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House of Representatives
COMMONWEALTH OF PENNSYLVANIA
HARRISBURG

HOUSE DEMOCRATIC POLICY COMMITTEE HEARING
Topic: Governor Wolf's Energy Investment Initiative
418 Main Capitol Building – Harrisburg, PA
June 1, 2015

AGENDA

10:00 a.m. Welcome and Opening Remarks

10:10 a.m. John Hanger
Secretary of Planning and Policy
Office of the Pennsylvania Governor

10:40 a.m. Panel on Renewable Energy:
- Mike Speerschneider, Chief Permitting and Public Policy Officer, EverPower Wind Holdings, Inc. (on behalf of Mid-Atlantic Renewable Energy Coalition)
- Michael Matotek, Owner, Open Sky Energy
- Jim Kurtz, President, RER Energy Group

11:20 a.m. Panel on Energy Efficiency and Conservation:
- Andrew Sharp, Deputy Director of Mayor's Office of Sustainability, City of Philadelphia
- Tom Schneider, Director of Facilities and Operations, North Penn School District
- Ellen Lutz, President and CEO, Clean Markets, LLC

12:00 p.m. Panel on Green Agriculture:
- Mike Brubaker, Owner, Brubaker Farms
- Brett Reinford, Owner, Reinford Farms

12:30 p.m. Closing Remarks

Hearing of the Democratic Policy Committee
to Discuss the Governor's Energy Initiatives

John Hanger, Secretary of Planning and Policy

June 1, 2015

Thank you Chairman Sturla, Representative Vitali and distinguished members of the Democratic Policy Committee for the invitation to join you today to discuss the Energy Investments proposed in the Governor's 2015-16 Budget.

Until 2010, Pennsylvania was a leader in promoting development of renewable energy and energy efficiency. Clean energy supports about 57,000 jobs in Pennsylvania, with the potential for significant growth. Clean energy also saves consumers cumulatively billions of dollars and cuts pollution that causes illness and premature deaths.

In the last four years however, Pennsylvania failed to invest in these important technologies, leaving a sector that had grown steadily, to fall to the back of the pack. A recent report from the Solar Foundation found that employment in Pennsylvania's solar industry has declined by 30% since 2012, even as the rest of the nation is seeing double-digit growth. The state, which was once fifth in overall solar jobs, and growing steadily, has fallen to fifteenth.

Governor Wolf understands the important role the state can play by investing in economic growth and job creation. The budget launches a $675 million economic development package, supported by revenue from the severance tax on drilling, designed to get Pennsylvania back on the right track. Funds from a bond issue will be used to provide $100 million to the Pennsylvania Industrial Development Authority to provide revolving loans to assist manufacturers and small businesses. Another $250 million will be used to reinvest in the Business in Our Sites program, which has created 18,000 jobs and $1.8 billion in private

investment since 2004. Understanding the critical importance of remaining at the cutting edge of technological innovation, the budget also provides $100 million to support entrepreneurs and established companies working to make technological breakthroughs into products that can be used ever day.

Finally, the economic development package includes $225 million to support the deployment of renewable energy sources and clean technology investments and the creation of good paying "green jobs." The Governor believes that these green and clean energy sources are the key to a diverse and sustainable energy portfolio and has made a significant commitment to returning the commonwealth to a position of national leadership in developing clean energy potential. Funds from the bond issue will be used to make the following investments:

- *Solar Energy.* The budget re-launches the successful PA Sunshine program, which will distribute **$50 million in rebates on qualifying solar projects** to homeowners and small businesses, and expand eligible institutions to include municipalities, universities, schools and hospitals. "Sunshine II" aims to stimulate the installation of 100 megawatts of new solar generation capacity in its first year.

- *Wind Power.* The state will accelerate its successful wind generation program with a new competitive **$20 million program to facilitate construction of new wind farms and support interconnection to the grid.** Proposals will be evaluated based on the level of private financing, cost-effectiveness and commitment to create good-paying jobs with benefits.

- *Green Agriculture.* Pennsylvania's large agricultural sector can play a significant role in achieving our energy goals, through the implementation of clean and renewable energy technologies. The budget provides **$20 million in competitive grants for projects designed to make Pennsylvania farms more self-reliant**, including through energy efficiency upgrades, bio-digesters, and distributed wind generation.

- *Energy Efficiency.* In addition to stimulating new, renewable sources of energy supply, the budget provides **$50 million in competitive grants to fund projects to improve energy and efficiency** at small businesses, local government units, schools, and non-profits, with larger grants awarded for collaborative projects.

- *Combined Heat and Power (Cogeneration).* The budget provides **$30 million in competitive grants to businesses that employ new technologies to produce heat and power** on-site from gas, biomass, coal, waste heat, oil or a combination of fuel sources.

- *Pennsylvania Energy Development Fund.* The budget provides **$30 million to the Pennsylvania Energy Development Authority** to support its mission of expanding the market for clean, advanced energy technologies, services and fuels.

- *"Last Mile" Natural Gas Distribution Lines.* The budget provides **$25 million in matching grants to business parks and manufacturers** to construct the last few miles of natural gas distribution lines. The program will make low-cost natural gas available to Pennsylvania's manufacturing sector, establishing a significant competitive advantage in production costs and boosting the commonwealth's ability to attract new enterprises.

Governor Wolf knows that investment in these technologies will be beneficial for the environment and the economy of Pennsylvania. For example, under the Sunshine Solar program, which was defunded out of existence by the prior administration, every dollar invested by the state resulted in over five dollars of total investment. Hundreds of jobs were created installing solar infrastructure throughout the state.

At the beginning of Sunshine, total installed costs for solar exceeded $7.00 per watt for both residential and commercial systems. By the end of the program, commercial and residential systems were being installed for $3.00 to $4.00 per watt, resulting in customers paying less for their systems. As a result over seven thousand residents and over a thousand small businesses were able to install solar systems, which are continuing to reduce or eliminate electricity costs.

In addition, there are significant environmental benefits to installation of renewable energy systems. The Sunshine Solar program displaced approximately 84,000 tons of carbon dioxide. This is equivalent to the annual greenhouse gas emissions from nearly 16,000 passenger vehicles, equal to 8.5 million gallons of gasoline. As Pennsylvania, like other states, looks at the "building blocks" for compliance with the Clean Power Plan, which is currently being finalized,

it is clear that the current pace of renewable energy development is not going to be sufficient. We must get serious about this effort if we hope to maintain a diversified mix of energy sources in the commonwealth.

In a similar vein, the Energy Efficiency proposal will benefit consumers and be critical to moving towards compliance with the Clean Power Plan at lowest cost and least disruption to the current energy mix in the state. Energy efficiency and conservation are acknowledged to be the lowest cost, cleanest energy resource. The Act 129 program administered by the PUC has proven tremendously successful, with a return on investment to Pennsylvania ratepayers of nearly two dollars for every dollar invested, and over $230 million in savings in Phase II of the program according to the most recent Statewide Evaluator Report. The PUC has recently proposed a Phase III of the Act 129 program, which is expected to save nearly seven million megawatt hours of electricity. Despite the success of the program, it is hampered by a limitation on spending, even when doing so would be cost effective. This results in more limited energy efficiency targets than in neighboring states. The proposed funding in the budget will assist in obtaining every benefit of energy efficiency available.

Finally, the Green Agriculture program the Governor has proposed will provide critical funding to assist in meeting Pennsylvania's compliance goals related to the Chesapeake Bay, another critical area in which the prior administration took its eye off the ball.

The Governor is committed to supporting renewable energy through the investments proposed in the budget. We believe that this budget represents the most significant opportunity available in the near term to provide support for this critical sector, which will make an important impact in every one of your districts. We are open to productive dialogue on the

design elements of each of the proposals above, and will look forward to working with you to ensure that they are implemented so as to provide maximum return on investment.

Lastly, it is worth noting that funding of these initiatives will only be possible with the passage of the severance tax proposed in the Pennsylvania Education Reinvestment Tax. We look forward to your support in ensuring passage of a reasonable tax on natural gas to support this program as well as the full funding of education in Pennsylvania.

Thanks again for inviting me to join you today and I look forward to answering any questions you may have.

Governor Wolf's Energy Investment Initiative
House Democratic Policy Committee Hearing
June 1, 2015

Testimony of Michael Speerschneider
Mid-Atlantic Renewable Energy Coalition

Chairman Sturla, Chairman Vitali, members of the House Democratic Policy Committee, thank you for the opportunity to present my testimony to you today.

My name is Michael Speerschneider and I am speaking today on behalf of the Mid-Atlantic Renewable Energy Coalition (MAREC). MAREC is trade group dedicated to improving and enhancing the opportunities for renewable energy in the mid-Atlantic region. Many of its members have specific interests in Pennsylvania and would like to see greater opportunity to work and invest here.

I am the Chief Permitting and Public Policy Officer at MAREC-member EverPower Wind Holdings, Inc. EverPower is a Pittsburgh-based company with offices in New York and Bellefontaine, Ohio. We have operating projects in New York, Pennsylvania, Illinois and California representing 750 megawatts of wind capacity. Over 300 megawatts of this capacity are in Pennsylvania, making us the largest wind energy generator in the Commonwealth.

A lot of our activity and the growth in wind energy generally, can be attributed to the successful implementation of the Alternative Energy Portfolio Standard (AEPS). Since 2004, over 1,000 MW of new wind capacity has been constructed, for a total of 1,340 MW of total installed capacity in the Commonwealth, good for 16th best in the nation. Those projects represent some $2.7 billion of capital investment, $4 million in annual lease payments, and avoidance of 2 million metric tons of carbon dioxide each year.

Since 2012, however, there has been very little activity in Pennsylvania by EverPower or any other wind energy developer. The reasons for the decline in activity can be attributed to a combination of lack of certainty of federal incentive structures, lack of demand for renewable energy credits (REC) (related to AEPS demand requirements), and lack of a market structure that support new investments in capital intensive energy infrastructure.

Energy is an inherently risky industry. Power prices are impossible to predict and for renewable energy resources, the REC revenue that is crucial to project viability is also hard to predict. In order to reduce that risk and open the way for new investment, state level policy makers can and do play a critical role. That is why Governor Wolf's budget proposal is so important.

Governor Wolf's budget would use revenue from a severance tax on natural gas drilling to support a $675 million bond program. The bond funds would be directed toward a number of initiatives to support economic growth. The Energy Investment Initiative is most relevant to

MAREC and includes $225 million to ensure a comprehensive energy portfolio that supports gas, oil, coal, renewables, energy efficiency and clean technology. Specific programs within the Energy Investment Initiative directed at the construction of new wind farms could help defray costs associated with grid interconnection and other capital expense. Other parts of the plan, including support of the Pennsylvania Energy Development Authority and technology advancement, all send an important signal that Pennsylvania is ready to support its rich energy history and is dedicated to a diverse energy economy.

As representative of MAREC members, EverPower has been active in Pennsylvania since it was founded in 2002, developing wind and solar projects in western Pennsylvania. In April 2009, our first wind project came on line in Cambria County, outside of Johnstown. That project was expanded in 2012, and we also constructed two other projects in 2012, one in Somerset County and another in Cambria County. These projects employed over 400 construction workers and now provide 25 high quality jobs in operations and maintenance, not to mention many additional indirect jobs for companies providing goods and services required by the project. In addition, the projects collectively contribute nearly $1.5 million annually to the local economies in the form of goods and services, salaries, tax payments and lease payments.

The Energy Investment Initiative represents an important commitment to a diversified energy portfolio in Pennsylvania. It tells us that this Administration is willing to work with the industry to find ways to promote new projects, new growth and new jobs. This budget could provide the kick-start needed to bring more companies like EverPower back to Pennsylvania with aims to build more projects.

We also expect the Energy Investment Initiative will provide a springboard to other policies that are essential to the continued growth of our industry in the State. As mentioned at the beginning of my remarks, the slowdown in development in Pennsylvania can be attributed to lack of demand for RECs and lack of market mechanisms that support the financial requirements of wind energy, and really of any capital-intensive energy infrastructure investment.

In the matter of market mechanisms, one of the easiest things that the legislature could do is to enhance the availability of long term contracts to secure energy, capacity and RECs for Pennsylvania consumers. According to Pennsylvania law, an Electric Distribution Company (EDC) must procure electric supply and RECs through a competitive process and shall include a prudent mix of spot, market, short term and long term contracts[1] under their Default Service Plans. As new PUC Chair Gladys Brown points out in her dissenting opinion to recent PUC DSP approvals, EDCs have not taken that requirement seriously. We believe that the lack of consideration for long term contracts is masked by the current low-price energy environment, but will hurt consumers in the long run.

[1] Title 66 §2807 (e)(3.2) and 52 PA Code §54.186

Aside from the PUC enforcing the requirement the EDCs consider a prudent mix of contract terms, the legislature could also help protect consumers from short term price spikes and long term price increases by making long term contracts a more robust part of the procurement requirements. This could be done through legislation that would require a certain level of long term contracts to be utilized by EDCs. Alternatively, legislation could provide authority to a centralized entity (the PUC or a newly formed power authority) to procure RECs (and perhaps energy) on behalf of EDCs and other Load Serving Entities that are obliged to secure RECs under the AEPS[2].

In terms of demand for RECs, expansion and/or enhancement of Pennsylvania's AEPS would serve to increase demand and spur growth in the industry. When the AEPS was enacted in 2004, it served as a model for neighboring states and led the way to investment in the region. And, that policy has been extremely successful. Now, Pennsylvania's AEPS lags behind similar policies in PJM. Pennsylvania's goal of 8% tier I renewable energy by 2021 is less than Maryland's goal of 20% by 2020, New Jersey's goal of 22.5% by 2020, Delaware's goal of 25% by 2025, New York's goal of 29% by 2015[3] and Ohio's goal of 12.5% by 2026[4].

Pennsylvania could strengthen its position as a leader in the wind energy by passing House Bill 100, Representative Vitali's bill that would increase the Tier I requirement from 8% to 15%. Expanding the AEPS and/or providing measures that would further incent in-state development would encourage companies to utilize Pennsylvania's plentiful wind resources to the benefit of the environment and of ratepayers.

In conclusion, MAREC believes the Energy Investment Initiative is a crucial component to Pennsylvania's effort to bring wind energy back to the state. The initiative will provide important benefits that can help defray upfront development risks, encouraging companies to look for development opportunities in Pennsylvania. But, the initiative will see true "bang-for-the-buck" if it is followed up with meaningful, thoughtful and important policy measures that would enhance the market opportunities for wind energy and other renewables.

Thank you for your time and consideration.

Michael Speerschneider
Mid-Atlantic Renewable Energy Coalition

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[2] See MAREC's December 2012 comments related to the November 8, 2012 Tentative Order in the investigation of Pennsylvania's Retail Electricity Market, Docket # I-2011-2237952.

[3] New York's RPS ends this year. Efforts are ongoing to formulate the next generation of renewable policy.

[4] Last year, Ohio's legislature passed a bill freezing the RPS at current levels, to continue on the same path after a two-year freeze. Legislation that could alter the RPS is expected later this year or in 2016.

Michael Matotek owner of Open Sky Energy

Testimony for the House Democratic Policy Committee

June 1, 2015 Minority Caucus Room 418

10:00AM to 12:30PM

Good morning everyone. My name is Michael Matotek. I'm an owner of Open Sky Energy, a solar energy company founded and based in Swarthmore, PA.

I love solar energy because it is clean, quiet, and plentiful. But the electrical cost savings, environmental friendliness and the large variety of well paying jobs that the solar economy can provide to engineers, electricians, and installers is what makes it so popular among most Pennsylvanians. I'm here to speak with you today because I want to see solar thrive in Pennsylvania, like it has in other states that have been willing to invest in their renewable energy infrastructure. Governor Wolf's Energy Investment Initiative can help us get there, by leveraging state dollars to encourage private investment in solar. The ultimate goal for Pennsylvania's solar industry is to achieve grid-parity with other sources of electricity without incentives. But, in order to get there we need to implement ideas that work such as closing our borders to outside SRECs, providing low cost solar loans, and instituting a longterm declining rebate program.

I don't believe over-subsidizing solar installations with another short term rebate is the most responsible solution. Last week, in a meeting here in Harrisburg of over 50 Pennsylvania solar professionals, we came to an agreement that we need an alternative to a simple short term rebate which could actually destabilize the current solar industry by reintroducing a heavy reliance on public funding for solar projects. The previous rebate program was a huge success because it kick-started solar in PA when equipment costs were extremely high. But now that global competition has greatly reduced those costs, we no longer need a large subsidy. During the rebate era, we had a bit of a "wild west" culture. As solar equipment pricing started to drop, the PA rebate and a 30% federal tax credit could be combined, oversubsidizing solar installations. Much of this above market demand was fulfilled by large out of state companies that setup temporary operations and employment positions, which were terminated when the PA rebate fund ran dry. For example, of the top 2 install companies during the rebate, one has filed chapter 11 and the other has moved to states that support solar better than we do. I am interested in providing a more stable environment for all solar businesses in PA, not just a temporary shot in the arm rebate. If people know there is a rebate coming, they will wait for it, thereby reducing pre-incentive demand. When the rebate is gone, they will stop buying for a long period of time because pricing will seem too expensive, relative to previously incentivized

solar. These wild up and down swings pushed the majority of solar companies that were registered in the PA Sunshine Rebate program out of business or out of state.

Instead I would like to propose 3 solutions that will encourage a strong and stable solar economy in Pennsylvania.

1. Only allow solar produced in PA to qualify for PA SRECS, in other words, close our borders to out of state SRECS. This action will stabilize our SREC prices, allowing financial institutions to realize SREC income as an asset. District of Columbia, New Jersey, Maryland, and Massachusetts have already closed their borders and greatly boosted their solar economies well past Pennsylvania's.
2. Provide solar loans below market rate so that solar can be installed without the high upfront capital cost. Low rate loans will give your constituents the option to make payments on a solar array instead of paying electric bills from their local power company.
3. And finally, instead of a short term rebate, institute a long term rebate program with a declining incentive based on the amount of solar installed. This type of program has helped New York state climb into the top ten of solar installations in the United States.

By working together we can ensure that the Clean Energy Funds provided by the governor's initiative will do the most good toward building Pennsylvania a sustainable solar future. Closing our borders to outside SRECS, providing low cost solar loans, and setting up a long-term declining rebate program will ensure our success with this goal.

Thank you and have a great day!

RER Energy Group

Empower Your World.

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Rep. Vitali's Hearing of the House Democratic Policy Committee
Minority Caucus Room (418) of the Main Capitol Building
Monday June 1, 10:00 a.m.

Energy Investment Initiative Review and Remarks
Jim Kurtz, President RER Energy Group

Key Points to Continued Growth of Pennsylvania's Solar Industry

Brief Overview Solar Industry-National:

- Installed solar photovoltaic system prices in the U.S. have dropped approximately 50% from 2010. Solar panel prices have dropped 60% in the same time frame.
- The solar installation sector is already larger than well-established sectors of fossil fuel generation, such as coal mining. The solar industry installation alone sector supports 93,185 jobs.
- In 2014, the oil and gas pipeline industry added 10,529 jobs. The crude petroleum and natural gas extraction industry created 8,688 jobs. The solar installation sector added nearly 50% more jobs than both traditional energy industries, combined.
- The United States is a net exporter of nearly $2 billion of solar products.

http://www.seia.org/search/national%20solar

Solar Industry Pennsylvania:

Installations:
Where we currently stand in the Mid Atlantic compared with neighboring states.

- Blue circle shows when favorable solar policies were in place and the beginnings of a robust industry.
- Red circle shows our neighboring states and their solar progress over Pennsylvania since the original Sunshine program was defunded with no replacement program or policy in Pennsylvania.

Yearly Solar Photovoltaic Installations (MWdc)									
	2006	2007	2008	2009	2010	2011	2012	2013	2014
PA	0.2	0.1	3.0	3.4	46.8	87.9	54.4	38.3	10.2
NY	3.0	3.8	7.0	12.1	22.6	59.9	60.5	69.4	147.4
MD	0.1	0.3	2.2	2.5	7.7	21.6	78.8	28.8	72.6
NJ	17.9	20.4	22.5	57.3	132.4	313.3	419.2	235.6	239.8
U.S	104.7	168.8	311.3	428.9	852.0	1918.4	3366.4	4775.7	6200.5
PA share	0.2%	0.1%	1.0%	0.8%	5.5%	4.6%	1.6%	0.8%	0.2%

Employment

State Solar Jobs by Year			
	2012	2013	2014
PA	4000	2900	2800
NY	3300	5000	7300
MD	1900	2000	3000
NJ	5700	6500	7200

Solar jobs during the Sunshine Program peak in 2012 and since it was de-funded with no alternative policy. Net Loss of 1,200 jobs since 2012.

State Solar Jobs by Year			
	2012	2013	2014
PA	4000	2900	2800
NY	3300	5000	7300
MD	1900	2000	3000
NJ	5700	6500	7200

Neighboring state's job gains who continue with robust solar policies.

-SEIA Spotlight-Pennsylvania 2015

What Could the Return of the Sunshine Program do for our Commonwealth?

Implementing the Sunshine Program will act as a significant stop-gap to the industry's continued decline while we put into place long term, favorable Pennsylvania solar policies.

Economic Benefit-Short Term-Two Years

Reduced prices of panels and Balance of System Costs (BOSC) combined with an example of $20 million in new Sunshine Program Funding offering an average of a 20% grant contribution will have an almost immediate economic impact.

Assuming a current average price of $2.50 cents per watt and an average project size of 100 kW, we anticipate a program of this nature could drive $100,000,000 worth of new solar projects in our Commonwealth.

$100,000,000 / cost per watt ($2.50) X 100 kW average project size:

New Pennsylvania Projects
4,000 Solar Projects

Pennsylvania design, engineering construction and administrative jobs.
800 new or retained jobs

Using 2012 job statistics with a $100 MM contribution from the previous Sunshine program. New program assumption of $20 MM

Marketing: The Re-Awakening of Solar in PA

Many people think solar in PA is either dead or in very much pain. Implementing a new Sunshine Program will remind Pennsylvania's citizens that solar is supported by our administration, there are rebates back into the program and solar is more affordable now than ever.

Solar is an Investment Worth Financing-Give Us the Framework to Allow the Industry to Grow-*Incentive Free*

Net Cost vs Long Term Benefit:

- When we review net cost of a solar installation, we see the amount of energy over time represents approximately 5-10 times the net initial cost of the project. Where else can you find an asset that offers a 25 year warranty on its most critical components, almost no moving parts, and works with the reliability of the sun?

Long Term Solar Industry Growth in Pennsylvania

Competitive Policy Development

While other Mid-Atlantic States have had headwinds in their solar industry, they have been proactive to put policies in place that will help to ensure long term solar industry growth and the positive economic impact that accompanies it. We can learn by their proactive approach.

Examples:

When New Jersey SRECS Fell in Priced Due to Oversupply

- Increase RPS: (Renewable Portfolio Standard) Increase the amount of SRECs that need to be purchased in the short term to absorb the oversupply and maintain a higher build rate. New Jersey RPS now includes a solar specific carve-out of 4.1% by May 2028.

Maryland Proactively Accelerated their Renewable Portfolio Standard to Ensure Market Stability

- To prevent the SREC market from suffering the same rapid decline in value that other states experienced, the Maryland General Assembly accelerated by two years the requirement that Maryland obtain 2% of its electricity from solar energy. This has allowed the SREC market to remain relatively stable.
- In addition, Maryland's SREC market can only be funded by projects originating in Maryland.

http://www.srectrade.com
USPV New Report-MD, 2012

Low Interest Financing

Current economic and energy conditions play very favorably to what are considered "utility scale" solar deployments; installations of one megawatt (MW) or larger. Assuming a credit worthy off taker, attractive financing for these projects is available.

It is the mid-market (20kW to 1 MW) businesses and residential markets where solar specific, attractive financing is lacking. As indicated above, solar technology has very high performance metrics and very low risk. We have over 20,000 MW of cumulative solar electric capacity operating in the U.S. demonstrating this technology's reliability and proving these assets are bankable.

Policies that support long term, low interest loans in this mid-market and residential arenas will offer the path to allow the enormous economic benefits of solar to positively affect our Commonwealth's economy and do it largely with no direct funding from tax dollars.

The new Sunshine Program will reinvigorate the industry in Pennsylvania, but the industry can stand on its own, long term, with the right mix of public & private collaboration.

http://www.seia.org/research-resources/solar-industry-data

SREC Market Reform

- The SREC Market was created as a state-level, long term incentive for more aggressive solar development. The market responded more enthusiastically than anticipated and in a short time flooded the market with SREC's. Their value was driven from a high of $310 in June 2010 to a low of $20 by 2012.

- While market forces have allowed the market price to creep up incrementally, the ability for other states (even ones without their own SREC markets) to continue to sell their SREC's into our market means not only are we effectively subsidizing solar in other states, the net effect will be that our market will continue to remain low.

Closing our borders to out-of-state SREC sales is critical to the long term viability of our SREC program and a key component of Pennsylvania's future solar growth.

Conclusion

A new Sunshine Program will reinvigorate the solar industry in Pennsylvania. RER Energy Group supports that policy. As we have demonstrated, it has been a difficult five years for the industry in our Commonwealth and an investment to regain lost opportunities will be welcome.

However, the industry can stand on its own long term with the right mix of public & private collaboration. Low interest financing and securing our trading borders from out-of-state SREC sales are two significant actions that the Wolf administration's Energy Investment Initiative can implement within a short timeframe and with negligible expense.

RER Energy Group stands with the rest of our industry to assist in any way possible to enact these reforms. In addition, we very much appreciate the support your administration is providing for the successful future of this critical 21st century industry.

Andrew Sharp, Deputy Director for Policy
Mayor's Office of Sustainability, City of Philadelphia
Testimony before the Pennsylvania House Democratic Policy Committee

June 1, 2015

Good morning Chairman Sturla, and members of the House Democratic Policy Committee. I am Andrew Sharp, Deputy Director of the Philadelphia Mayor's Office of Sustainability. I would like to thank the committee for the opportunity to discuss the City of Philadelphia's efforts to advance energy efficiency and how municipalities across Pennsylvania will benefit from increased state investments in energy efficiency programs.

The Mayor's Office of Sustainability is responsible for coordinating the implementation of *Greenworks Philadelphia*, the City's first comprehensive sustainability plan. *Greenworks,* launched in 2009, was designed to incorporate existing work within city government, reference best practices, and bring in new ideas garnered from both city employees and external partners. The plan considers sustainability in the broadest of terms, defining it through five overarching goals related to energy, environment, equity, economy and engagement; Fifteen measurable targets were set along with more than 160 specific initiatives. After seven years of implementation, we are proud to report progress across all parts of the plan and that work on nearly all initiatives is underway or complete.

The energy section of *Greenworks* sets targets related to lowering city government energy use, reducing citywide building energy use, increasing residential retrofits, and growing renewable energy purchasing and generation. These goals are, of course, incredibly interconnected, and impact additional work tied to reducing greenhouse gas emissions and improving air quality. In Philadelphia, similar to our peer cities, 60% of our greenhouse gas emissions come from buildings. Our biggest opportunity to reduce carbon pollution and mitigate against the risks of climate change is to use less electricity.

We have seen firsthand how investments in energy efficiency projects can save money and energy, and have positive impacts on public health, quality of life, and economic vitality. City government has improvement energy management, advancing projects both big and small. A few successes to-date include:

- Used federal ARRA dollars to replace 85,000 street signals with LEDs, saving the City $1M/year.
- Using the Commonwealth's Guaranteed Energy Savings Act, earlier this year we completed construction on our first performance contract, working with NORESCO to invest $12.2M in our four largest downtown office buildings. The project will save the City approximately $1.4 million annually which will more than cover the debt service for the project.
- EnergyWorks, supported by ARRA funding, allowed us to expand upon Keystone HELP to offer lower interest rates and streamlined program offerings. The approach was a tremendous success: 2,592 loans made across the five-county region (425 in Philadelphia) leveraged $4.6M in federal funds with over $20 million in private dollars. The middle income market will be key in driving residential home efficiency at a large-scale, continued investment in Keystone HELP will be essential to doing that.

- Our energy benchmarking program, in its third year, helps building owners and tenants understand the performance of their facilities and begin making improvements to save energy and money. The law is an important first step in building awareness and transparency in the marketplace.
- Attracting energy companies to Philadelphia and establishing a hub at The Philadelphia Navy Yard, growing with the announcement tomorrow of a new energy technology company choosing to headquarter at The Navy Yard.

We strongly believe that local government has an important role to play in setting targets and enacting policies to help drive energy efficiency. Over the course of the Nutter Administration we have explored and found a number of ways in which local government can lead by example to manage its own portfolio more efficiently through common sense and innovative practices alike as well as use appropriate levers to positively affect citywide energy use.

That being said, state support is absolutely critical. We have benefited from past state policies and funding programs, including: Alternative Fuels Incentive Grant, which provided funding for alternative fuel vehicle deployment; the Weatherization Assistance Program, which continues to support home improvements for low-income Philadelphians; and, PEDA, which provided us with a grant for energy efficiency lighting improvements at six recreation centers. The utility programs that have resulted from Act 129 have also had tremendous impact, directly supporting our city government efforts (the City of Philadelphia received more than $6.8M in Act 129 rebates for energy efficiency upgrades and the Philadelphia Water Department biogas plant received an additional $3.9 million ACT 129 rebate) and indirectly through utility programs that support work in all sectors of our economy.

We recognize that we need to be working closely together to develop next-generation policies, incentive programs, and funding streams to advance energy efficiency at scale. This collaboration will be critical to helping us reach aggressive - but achievable - energy use reduction goals.

Despite tremendous growth in energy efficiency, the progress has not been enough to offset what we have reported as an overall increase in citywide energy use of 19% from 2006-2014. Since 2010, Philadelphia has experienced extreme weather in both the summers and the winters, and our citywide energy use has tracked very closely to the number of hours requiring buildings to use heating and cooling. Philadelphia also saw increases in population and economic growth over that period of time, and we will need to make more aggressive efficiency investments to decouple energy growth, which of course is and will continue to be a key a priority, from increasing energy use.

Achieving energy efficiency at scale will require alignment of local, state, federal, and utility partners. Consistent, long-term funding streams, policies, and programs are essential to building a robust market for energy efficiency.

Thank you for this opportunity to testify today and share our experience. We look forward to a strong partnership with the Commonwealth to support shared goals and a more efficient, resilient Pennsylvania. I am happy to respond to questions.

Governor Wolf's Energy Investment Initiative
6/1/15 House Democratic Policy Committee Hearing

Thomas Schneider Director of Facilities and Operations
North Penn School District; Lansdale, PA

School Districts throughout the Commonwealth have actively been taking measures to reduce energy consumption and energy expenditures for years. As an example North Penn School District has reduced its energy consumption 37% from 2008 to 2012 with a reduction of expenditures equating to almost $2.0 million per year. Another example is Council Rock School District who reduced energy 49% in less than 60 months with similar annual expenditure reductions. Both of these examples were achieved by operational and behavior change energy management programs which engaged the school community and students and were successful with minimal or no capital investments. Other school districts have seen similar reductions that are the result of capital investments by means of renovations and the use of performance contracting.

These energy and expenditure reductions are fueled by two factors. The first is to reduce the environmental impact that schools have on the local and global environment and the second is to reduce expenditures. For years schools throughout the Commonwealth have been saddled with annual budgetary deficits which are forecasted to continue for the foreseeable future. This annual, "structural", deficit has impacted the ability of school districts to invest in infrastructure improvements, forced many districts to differ maintenance, and differ potential projects. When a school district is faced with an annual deficit, the last places that cuts are made are to the instructional and educational programs. The first places that cuts are made to balance the budget is in the support services area of the district. These cuts prohibit the ability for a facilities department to plan for infrastructure improvements or energy efficiency upgrades.

The numerous grants that were available to school districts in the past included alternative fuel grants for transportation or alternative energy grants supporting wind, combined heat and power, and solar systems. These grants were not always appealing to many school districts because of the large financial requirements required by school districts for matching funds or infrastructure improvements and as the result of the long term return on investment of the projects. At North Penn School District we have attempted to renovate aging facilities over time but we still have old energy in efficient lighting, motors, and equipment throughout many buildings. Currently we do not have available capital funds to replace this equipment in the near future. Grants of any value would greatly assist North Penn in the replacement of inefficient equipment. For example, a grant as small as $10,000 with a match from the District, could replace the inefficient building perimeter lighting on 4 elementary schools and have a return on investment in two years or less with a potential annual savings of $1,000/year. Larger grants to replace gymnasium lighting could reap similar return on investments with greater savings.

North Penn School District would be very interested and would take advantage of grants for energy efficient projects of any value.

Sincerely,

Thomas Schneider
Director of Facilities and Operations
North Penn School District

CLEAN MARKETS®
when the growth of clean energy matters

Testimony of Ellen D. Lutz

Before the Pennsylvania House Democratic Policy Committee

Hearing on Governor Wolf's Energy Investment Initiative

June 1, 2015

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Chairman Sturla, Chariman Vitali and members of the House Democratic Policy Committee, I thank you for the opportunity to be here today. My name is Ellen Lutz, and I am the President and CEO of Clean Markets, a clean energy market development firm that supports utility energy efficiency programs with marketing and outreach services throughout Pennsylvania, New Jersey and New York. Prior to starting Clean Markets I held leadership positions in both the public and private sectors, at Gamesa Energy, the US Department of Energy (USDOE) and Exelon Corporation. I am here today to ask you to support Governor Wolf's Energy Investment Initiative.

Pennsylvania's Energy Investment Initiative is a step in the right direction for creating a balanced energy portfolio, sustained economic prosperity and a healthier population for Pennsylvania. While I was at the USDOE I was assigned by the Assistant Secretary to create a clean energy deployment strategy for the agency nationally. Months of research in the history of government incentives revealed that it is the role of government to invest in technologies that serve a public good, but are considered riskier investments by the private sector because the financial return could take too long. As technologies approach economy of scale, the private sector can take over the investment role and sustain the momentum needed to create long -term viable markets.

Energy efficiency and renewable energy technologies fall into the category of technologies that serve a public good, but need several more years of government

incentives to reach economies of scale. They have received government incentives for 30 years, compared to 100+ years of incentives for fossil fuels, and we are seeing the benefit of that investment. Prices for renewable energy are rapidly coming down and private sector investors such as Berkshire Hathaway and Google have made big bets on this sector. But government support is still needed to keep up the confidence of private investors.

Pennsylvania has over a 150- year history of extracting and burning fossil fuels from its land. This history has provided interval periods of economic prosperity, but created numerous environmental impacts on the air we breathe, the water we drink and soils we use for food production. All of this has a high economic cost for our state in terms of environmental remediation, health care costs, quality of life and lost economic opportunities. Energy efficiency and renewable energy, on the other hand, have little to no impact on air and water quality and provide thousands of jobs in the state today.

I started Clean Markets in Philadelphia in 2008, just prior to the economic downturn, and in that time we have grown an average of 45% a year over the past 6 years. We now have 11 full time employees and an award-winning energy efficiency software tool. We are piloting our software in New York State with the New York State Energy Research and Development Authority, because Pennsylvania did not have a competitive clean energy investment program to help entrepreneurs bring new products and technologies to market. Governor Wolf's Energy Investment

Initiative is a first step on the road to bringing back competitive advantage and opportunities to Pennsylvania's home -grown businesses.

Pennsylvania's Energy Investment Initiative, in tandem with PA Act 129 creates competitive advantages for Pennsylvania. Since the inception of PA Act 129, which mandates utility energy efficiency incentives, our company has been supporting business incentive programs for PECO Energy, PPL Electric Utilities and First Energy. Our Outreach team has worked with thousands of Pennsylvania businesses to reduce their energy usage by a total of 430 GWh, and subsequently helped these businesses apply for millions of dollars in utility incentives. We understand first hand how important it is to these businesses to have available efficiency incentives that help them to reduce their energy and operating costs and continue to be part of Pennsylvania's economy, rather than move to the Southeast where energy costs are lower.

A landmark study conducted by Deutsche Bank and the Rockefeller Foundation in 2012 estimated that bringing energy efficiency investments to scale in the US offered a $279 Billion investment opportunity that would yield over $1 Trillion in energy savings over 10 years, reduce US carbon emissions by approximately 10% and create 3.3 million new direct and indirect jobs. Energy efficiency is the backbone of a thriving competitive business environment and Pennsylvania's homes and businesses are just beginning to wake up to the benefits it can provide to them.

In addition to energy efficiency, the global market for renewable energy continues to grow. Clean Edge, a market data firm, projects that the combined renewable energy sectors will continue to grow over the next 10 years, from $247.6 billion in 2013 to $397.9 billion in 2023. In the US, non-hydroelectric renewables accounted for 41% of new generation capacity in 2013, more than triple the contribution of coal, oil and nuclear combined! This was fueled by a strong growth in solar PV as its prices come down. Installed prices for solar PV have dropped from $7.20/Watt in 2007 to $2.33/Watt in 2014, and are projected to drop to $1.21/Watt by 2023. And Wind energy is already the least expensive electrical generation resource in Colorado as well as other states in the Great Plains and the Southwest. Solar electricity and wind energy are on their way to being cost competitive, but still need investment to get over the finish line to long-term sustainable markets.

The proposed $225 Million Energy Investment Initiative will bring much needed help to keep energy efficiency and renewable energy on their path to long-term market viability. This will benefit the economic prosperity, health and environmental quality for all Pennsylvanians.

Many thanks for your attention.

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House Democratic Policy Committee June 1, 2015
Proposed Energy Investment Strategy

Mike Brubaker, Brubaker Farms LLC comments:

Background:

- 950 cow dairy operation
- 52,000 broiler chickens
- A goal of our farm is to find ways to partner economic values with environmental values when investing in new projects.
- In 2007, we built a methane digester to produce 210 kW per hour of electricity.
- From 2010 to 2014, we installed 285 kW per hour capacity of solar panels on the rooftops of some barns.

Benefits of the Methane Digester:

- The methane gas is harnessed and converted to electricity. This destroys the methane and improves air quality by 21 times. This reduces global warming.
- Electricity can be used by the farm and excess sold to the utility adding income for the farm.
- The manure that is digested becomes 99% pathogen-free, a cleaner fertilizer for the crops.
- Separated digested solids are used for cow bedding, reducing the need to purchase sawdust, and at the same time improving milk quality.
- Excess heat from the digester engine genset is utilized to heat the digester, heat buildings, pasteurize milk and heat hot water. This drastically reduces the amount of purchased fuel needed to do these things.
- The digester destroys 90% of the odor of the manure. The community around our farm and farmland are much happier because of this.
- The digested nutrients have been changed in a way that they can be managed to improve Nutrient Management and therefore improve the water quality in the Chesapeake Bay.
- The methane digester creates a sustainable cycle economically as well as a sustainable environmental cycle. There are few investments that can achieve a model like this.

Benefits of Solar:

- On our farm we only place solar on existing rooftops, saving open ground for crop production. The existing barns make an excellent place to mount the panels.
- Provides electric for farm use and excess is sold to utility for added farm income.
- Low maintenance.

Why should the State budget money for Agriculture energy projects?

- The electricity produced is not only renewable, it is sustainable, and it energizes the grid far from the utility power plants. This benefits the non-farm community around us with stable electric.
- These projects reduce the dependence on fossil fuels.
- The digester projects have huge environmental benefits to air, soil, and water quality. The general public enjoys and can appreciate this.
- The building of the Ag energy projects utilizes builders and contractors, mostly from Pa. thereby stimulating the economy.
- The projects create jobs to run and maintain the energy systems.
- Many of the projects can not start without the help of some seed money investment.
- The more Ag energy projects operating in Pa., the more the technology will advance and become better. Pa. can be the leader in this area.
- By insuring the financial security of the state's farmers, the food supply of the state in protected as well.

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