utility Infrastructure Cost Avoided	\$ 1,284,247	
Needs 1-3 years to Plan		
Cost of Energy Efficiency Rider	163,000	
Total EMS Customer Base		
Description	kWh Saved	Process/Product Increase
Variety of Projects	120,000,000	15%
Total	120,000,000	15%
Energy Savings Per year	\$ 7,200,000	
KW Saved	17,123	kW
Utility Infrastructure Cost Avoided	\$ 8,561,644	
Cost of Energy Efficiency Rider	\$ 723,000	
Total Employees and Support	13,850	
Estimate for top 1000 Industrial Customers in Ohio		
Description	kWh Saved	Process/Product Increase
Variety of Projects per Year	6,000,000,000	15%
Total	6,000,000,000	15%
Energy Savings Per year	\$ 360,000,000	
KW Saved	856,164	kW
Utility Infrastructure Cost Avoided	\$ 428,082,192	
Cost of Energy Efficiency Rider	\$ 36,150,000	
Total Employees and Support	692,500	



Testimony to Ohio Energy Mandates Study Committee
Gary A. Swanson, PE, President, Energy Management Solutions, Inc.
Submitted 5/7/15

Good morning, Senator Balderson, Representative Roegner and members of the Energy Mandates Study Committee. My name is Gary Swanson, and I am president of Energy Management Solutions (EMS). I appreciate the opportunity to appear before you today and to answer any questions you may have about how EMS customers are using and benefitting from Ohio's Energy Efficiency (EE) program.

EMS has been serving customers in Ohio for over five years and has worked with more than 150 distinct commercial/industrial sites, helping them find ways to operate more efficiently and reduce energy costs using the EE program. During that time, EMS has submitted more commercial energy conservation rebates than any other company in Ohio.

Today's businesses must operate as efficiently as possible to compete in a global market. EMS not only identifies opportunities for customers to reduce energy costs, it finds ways to implement them. The EE and rebate programs are effective tools in this effort. They allow customers to buy down project costs so they can meet investment hurdle rates that otherwise would not be attainable. These programs ultimately help customers implement more projects that save energy and lower operating costs.

EMS uses a process called Treasure Hunt, which was developed over 27 years in the industry. It includes four basic steps:

1. **Step One**—Identify projects completed over the last three years and capture free rebate money. This is available through the Mercantile or Self-Direct process approved by PUCO and is important for two reasons:
 - a. Customers see the benefits as real because they receive actual rebate checks.
 - b. Dollars recovered through initial rebates are available for additional energy saving projects, allowing customers to plan for the future.
2. **Step Two**—Complete a comprehensive energy assessment to identify and prioritize future energy saving projects with attractive returns on investment.
3. **Step Three**—Use money obtained through Step One to help fund Step Two recommendations.

4. **Step Four**—Generate additional rebates through Step 3 projects that can be set aside for future energy improvements. This is commonly referred to as a Revolving Energy Fund.

While it is up to individual customers to determine how rebate money is spent, many of the businesses and industries that work with EMS recognize the value of reinvesting it to become even more energy efficient. The process helps companies recover rebate dollars on the front end and enjoy additional energy and cost savings year after year.

Customer Examples

It is important to understand this process and to see how many customers actually utilize the EE program.

The following table shows examples of real customers who have used the EE program and accessed rebates to complete actual projects that otherwise would not have been done.

Project Examples					
Customer	HP	kW	Rebate	kWh Savings	Energy \$ Saved
Customer 1 (3 - 7000 HP Drives)	21,000	50,000+	\$ 750,000	23,113,122	\$ 1,502,353
Customer 2 (200 HP Dust Collector)	200	1,500	\$ 40,000	412,734	\$ 26,828
Customer 3 (Furnace Project)	Productivity	8,000	\$ 682,000	22,000,000	\$ 1,430,000
Customer 4 (Enzyme Project)	Productivity	6,500	\$ 369,200	7,100,000	\$ 461,500
Customer 5 (Process)	200	8,500	\$ 101,000	1,262,500	\$ 82,063
Customer 6 (Process) *	Productivity	1,000	\$ 135,000	1,687,500	\$ 109,688

* Total Electric Energy Costs only \$80,000 per year

Once rebates are secured, customers can use them for future projects. Think about it like this: As the low hanging fruit is picked, it builds a “rebate step ladder” to reach projects that might have seemed unattainable at first.

One Thing Leads to Another

In energy conservation, one thing leads to another. The next table shows how one customer used several steps of rebates to help finance energy efficiency projects. These important steps would not have taken place without the rebates.

Project Name	Year	Total Energy Savings (kWh)	Annual Energy \$ Saved	Rebate Amount Approved
Motors and VFDs	2013	72,540	\$ 4,715.10	\$ 5,850.00
VFD Air Compressor	2013	165,702	\$ 10,770.63	\$ 13,256.13
New Motor Housing, Shaft for ID Fan	2013	303,496	\$ 19,727.24	\$ 24,279.66
Building Lighting	2013	103,101	\$ 6,701.57	\$ 4,968.60
500 HP ID Fan VFD	2014	732,892	\$ 47,637.98	\$ 58,631.33
Process Improvement 1	2014	15,095,228	\$ 981,189.82	\$ 314,379.00
Process Improvement 2	2015	22,121,046	\$ 1,437,867.99	\$ 511,500.00
Dust Collectors (pending)**	2015	2,407,617	\$ 156,495.09	\$ 74,636.12
Total		41,001,622	\$ 2,665,105.42	\$ 1,007,500.84
% of AEP's 2015 Budget		14%		1%

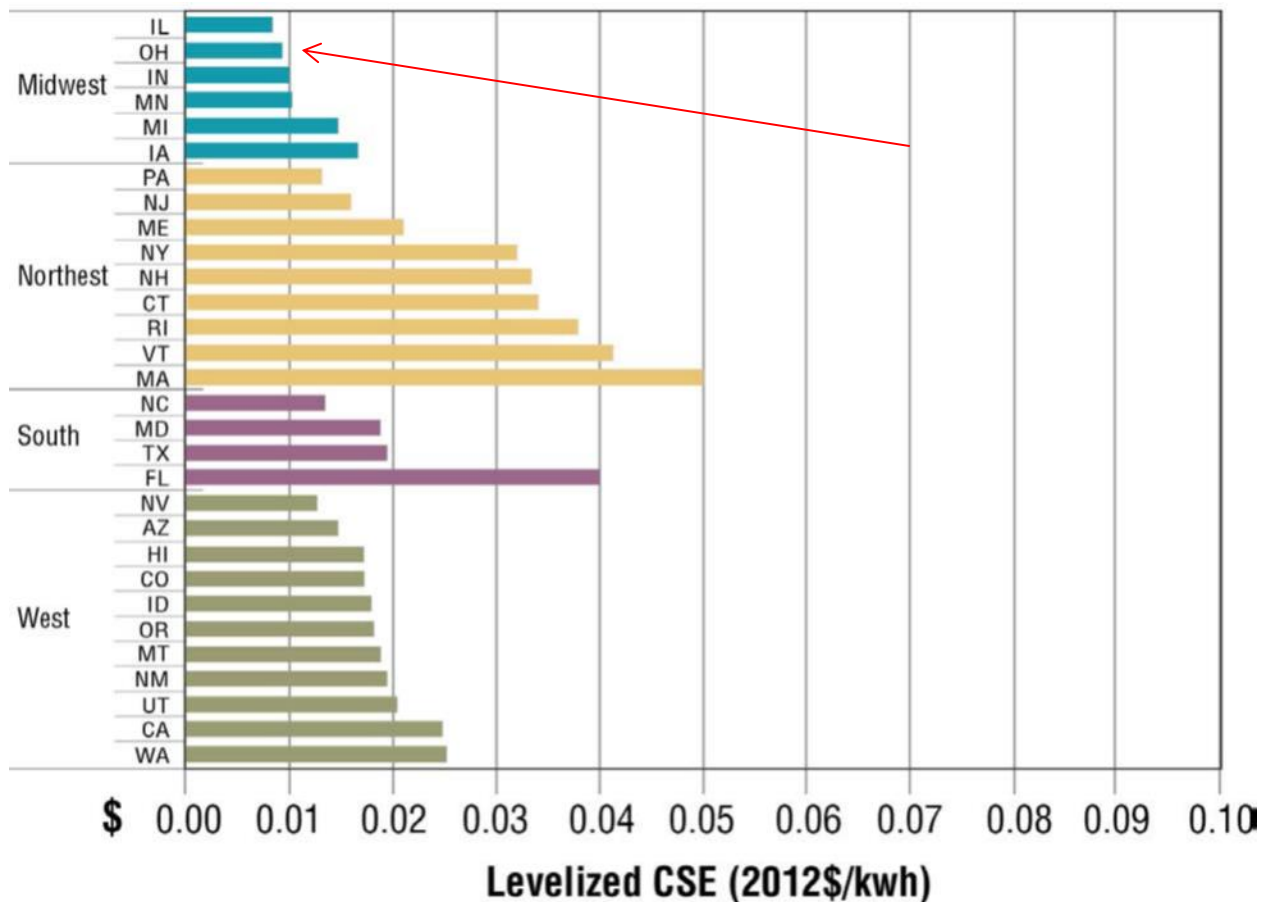
Energy conservation improvements save energy, cut costs and improve efficiency, enabling companies to expand and add jobs.

Why Do Rebates Work?

Rebates allow companies to complete projects they could not otherwise accomplish due to market or financial constraints. Businesses benefit greatly from this program. In fact, all of the customers EMS has assisted have gained much more than they have paid into the program through the EE rider.

Other State Programs

Thirty-three states across the country offer energy conservation rebate programs. No two are exactly alike. Ohio ranks second in terms of program efficiency compared to other state-run energy efficiency and rebate programs. This was shown in the Berkeley study published in 2014. (Source - The Berkeley National Laboratories Study 3/14 – Paid for by DOE)



Impact of New Technology

Technology can be a game changer in many arenas. It certainly is true in the energy efficiency world. Every day new technologies pave the way to new EE successes. Rebates actually help drive these advances by making it more affordable for businesses to invest in expensive new technologies. As the market expands, the prices come down (think about how the price of LED lighting has dropped in recent years).

Of course, there is always the age-old question of whether to invest in new products or make energy efficiency improvements. Changing how existing technologies are applied can also yield substantial energy savings. Many businesses can save 30 to 40 percent of their energy costs with existing technologies by modifying applications and controls.

It gets everyone's attention when rebates pay for a substantial portion of a project. Whether rebates are used for new technologies or energy efficiency improvements, they help customers get to their end goal—saving energy and reducing energy costs.

Third Party Administrators

The secret to success in this market is not just doing the paperwork. To be effective, customers and third party administrators need the insight and experience to do the following:

1. Identify unique projects, not just lighting
2. Analyze savings and maximize rebates so projects can become reality
3. Find ways to implement projects
4. Continue to identify future projects so rebates can work for the customer's future

Recommendations

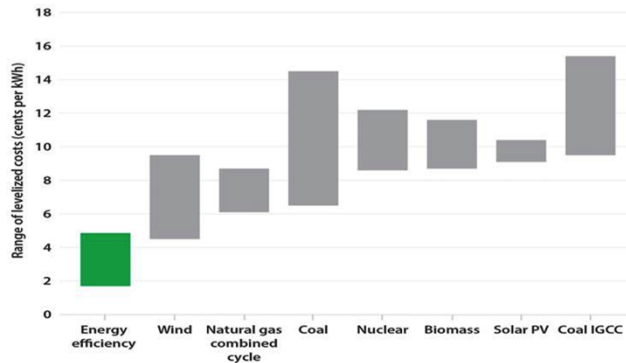
There are four basic things to look at in determining how the EE program continues and to ensure it is in everyone's best interests.

1. **Rebates Benefit all Customers** – Rebates benefit all customer for the following reasons:
 - a. All customers can use rebates to improve their bottom line. All customers have opportunities to make improvements. Some customers may choose not to make these improvements and use rebates to help them.
 - b. Every dollar spent on a rebate saves at least the same amount in avoided infrastructure improvements. If the project was not completed, the utility would have had to spend more money on upgrading lines to be able to provide electricity to that load. Rebates actually help reduce future rate increases for all customers.
 - c. Rebates used on conservation projects are the cheapest form of energy. By completing conservation projects, rebate actually help all customers keep market rates down.
2. **Break Apart the EEPDR Rider.** The EEPDR rider consists of two components:
 - a. Energy Efficiency (EE) Program (the subject of this paper)
 - b. Peak Demand Recovery (PDR) Program (a separate program used to reward customers for interrupting their loads during peak periods—*Note: this applies to the AEP Rider*)

This is critical. Separating these components would enable customers to actually see what they are paying for so they can act in their best interests in determining whether to opt out on 1/1/17. Customers should only pay for the services they use. If they know the true cost of the EE program, they can decide whether to stay in or opt out. EMS believes if customers see a stand-alone cost for EE, they will stay in the program and continue to become more efficient. Here is one example: A real customer who was paying \$4,000,000 a year in electric energy spent just \$28,000 on the EEPDR rider in 2013. This year, they are looking at a \$150,000 expense. At the same time, AEP has decreased EE costs from \$91 million to only \$81 million per year. Even though AEP has done a great job reducing EE costs, the PDR increases have caused the rider to increase. This increase will most likely result in customers opting out.

3. **Keep the EE Program to Offset Rising Energy Prices for All**
Customers who use the EE program help offset much higher costs of energy for everyone. Closing coal plants is going to put huge pressure on the grid and likely raise the cost of energy. EE projects enable participants to

purchase less power and enjoy savings for many years. Lowering demand and reducing pressure on the grid will help keep future energy rates affordable for all energy users. (See the chart below from Berkeley.)



4. Be Reasonable With Any Future EE Program

- a. A one percent (1%) goal is reasonable, sustainable and cost effective. This goal can continue for many years with existing and future technologies.
- b. A two percent (2%) goal is much more difficult to reach. It can be attained but at a very high price. Rebates and program costs will have to increase substantially. If costs increase dramatically, companies will opt out—resulting in less revenue in the EE pool to pay for other programs. This could become a death spiral for EE.
- c. A one percent (1%) goal can help Ohio achieve the 111(d) carbon reduction goal of 30% by 2030. EE is needed along with the closing of coal plants for Ohio to succeed in this goal.
- d. Let companies opt out if they do not want to use this program. EMS suggests they first complete an audit to demonstrate that they do not have more EE projects to complete.

In closing, let customers see and pay for the true costs of EE. A reasonable program can help customers and the state achieve its energy efficiency goals.

Please contact me with any questions:

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the *Direct Testimony of Gary A. Swanson, on Behalf of Energy Management Solutions, Inc.*, was served via electronic transmission this 13th day of September 2016 upon the parties below.

/s/Christopher J. Allwein
Christopher J. Allwein

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Summary: Testimony of Gary A. Swanson, on Behalf of Energy Management Solutions, Inc. electronically filed by Mr. Christopher J. Allwein on behalf of Energy Management Solutions, Inc.