COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL PROTECTION

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IN RE: SECTION 111(D) LISTENING SESSION

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BEFORE: VINCE BRISINI, Chair
CRAIG EVANS, Member
DEAN VANORDEN, Member
KRISHNAN RAMAMURTHY, Member
JOYCE EPPS, Member

HEARING: Thursday, September 25, 2014
9:03 a.m.

LOCATION: Office of Chief Counsel
PA Department of Education
333 Market Street
First Floor
Honor's Suite
Harrisburg, PA 17126-0333

Reporter: Kelly J.B. Arnold

WITNESSES

Kathleen Robertson, John Pippy, John Olebracht, Gary Mernick, Steve Todd, Maureen Mulligan, Megan Toomey, Ron Celentano, Tom Crooks, Ray Evans, Eugene Trisko, Tom Kovalchuk, Terry Jarrett, Mike Catanzaro, John Shimshock, Jackson Morris, Donald Brown, Robin Mann, Joy Bergey, Mary Elizabeth Clark, Edward Perry, Gretchen Dahlkemper-Alfonso, John Bechtel, Bob Potter, Karen Melton, Kevin Stewart, Wendy Taylor, Cece Viti, Matt Walker, James Jones, Daniel Kremer, Sue Edwards, Gillian Norris-Szanto, Joanne Kilgour

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P R O C E E D I N G S

CHAIR:

Good morning. Welcome to our, I guess you might say third 11D (sic) listening session. We appreciate that you're taking the time to be here and that you're sharing your thoughts on the EPA proposal with us.

The ground rules for today's presentations are that each speaker will be provided 15 minutes, those are uninterrupted minutes, to present their position and comments on EPA's proposed Clean Power Plant.

We, as DEP, may ask some clarifying questions, however, there will be no questions from the audience and there will be no assistance from other members of the audience or the presenters in addressing questions from the individual.

If you find it necessary to clarify more than you've been able to do verbally today, you may submit additional clarifying information that we will consider in preparation of our comments. I learned that our first speaker for today --- I don't think I have ---. Oh, here we go.

Our first speaker for today has canceled

due to illness, so I was wondering if Kathleen Ann Robertson is here, if she would be willing to be the first speaker of the day. Also I should warn you that there is no on off switch on that microphone, so should you utter anything under your breath we all may hear it.

MS. ROBERTSON:

Good morning. My name is Kathleen Robertson. I'm environmental and fuels policy manager of Exelon Corporation. Exelon is one of the nation's leading competitive power generators, owning and operating over 35,000 megawatts of nuclear, wind, hydropower, solar, gas, coal and oil fired generation, including almost 9,000 megawatts of generation in Pennsylvania. In addition, our utility businesses serve three major metropolitan areas in the PJM Interconnection including PECO Energy in southeastern Pennsylvania.

Exelon Generation is headquartered in Kennett Square, Pennsylvania and our Exelon nuclear business unit is the leading owner and operator of nuclear plants in the United States with ownership interests in nuclear plants representing over 24,000 megawatts of generation capacity, including over 5,400 megawatts in Pennsylvania at the Limerick, Peach

Bottom and Three Mile Island facilities.

Exelon's PECO Energy subsidiary has over 2,400 full-time employees and proudly provides electric and natural gas distribution services to a population of over 4 million people, with 1.6 million electric and 497,000 natural gas customer accounts in southeastern Pennsylvania.

In total Exelon currently employs over 6,000 people in Pennsylvania in highly skilled positions. During 2012 Exelon Corporation and its subsidiaries paid $256 million in state and local taxes in Pennsylvania and collected an additional $104 million on behalf of Pennsylvania government agencies.

Exelon appreciates the Department's efforts to seek public input concerning Pennsylvania's plans to implement and enforce EPA's Section 111(d) rulemaking to reduce greenhouse gas emissions from existing fossil fuel fired power plants.

My colleague, Bruce Alexander, commented at the previous listening session last December. He highlighted the important role that our industry must play in reducing greenhouse gas emissions as well as three principles to guide, plan and development. First we noted that the primary focus of the compliance plan should be to achieve the necessary

reductions in a way that maintains reliability and minimizes consumer costs.

Second, we stated that the compliance timeline should be cognizant of the current fleet transition. Finally, we urged regulators to minimize regulatory uncertainty during this process. We reiterate our support for these principles as Pennsylvania explores compliance options. In addition, we offer the following comments specific to the guidelines proposed by EPA in June.

Nuclear power is often an overlooked lynchpin of the transition to a lower carbon electricity generating fleet. Pennsylvania is a national leader in the production of clean energy, in part due to the benefits provided by its nuclear fleet.

In 2013 Pennsylvania ranked third in the country in the production of carbon free power. Thirty-four (34) percent of the power generated in Pennsylvania in 2012 was produced by nuclear generation, which equates to nearly 35 million tons of carbon emissions avoided through this reliable source of base load generation.

Environmentalists and scientists around the world have concluded that the necessary emission

reductions cannot be achieved without the continued operation of nuclear power. The pathway to a clean energy future must include what is working today.

In fact, nuclear supplies 62 percent of clean energy resources in the U.S. and 93 percent of the clean energy resources in Pennsylvania. For the foreseeable future nuclear power is the only means to predictably produce large amounts of zero emission electricity at all times of the day.

As PJM has noted, nuclear plants provide unrivaled performance during all weather conditions. Exelon Nuclear's 24 units across five states, including Pennsylvania, achieved an average capacity factor in excess of 94 percent in 2013.

That means they were available 94 percent of the time to meet customers needs, even taking into account the time we need to take the plants offline to refuel them and conduct all scheduled and unscheduled maintenance outages.

While many plants struggle to run during extreme heat or cold when their power is needed the most, our plants are virtually always on. For example, during the peak of January's polar vortex the nuclear fleet represented only three percent of the forced outages experienced across PJM. System

operators need reliable, base load units to maintain system reliability.

For that reason PJM's CEO has stated that it is, quote, critical that the nuclear fleet in our region remains economically viable particularly as we head into this multi-year transition on the rest of our resource profile, end quote.

He has also been quoted as saying that retirement of the nuclear fleet in PJM is, quote, unthinkable. Despite their environmental, reliability and economic value, a number of existing fleets --- existing plants, sorry, face premature retirement long before the end of their design life.

Owners of 6 of the nation's 104 nuclear units have retired units or announced that they will soon retire units. There are a number of factors causing this, which include low natural gas prices and wind subsidies, but chief among them is the absence of market mechanisms to value the carbon free nature of nuclear power, or conversely, require carbon emitting generation to internalize the social cost.

We do not expect the factors driving these economics to change in the near term absent EPA's rulemaking. Five of our own units have failed to clear the PJM capacity auction for the 2017, 2018

delivery year. A sixth unit is located in MISO, which does not operate a capacity market comparable to PJM's.

Thus, six units representing 48 million megawatt hours and 35 million tons of abated carbon each year lack a forward capacity commitment and are vulnerable unless and until their full value to the electricity system is recognized.

Turning to EPA's proposal. EPA agrees that maintaining the existing nuclear fleet is essential if we are to meet the carbon reduction goals while ensuring access to reliable, affordable electricity. As EPA explained both in the preamble and in public statements since, we need to look both at CO2 per generation created and avoided. For that reason EPA has included both emitting and non-emitting sources of CO2 as part of the proposed rate formula in order to recognize the value of abated or displaced fossil generation.

In the proposal EPA acknowledged the significant increase in carbon emissions that would occur if we fail to maintain the nation's existing nuclear fleet. EPA said that carbon free nuclear generating capacity avoids CO2 emissions that would otherwise occur at fossil fuel fired power plants in

the absence of nuclear output.

EPA indicated that retaining existing nuclear capacity will avoid hundreds of millions of metric tons of CO2 just over the initial phase-in period alone. As Administrator McCarthy has said, if nuclear capacity goes away, quote, it's a lot of carbon reduction that needs to be made up for a long period of time, end quote.

Citing figures from the Wall Street analyst reports, EPA stated that it views the payment of $6 per megawatt hour to challenged nuclear units as reasonable in comparison to other and more costly carbon abatement strategies. Of course, in a mass based system the retirement of zero carbon resources and their replacement with carbon emitting sources of energy would jeopardize a state's ability to meet the mass based cap. As such, there’s no need to explicitly include zero carbon resources in a mass based system.

As you know, EPA has proposed a rate based system that required the agency to be much more creative in how to reflect the production from zero carbon resources like nuclear in the rate formula.

To do so EPA used as a proxy an estimate of the at risk nuclear capacity and proposed that the

emission reductions supported by retaining in operation six percent of each state's historical nuclear generation should be factored into the state goals for each state with a nuclear plant. EPA, however, has correctly noted that this is just the beginning of a public discussion on how to address nuclear generation in this rulemaking. The agency invited comment on all aspects of this proposal.

I think it is fair to say that the six percent proposal is a placeholder to begin a dialogue about the best way to ensure that we continue to make progress on carbon reduction. The proposal begins with a baseline of 2012 emissions and requires progress from there. In other words, EPA assumes there will be no backsliding, which is what would occur if carbon free resources prematurely retire. As the Administrator said when she testified at EPW, EPA is, quote, encouraging states to really pay attention to this because the replacement of a base load capacity unit that is zero carbon emitting would be a significant challenge for states who are right now relying on those nuclear facilities, end quote.

As the compliance plans are developed, EPA will be looking to make sure that states do not take steps that will undermine their existing carbon

abatement strategies. For example, EPA said in the proposal that compliance plans must include, quote, a commitment to maintain existing measures that limit or avoid CO2 emissions at least until the plan is approved, end quote. Based on these comments and subsequent discussions we believe EPA will revise the treatment of nuclear in the final guidelines so as to ensure states maintain their nuclear fleets where it is cost effective to do so.

Finally, with regard to Pennsylvania's compliance considerations EPA calculated the 2030 final goal, proposed 2030 final goal, by including only six percent of 2012 nuclear generation, or four and a half million megawatt hours, and ignored completely Pennsylvania's hydropower resources. That greatly undervalues the investments Pennsylvania has made in nuclear and hydropower.

There are several different compliance paths possible under the proposed structure and we are concerned that the treatment of nuclear in EPA's rate based formula could affect the Commonwealth's ability to choose the path that is most cost effective for customers. If Pennsylvania were to opt for a mass based system the premature loss of nuclear capacity would be significant in that fossil emissions would

increase, which would make compliance with the cap more difficult and expensive.

In a rate based system the impact of the loss of nuclear capacity depends on the extent to which it is reflected in the rate, and Exelon would agree with many who have said that the six percent proxy isn't much of an incentive to retain nuclear capacity in a rate based approach since six percent, as quantified and applied by EPA under its current formula does not even represent the electrical output of a single nuclear unit. That means that if nothing changes in the EPA proposal, the loss of nuclear capacity between now and the compliance period could prejudice states' ability to choose a mass based system even though this would be the most cost effective for consumers.

All of this is why it is so important to appreciate that EPA sees the six percent as a starting point for the discussion of how to account for nuclear generation as a cost effective abatement strategy. It is not reasonable to assume that EPA is going to deem a 111(d) plan to be in compliance when its effect is to increase carbon emissions, perhaps dramatically depending on the level of nuclear retirements.

Thus, we obviously don't yet know what

the final rule will require, but it is fair to say that it will likely look quite different based on the enormous amount of feedback EPA has received and will continue to receive on this part of building block three and on the importance that the agency has placed on the issue.

Therefore, my main message today is that we should not look at the proposal as a limit on what will count and what won't count when it comes to demonstrating compliance in 2021. All zero carbon resources should be encouraged similarly and Pennsylvania, which has invested in nuclear and hydropower, should be recognized for that investment as it complies with a federal carbon emission reduction program.

As a final note, EPA recognizes the value of regional planning in designing approaches to achieve cost effective greenhouse gas reductions and thus has encouraged coordination in the development of multi-state and regional programs and policies. In the proposal EPA estimated that a regional approach will cost nearly $2 billion less than an individual state-by-state approach.

Regional grid operators can, and in some cases already do, factor in pollution when they choose

which power plants to run by incorporating a price for that pollution. This can happen through a regional mass based trading program or directly through re-dispatch by the grid operator.

In practical terms that means that the grid operators would run natural gas plants more often and older and dirtier coal plants less often. Unlike cap-and-trade, if the RTOs do this there is no trading or sales of carbon allowances and reductions can be achieved immediately.

We support a regional compliance approach with clear compliance mechanisms. Our written comments to EPA will include recommendations on this issue as well as how to account for new natural gas generation to ensure that the program drives cost effective emission reductions.

In conclusion, we are pleased that EPA has recognized the important environmental, reliability and economic benefits of existing nuclear plants and has taken steps to create a regulatory incentive to value the carbon free, reliable generation that our plants provide to Pennsylvania businesses and families. Thank you for considering Exelon's comments on Pennsylvania's implementation of EPA's Section 111(d) proposal. I'd be glad to address

any questions you may have.

CHAIR:

Thank you. Are there any questions?

MR. RAMAMURTHY:

I'd like to know exactly what specific revisions you would like to make? I understand the general agreements you are making and some of them you touched upon the implementation side of it from the goal setting and the proposal. Do you have any specific recommendations?

MS. ROBERTSON:

Specific recommendations that I am allowed to make on the record at this point in time? In general we've been exploring a number of different options. I don't think we've settled on one that is best. Obviously, mass based would be best, but then we don't have to include nuclear and then you just get the carbon free power.

We've also been exploring the effective --- more of a true system migrate or other measures within EPA's formula. Obviously, we prefer a cleaner method than the proposed formula, but we've also developed several ways that nuclear could be better accounted for in that structure. We'd be happy to provide our counter TPA since we've made them.

CHAIR:

Okay. Thank you. Yes, copies. We appreciate it. Now, something I'm going to do because in my zeal to start the meeting I didn't do, we're going to introduce ourselves. Somebody has tried desperately to train me to do that. I won't mention any names, but we will do that now.

MR. RAMAMURTHY:

Krishnan Ramamurthy, I'm in division of permits.

MR. VANORDEN:

Dean VanOrden. I'm the assistant director for the Bureau of Air Quality.

MR. EVANS:

Craig Evans, environmental manager for the air toxics and risk assessment section in the division of permits.

MS. EPPS:

Good morning. I'm Joyce Epps, director of the Bureau of Air Quality and we're still trying to train him.

CHAIR:

In certain areas. Some areas he's untrainable. Okay. Thank you very much. The next speaker is John Pippy with the Pennsylvania Coal

Alliance.

MR. PIPPY:

Good morning, members of the panel. I appreciate the opportunity to be here today for the listening session and I want to thank everyone at DEP for their efforts to really try to dig down deep into the weeds on this because I think that's really where there are still a lot of unanswered questions.

I appreciate the opportunity to testify here today and, as you may not know, but Pennsylvania Coal Alliance is a trade organization that represents the bituminous sector, we also have our friends in the anthracite in the northeast, but we account for over 90 percent of the coal mine in the Commonwealth. And when 80 percent of that coal goes to power generation, we are directly linked in with the electricity generation.

So our recent economic impact study conducted by the Pennsylvania Economy League that we released in April shows that our industry accounts for a little over 36,000 jobs and $4 billion annually. Now, if I was testifying to you a year ago, I would have cited a report that we released two years ago, in 2012, which would have talked about 41,000 jobs and $7 billion economic impact.

So we have seen some tremendous hits over the recent years, a lot of that due to the premature closing of some plants and anticipated closing of other small coal and power plants with the total loss of over 5,000 megawatts. Currently today we still account for approximately 40 percent of the electricity generated.

Our concern with the EPA proposed, and I'll use quotations, clean energy plan is that it represents the biggest obstacle that has confronted our industry in decades. This is a very different than other proposals where there was significant congressional inputs, there was a debate discussion and there frankly were interim goals.

The goals as set forth under this proposal would in all likelihood eliminate coal from the significant part of our portfolio and establish a very small percentage. Under the proposed plan Pennsylvania's average interim emission goal rate from 2020 to 2029 is 1,179 pounds per megawatt hour and its final emission goal is 1,052 pounds per megawatt hour.

To put that into context --- and I know I'm preaching to the choir. I know you know these numbers, but I would like to get them on the record. Our average plan is to operate 1,800 pounds per

megawatt hours CO2, a super critical plan by AEP recently operates at about 1,500 megawatt hours.

To get down to 1,100 or 1,052 you would have to eliminate coal from the significant part of the portfolio. Even CCS Technology put a new source in that were proposed a year ago 1,100 range. So there is no question as to what the intent is on this proposal and why we have concerns.

EPA also uses a number that accounts for a 32 percent reduction of CO2 based on 2012 levels, and I'll get into a little later, but if you were to backdate that to 2005, which is a date they used when they're talking national law, that would actually be a 42 percent reduction in Pennsylvania CO2 emissions.

So it is much more than a third. It's like 42 percent according to your own department and testimony provided. We have seen a 12 percent decline since 2005 to 2012 in CO2 and it's a little dated because I just checked your website last night and I think they're now anticipating by a little past 2020 a 29 percent decline, but my number shows a previous comment of 22 percent reduction.

The irony in that is during the President's comments in Georgetown a couple years ago he talked about 17 percent annual reduction to the

nation. How great that would be. And I was excited because I say, great, Pennsylvania. We're already going to be there, so we don't have to worry about what they're propose. I was wrong.

These reductions have been accomplished in Pennsylvania while still maintaining a very stable and reliable supply of electricity and we are very competitive. We're slightly lower than the national average and I would argue that we're allowed the full use of all our great resources such as our friends in the nuclear side even though they call us dirty coal. Nuclear, natural gas and coal plants.

We should be even less expensive and be really at the bottom of cost for energy. And if we have a policy that makes sense, it takes into account reality I think we can actually get there. In the testimony I talked about how 95 percent of our generation comes from coal, natural gas and nuclear, which is indigenous, low cost and very, very reliable.

Despite the fact that Pennsylvania is taken the true all the above approach to energy portfolio and has taken a policy that takes advantage of the natural resources we have, we believe that the EPA proposal will be exactly opposite and would be significantly not --- would be significantly --- would

have a significant negative impact on the ratepayer, specifically long term.

Given this background I think that it needs to be clear and we have written testimony of the EPA that Pennsylvania shouldn’t be penalized for the good work we have done. I know some of you know that in my past job I was involved with the legislature, the senator and state representative. I was one of the gentlemen and ladies as well who were on the bill that established our current energy portfolio standing. I voted for that in the past because I believed in the need for continuous improvement on environmental engineer. That hasn't change. And in 27 years of being involved, I still believe that technology, innovation, sound policy will continue to take steps. And frankly, we've shown it here in the Commonwealth, and so we would ask that we continue to push that agenda.

The impediments of coal fire generation I think very much focus on the actual written word as opposed to the political or talking points that you hear coming from Washington specifically. Whenever you ask them a question they will talk about how we need --- that all the plans is flexible if we leave it up to the states.

The problem with that, quote, use of flexibility to solve all the questions is that if you look at all the building blocks, they crumble when they start getting scrutinized individually. And I'll just go through very quickly. The first one, heat rate efficiency that affected each user carbon intensity. I think it was six percent modest --- what they believe was a modest improvement.

However, as your own testimony White Paper mentioned the --- if we were to ---. If those generating units were to go towards that direction would the permitting process be exempt from the standards, what is the long-term liability based on some of the other targets?

And if you just, on an informal discussion, I think you would see that most of the ones that could afford to do it on the current climate market conditions and political and regulatory climate have done it. Why would you not want to improve your efficiency? So at six percent is significantly overstated some would argue that it'd probably be less than one percent, but I'll leave it up to the other associations to talk about that number. So if you don't have that building block to build on then you must go onto the other.

So load shifting, re-dispatching. You know, I think they look for very significant I think 70 percent capacity for our friends on the natural gas side, yet EPA is silence on necessary citing and permitting, expeditious permitting, necessary to try to build that capacity for those pipelines.

We saw it during the polar vortex, some of the concerns associated with that. And I know PJM right now, as we speak, are working on trying to find ways to value our base load and help our friends in nuclear, but also coal and natural gas base loads. So that building block is not necessarily achievable.

Now, building block number two is starting to crumble under the weight of reality. I mean, that is one of the challenges. There's also many charts where they talk about proposed new energy plants coming online, and if you look at the chart you'll see the number of coal fired power plants that are coming offline and somehow the proposed plans coming online are about equal, but when you do a little more research and you find out of those proposed plans a good number --- economic analysts assume that one-third of those plants will actually be available in time to impact especially the next five years.

So there is a --- once again there's numbers issued. Renewable generation increase I already mentioned. I voted for that. We're at about one and a half percent. I think that brings us up to about four percent. So wind and solar, one and a half, great. Even if we double and go through all the permitting requirements, all --- the legislative approval necessary to do that, by the way, we're at three. I don't think we're getting closer to that building block EPA has demanded from here up in the Commonwealth of Pennsylvania.

And the final energy efficiency program reduced demand for electricity already part of our current law in Pennsylvania. I think the number I saw was half of a percent when it came to achievements. There is potential for more. Potential is a great word, but reality is sometimes a little heavier when it comes to the wallet.

So even mandating a higher performance is --- would be challenging, and then I would argue that we are also pushing very hard right now for the need to see our final plan, whether it be a cracker plant, a small cracker plant, in Western Pennsylvania the resurgence of manufacturing, and those two don't add up very well.

So I think there are a lot of unanswered questions that have to be accounted for. In my testimony I talk about if fully implemented numbers have shown that we can see potentially 70 percent reduction in coal utilization by 2030, and we --- yet we don't have the answer as to what would fully replace that. The UWA also estimated that it will take about $200 billion out of our coalfield communities.

I'm not going to touch on reliability. I think I'd be preaching to the choir and as you mentioned already in your White Paper. I won't do that again. The cost benefit analysis I think is appropriate to discuss. We have seen tremendous strides here in the Commonwealth of Pennsylvania with CO2 reductions and don't forget power generation's not the only contributor. We're about --- maybe it's 40 depending on who you talk to.

You still have industrial application, as well as transportation applications, which some of the other sources of energy need to have a greater impact. All that being said, if fully implemented we would see billions of dollars lost, a tremendous negative impact on the significant part of our energy sector, yet we wouldn't see a reduction in overall

CO2. But as a matter of fact, it would be less than a one percent difference and especially with our friends in the developing nations looking to pull that source of energy --- valuing CO2 here in the United States like they did in Germany and other places may not make sense the way they want to do it. Not to say that we shouldn't continue to see energy efficiencies and improvements, but putting our official number on that to achieve a goal that doesn't necessarily achieve a goal globally I think is something worth studying or reviewing and a cost benefit analysis being done.

I know we're running out of time, so I'll just go with my conclusion. This proposal will affect the type of electricity we consume, its availability on a 24/7 basis, how much we pay for it and many other impacts on our economy as well as there are environmental impacts as well. Therefore we would argue that it would --- this is an energy policy trying to be rammed through in an environmental --- very strict or limited environmental rule that is associated with 111(d) inside the fence stuff.

So that is a big question that has to be answered. We believe that a lot of questions I brought up during the testimony should be answered before the policy is actually fully implemented and

developed.

And our concern is that the speed of this process --- all these reviews would be great if we're talking about implementing in 2020, but we're talking about a 2015 proposal, 2016, maybe '17 if you get a one year extension. There's just not enough time literally to do the due diligence associated with such a shift.

We believe that the approach outlined in the DEP-wide papers submitted earlier this year Secretary McCarthy and the EPA is the right approach is true all of the above approach submissions, it recognizes the value of energy and the jobs, but also the importance of continuing a very aggressive ---. And I would say total class reduction in CO2 emissions, but that not significantly will alter the portfolio in a way that will devastate an entire energy sector.

So I will stop on that note. I want to thank you for the opportunity to testify before you and I look forward to answering any questions if you have any.

CHAIR:

Thank you. Do we have any questions from the panel? No? All right. Thank you very much.

MS. PIPPY:

Thank you very much. Our next speaker is John Olebracht, who is vice president of ARIPPA, and Gary Mernick.

MR. OLEBRACHT:

Good morning. My name is John Olebracht, and I am on the Board of ARIPPA and I serve as a resident manager of Westwood Generation. I am here with Gary Merritt, who is with Cambria Cogeneration and IPAC Colver, both members of ARIPPA. We are here on behalf of ARIPPA and we appreciate this opportunity to provide comments regarding the effects of EPA --- probable effects of EPA's proposed Clean Power Plan.

ARIPPA is celebrating their 25th anniversary as a Pennsylvania based non-profit trade association. Its membership comprises of electric generating units combusting coal refuse as a primary fuel and producing alternative electric energy and/or steam.

Most ARIPPA plants were originally constructed within close proximity to the vast legacy coal refuse piles in the anthracite and bituminous regions of the United States. ARIPPA plants generate approximately five percent of the total electricity

produced in Pennsylvania, West Virginia region and we employ hundreds of thousands of citizens throughout the industry. ARIPPA, on behalf of its member companies, is accordingly proud to provide testimony to the Committee on EPA's carbon pollution standards for existing power plants.

Pennsylvania has a legacy environmental issue, as you're well aware of, the historical coal mining management practices included the abandonment of thousands of acres of mine lands and the stockpiling of low quality, high ash, low BTU, non-marketable coal product known as coal refuse.

This refuse is on the surface lands, and being exposed to the natural elements these unsafe lands and stockpiles of coal refuse expanded in the negative environmental footprint over time causing much of our water and land to become unsuitable for the growth of vegetation or the habitat of wildlife, fish and/or the citizens.

Pennsylvania's Department of Environmental Protection has reported that Pennsylvania has more than two billion tons of coal refuse stockpiled on abandoned mine lands resulting in the largest source of water pollution in the Commonwealth. The estimated time and cost to

eliminate this legacy environmental issue is 500 years and nearly $15 billion.

An additional significant environmental problem that has occurred in the past continues to occur and will likely occur in the future, is the uncontrolled burning of legacy coal refuse stockpiles. Certain stockpiles, on occasion, will naturally combust, and it’s due to mother nature or to unfortunate citizen actions.

Such combustion produces various uncontrolled ground level emissions, including greenhouse gas. Pennsylvania has long recognized this hazard and has passed legislation in an attempt to abate and/or control these naturally occurring coal refuse fires.

ARIPPA is convinced that EPA is also aware of this naturally occurring hazard and the correlating release of uncontrolled ground level emissions including greenhouse gases. We feel confident that EPA is also aware of the release of methane gas that currently occurs in most abandoned mine plants.

ARIPPA's comments will cover six areas. Impact of greenhouse emissions on coal refuse industry in Pennsylvania, the unintentional consequence of

greenhouse gas, MATS, BMACT and CSAPR, Pennsylvania's Section 111(d) policy paper. We'll also have specific comments regarding EPA's Section 111(d) proposed rulemaking and other points associated with that rulemaking.

Our comments are more in the form of bullet points since we're still working on the economic impacts associated with the rule. The impacts of greenhouse emissions on the coal refuse industry in for coal refuse fired units the rule is problematic from the following perspectives. We're burning a low BTU, high ash fuel that results in higher heat rates per the units, thus meaning that we have a higher CO2 emission rate.

The plants utilize limestone injection in the furnace to reduce SO2 emissions. The calcination of the limestone increases CO2 emissions. For example, the use of limestone to increase SO2 removal efficiencies from 92 to 98 percent would increase CO2 emissions by another 7 percent, which is more than the 6 percent improvement necessary under block one of EPA's proposal.

Second bullet point --- or third bullet point is the economics of significantly improving erate at a coal refuse fire plant is not cost

effective and is not recoverable in the marketplace and regulated. Therefore the coal refuse plants will continue to become more uneconomical and eventually will prevent us from burning these abandoned mine land waste coal piles.

When that happens we do lose the multi million benefits that we get from the beneficial use of our ash, which is eliminating the coal waste from the surface and preventing the runoff into the streams. The coal refuse plants greenhouse gas emissions from the burning coal refuse are carbon neutral, but compared to eliminating the spontaneous combustion of these coal refuse fires.

The coal refuse fuel that we have is processed from coal refuse sites as defined by SMCRA, Surface Mining Control and Reclamation Act of 1977. The technology to clean coal has resulted in coal refuse being produced. However, the coal refuse that's being produced now is of a lower quality, lower BTUs, higher ash than legacy coal piles.

Again, coal refuse fired plants are the only known consumer of this product, and as the quality of the coal decreases we need the flexibility to burn the different types of fuel that are going to be available to us, the old legacy piles and the new

coal refuse that is currently being used.

We know that the coal refuse piles have burned in the past, as I said before. We know that some coal refuse piles are burning now and they're going to continue to burn in the future. So without these coal refuse plants you have to consider that the uncontrolled emissions from the coal refuse pile, which are toxic, and have greenhouse gas associated with them will continue to harm our communities. The burning coal seams and coal refuse sites are major sources of greenhouse gas, thus using coal refuse as a fuel and eliminating these piles from being able to burn in the future using long-term greenhouse emissions.

Coal refuse sites are a source of water pollution. These sites generate runoff and acid mine drainage. By reclaiming these sites we eliminate them as future sources of uncontrolled air pollution, as in fugitive dust and emission from the burning. We eliminate the runoff problems and ameliorate the mine drainage problems resulting in significantly improving the water quality in nearby streams. All downstream states receive benefits of our efforts.

The revegetation serves as a carbon sink as does the restoration of streams and the return of

those ecosystems. A key point here is that coal refuse fired units are providing a service reclaiming old coal refuse sites, eliminating them as a source of air pollution and in the process improving water quality, and returning those lands to a productive use and revegetative state.

We believe these long-term reductions in uncontrolled greenhouse emissions should be considered as reduction in greenhouse gas emissions in the proposed rule. Some of the unintentional consequences of greenhouse gas rulemaking, MATS, BMACT and CSAPR are that EPA's recent regulations have resulted in and will result in more coal fired power plants, including waste --- coal refuse plants to cease operations throughout Pennsylvania and other parts of the country.

As a result, the demand for coal in the United States will decrease drastically. The reduction of coal production will result in less dollars being sent to the Federal Abandoned Mine Lands Fund as a result of lost production. The decrease in revenues to the AML Fund reduces the amount of monies available to states like Pennsylvania both in terms of a percentage of fees and its industry pays as well as reduced fees from other states, which would impact our

ability to reclaim the plants.

Pennsylvania's Section 111(d) policy paper. Pennsylvania's strategy to address and obtain CO2 reductions based on energy efficiency is a critical component of their comments regarding Section 111(d). In order for the energy efficient projects to be successful a thoughtful and careful retooling of the NSR review process will be necessary, as outlined in the policy paper.

By looking at energy efficiency from an output basis and tying the NSR triggers the comparison of pre and post modification emissions would create an excellent pathway to move these projects forward. This approach would result in pushing the non-EGU industrial sector to look at these projects to lower their costs, improve energy efficiency and seek more combined heat and power projects.

Further, it would encourage existing cogeneration projects to remain viable. These approaches are also similar to the U.S. EPA's combined heat and power document, Output Based Regulations, A Handbook for Air Regulators released in August of 2014. The Pennsylvania approach would result in an increase in energy efficiency, provide an opportunity for plants to compete and at the same time allow other

types of projects to move forward.

Additionally, Pennsylvania's approach acknowledges the carbon neutral outcomes that result from the environmental cleanup of old refuse piles. Our specific comments regarding EPA's Section 111(d) proposed rulemaking EPA describes its proposal to cut carbon emissions from the power sector by 30 percent from 2005 levels.

As you heard already, what they don't say is the reductions over 2005 are significantly higher. The real goals proposed are for 2020 is a 37 percent reduction over 2005 levels, a 23 percent reduction over 2012 levels. And by 2030 it's a 44 --- on average 44 percent reduction over 2005 levels and a 31 percent reduction over 2012, which are significant.

To drive the rates down EPA suggests that the capacity of the existing coat plants based on their IPM modeling would be in the neighborhood of 38 percent. That's uneconomical for all of our units. If this is the case a large number of plants, especially the coal plants, would end up being closed. Further, there's a real question as to the stability of the grid that will result. This comes from two different directions.

First the shutdown of upward of 75

percent of the existing generation based on PADEP's projections, and the trend to energy efficiency. This approach impacts demand and weakens the grid. Ultimately the transmission system will have to be maintained and the price of maintenance will become a fixed charge no matter how much electricity flows through it to the end user, and an increase to your bill.

It needs to be recognized that upwards of 40 percent of the power generated in Pennsylvania is transmitted to adjacent states. EPA's modeling and program includes reducing the capacity of the existing fleet with coal impacted the most. And then with a projected reduction in generation would mean that there will be less power for Pennsylvania to export.

Pennsylvania's first priority is to its citizens. If we export 40 percent of the power now based on our existing capacity, a reduction in generation of 38 percent capacity could mean that there will be a statewide deficit. Competition for replacement power will be stiff with no guarantee that these new sources will be built in Pennsylvania.

So what is the economic impact on lost generation to the state? Other points regarding EPA's 111(d) proposed rulemaking is that Pennsylvania does

not have the authority to dispatch units emissions. In its IPM modeling, EPA has reduced the capacity factors, as I said, of many of the plants to 38 percent or less, which increases the cost to operate and generate power for those units.

The demand response as presently designed in the PJM does not account for the air emissions from these smaller, less controlled units in terms of NOx, SO2, PM or greenhouse gases. These units were never designed to meet the more stringent emission requirements of EGUs and many are located in areas that have the greatest concern for the air quality when these units are needed.

Pennsylvania's strategy to address and obtain CO2 reductions based on energy efficiency is an excellent point as set forth in the White Paper. Specifically the concept encourages efficiency and upgrade projects by modifying the NSR triggers to become output based emissions limits, which will result in reductions on a megawatt output basis.

This is a better way to define NSR for CO2 reductions and the energy efficiency projects. At this time for the foreseeable future Pennsylvania should not be joining regional programs related to greenhouse gas controls since Pennsylvania must

compete with PJM states for the sale of electricity, any regional system thought to assist in achieving the goals of the rule must be comprised of all the PJM states.

So in summary, at this point we believe that the proposed rule goes beyond what the Clean Air Act authorizes EPA to do. Specifically, we believe that EPA cannot regulate coal refuse fired plants under Section 111(d) of the Clean Air Act while being simultaneously regulated under Section 112.

We also believe that the proposed Clean Power Plant does not adhere to the statutory framework established by Congress and EPA has taken liberties with this interpretation of definitions and the plain language reading of the Clean Air Act and associated case law.

We will leave it up to the lawyers to debate that in court. We believe that enacting an energy policy should also be a legislative effort and not a regulatory effort as the implication of this proposal goes to the restructuring of electric transmission and generally the industry, the potential elimination of the coal industry and their related industries. The proposal also institutionalizes taxes needed to keep non-competitive power generation

sources operating such as wind and projects --- wind projects.

This proposed plan can impacts workers, families, children and their education, healthcare and jobs. Clearly the impacts of the proposal have not been fully vetted by the EPA.

CHAIR:

Okay. That was our 15 minutes. I do have a question. You've identified a carbon neutral situation for this generation. My question is, is this including the elimination of methane or is this simply based upon a comparison to the uncontrolled carbon dioxide emissions that would be released from uncontrolled combustion of the abandoned coal pile?

MR. MERRITT:

We're still doing calculations on release the coal piles. The abandoned coal piles can catch on fire, and what they typically release --- when they're smoldering you get some greenhouse gas. You get a lot of the air toxic coming off, but when they really catch on fire and then the department has to run in using AML emergency money to put them out they're putting out a lot of CO2. We never really got into looking at the calculations for methane off of the piles.

We know that there is some methane coming off just from --- the piles are basically a heat sink and a little bit of temperature in the summer, drive offs and other stuff, but there used to be studies done in the ’70s by EPA on this issue. They seem to be forgotten by this --- prior administration, not just this one, but all of them in the past, but you know, what work had been done.

Pennsylvania, as you’ll recall, did a --- Pennsylvania’s Coal Refuse Disposal Act was initially the Air Quality Act. It was designed to put out these coal fires in these coal refuse piles. And they eventually brought into the --- overriding environmental controls, but it initially was the Air Quality Act pushed by --- it was pushed by the Bureau of Air Quality and its predecessor way back in the ’60s, ’70s time frame.

Vic Sussman was one of the original people for air quality in Pennsylvania. He was one of the leaders of getting the legislation passed in Pennsylvania, so they recognize this. We see it. We’ve seen work done by Georgia Southern that have actually identified a lot of these piles and they have indicated these are major sources of greenhouse gas levels of coal mine emission.

CHAIR:

Thank you. Any other questions?

MR. RAMAMURTHY:

I mean, the fiscal plans for the separate programs how much --- setting aside the new sources review limitations, is it a six percent energy efficiencies? Is it a little over a hundred percent?

MR. OELBRACHT:

As far as energy efficient, the design of the boiler is such that they're going to have higher heat rates. It's due to the methods in which we extract the heat from this material. So performing energy efficiency programs on the units are expensive.

There is some gain that we can make over time with, you know, expanding heat transfer services within the boiler and those type of things, but they're extremely expensive to do that.

So in this current market and in the future, if you don't have the capacity, factors necessary to run, you know, the traditional fashion which is the low 90s you're not going to recover that cost. So the decision would be not to do that. Other significant improvements in heat rate would be difficult based on the fuel with regard --- extract that little bit of carbon that's left in that

material. For Westwood, for example, our design heat input power per million is 3,800, which is not really fuel. Some of the plants are as low as 2,500, so improving that heat rate per unit would be a significant challenge.

MR. RAMAMURTHY:

Thank you.

CHAIR:

Any other questions? All right. Thank you very much. Our next presenter is Steve Todd who is executive director of Todd Engineering, LLC.

MR. TODD:

Thank you. Good morning. My name, as you said, is Steve Todd and for my testimony before this listening session, I will refer to my blog comparing DEP's testimony to my own testimony at the Pittsburgh hearing this summer. I've posted them at the link that's attached to the --- it's sort of a blog and it's called, How Far, Far Apart We The People of PA Are On Climate. I posted it August 3rd, 2014.

On July 31st the Environmental Protection Agency held a hearing on proposed limits for carbon pollution from existing power plants. The EPA's proposed Clean Power Plan would cut carbon emissions by up to 30 percent by 2030. Pittsburgh

Business Times reported that EPA officials said they had already received 300,000 comments before the start of the hearing.

There's no greater example of how far, far apart we the people are on this issue than a comparison of my own Commonwealth regulatory agency's position and my own. I have read DEP Deputy Secretary Vincent Brisini's EPA testimony and there's a link there on the website, that underlined thing. It says Mr. Brisini's testimony would come in full as submitted.

I also offered my own testimony at that same hearing as a professional civil environmental engineer, and there's also a link there. Brisini's is, needless to say, a little different than mine was. It is staggering to me that Deputy Brisini offers little argument against the soundness of the environmental protection aspects of EPA's new standards.

He makes largely political, legal and economic arguments. While those certainly need to be heard, it is unnerving to me that DEP chooses to use its testimony to make them primarily. Brisini never claims EPA standards won't protect our air, dirt and water, only that it might not respect our state's

powers or cost certain industries to do so.

This tendency that of DEP making economic arguments over and often in complete absence of, environmental protection issues is typical of late that it is becoming embarrassing to PA. In his third full paragraph begins, quote, Pennsylvania questions EPA's authority to.

As a citizen of PA with every bit as much sovereignty, no more but certainly no less than Mr. Brisini, I submit that his opening should read, PA DEP questions EPA's authority to, or perhaps this current administration questions EPA's authority, too. PA citizens do not, by and large, question EPA's authority.

In that paragraph Brisini declares a new EPA standard will, quote, establish programs that are more related to achieving desired economic --- social and economic outcomes rather than developing and implementing performance standards to achieve emission reductions from existing units. This to me is unbelievably arrogant, doubly so from a person in a position that should know better.

While the standard may affect social economic outcomes, indeed, I don't know of any regulatory mention, any regulatory could not, its sole

intention is to reduce emissions. If we could burn coal without the tremendous harm it produces all of us, I would never oppose it. I doubt many would oppose it and I doubt EPA would oppose it either.

This reversed logic continues. Brisini testifies that EPA is moving to, quote, establishment of an overarching energy policy that picks winners and losers in the marketplace in a manner that manipulates the free market. Unless those profiting are to begin funding the 2417 global military presence, manipulating the market is the only thing that keeps fossil fuels even viable as an energy source in the first place.

We have forever picked fossil fuels as the winner, but only at tremendous cost to each person, and now and soon at tremendous and almost certainly catastrophic cost to our earth. Brisini's call for the need for EPA to recognize state leadership and authority to regulate pollutants within its borders, that was, quote, unquote, of Mr. Brisini, is a terrible idea for all citizens of earth.

Only governments and only humans when made to, recognize borders of human creation. Pollution cannot and does not. States must only be free to self-regulate inasmuch as it is effective in

keeping all pollution inside its own artificial borders. This, of course, is not possible.

He, again, wrongly identifies the Commonwealth of PA as the entity, which, quote, does not believe that environmental agencies should regulate or influence energy markets. I submit, again, that it is the Corbett Administration's DEP that does not believe this.

PA people who eat, breathe and drink here most certainly do believe that environmental agencies should regulate energy markets. That's why we have them. I hope that we also believe our DEP executives should hold similar beliefs and believe many of us find it surprising that at least this one does not.

What is our recourse as citizens when those paid of, by and for us to protect our environment drive three hours each way to testify about state and federal jurisdictions and economic impacts? Thank you.

CHAIR:

Does anyone have any questions? Thank you very much.

MR. TODD:

Thank you.

CHAIR:

Our next presenter is Maureen Mulligan from Keystone Energy Efficiency Alliance.

MS. MULLIGAN:

I'm sorry. The lens just fell out of my glasses, so I'm digging up the other ones.

CHAIR:

Would you like us to --- I seen Megan Toomey in the audience. She's the next speaker. Would you like her to present and switch places while you find your other glasses?

MS. MULLIGAN:

Sure. Thank you.

CHAIR:

I contribute that good idea to my friend. Megan, would you be willing to testify now?

MS. TOOMEY:

Yes.

CHAIR:

Thank you very much. The next presenter is Megan Toomey, project manager with the environmental management department of PPL.

MS. TOOMEY:

All right. Good morning. I would like to thank the DEP for the opportunity to discuss this

important matter today. As been already said, my name is Megan Toomey, and I'm a project manager in PPL's environmental management department.

PPL owns or controls generation assets in Pennsylvania, Kentucky and Montana. PPL Corporation's total generating capacity is 19,000 megawatts, including 6,422 megawatts, which PPL owns or controls in Pennsylvania that would be impacted by this rule.

PPL's generation assets in the Commonwealth will be part of a transaction announced earlier this year with Riverstone Holdings to form an independent power producer called Talen Energy. Pending regulatory approvals, the transaction is expected to close in the first or second quarter of 2015. PPL does not oppose reasonable environmental regulation that would establish achievable targets based on proven and commercially available technologies, acknowledge and mitigate effects on electricity prices and reliability and maintain the diversity of fuels used to generate electricity.

Since 2005 PPL has invested more than $2 billion in scrubbers and other environmental upgrades at its Pennsylvania facilities to meet the requirements of the Clean Air Act and other

environmental regulations, some ahead of schedule. PPL asks that the EPA and the Pennsylvania DEP keep this investment as --- in mind as they develop 111(d) guidelines and state plans.

The Commonwealth has been an innovative and early adopter of programs that seek to improve the environment while recognizing the importance of Pennsylvania's economic growth and vitality. Pennsylvania has also been careful not to adopt lofty goals without basis in science or economics, but has instead been a steadfast leader on environment and energy issues with quiet and measurable success.

We applaud the DEP's actions to date with respect to this rulemaking and offer the following specific comments for consideration. First, EPA's proposal to establish limits for each state rather than provide a framework for each state to develop its own limit, is not consistent with the Clean Air Act. PPL has long advocated that states should establish limits because they are best position to know their generation resources and energy markets, as well as their natural resources and geography.

The limits proposed by EPA for Pennsylvania illustrate its limited knowledge of Pennsylvania's resources and markets. The time frame

to achieve EPA's proposed interim goals are unworkable, as shown in figure one of your handout, and demonstrate why PPL believes states must be given true flexibility to develop compliance plans.

In providing true flexibility EPA must not penalize Pennsylvania for significant steps it has already taken to reduce greenhouse gas emissions. Instead credit for early actions should be explicitly allowed for EPA's guidelines. If such guidelines are promulgated, DEP must take advantage of any flexibility afforded to them, because technology to remove carbon dioxide from power plant emissions is a long way from broad use on a commercial scale.

This type of flexibility could include, but is not limited to, fuel switching, expansion of existing hydro and nuclear generation, other non-hydro renewable energy sources, demand side management and end use energy efficiency improvements. Efficiency improvements at existing coal fired units are not an option DEP can rely upon because generators in the Commonwealth, as we've heard today from others, have already implemented cost effective projects to improve plant efficiency in response to market signals.

To further arrive at a reasonable plan for the Commonwealth PPL urges DEP to request the

following two things in EPA's final guidelines. First, clear authority to incorporate new natural gas generation resources into compliance plans as our internal modeling demonstrates a significant benefit, particularly under a rate based program.

Second, clear guidance as to how states should calculate mass based limits to appropriately account for power plant retirements which, again, our internal modeling demonstrates could be a valuable component of DEP's 111(d) compliance plan.

Finally, we respectfully suggest to DEP that as they develop a state plan, they keep in mind that Pennsylvania is part of a regional, multi-state competitive power market managed by the PJM interconnection, which dispatches generation on an economic basis. Given what's at stake for the environment, economy and energy future it is essential that states and EPA get it right when it comes to regulation of carbon dioxide emissions.

Once again, thank you for the opportunity to provide this input. Your consideration of these comments will result in a reasonable state plan with workable conditions for existing generation sources in the Commonwealth. I invite any questions at this time.

CHAIR:

Does anyone have any questions? Thank you very much.

MS. TOOMEY:

Okay.

CHAIR:

Maureen, do we have the spare pair?

MS. MULLIGAN:

We do.

CHAIR:

Okay. Our next speaker will be Maureen Mulligan with the Keystone Energy Efficiency Alliance.

MS. MULLIGAN:

Keystone Energy Efficiency Alliance is a non-profit, tax exempt 501(c)(6) corporation dedicated to promoting energy efficiency and renewable energy industries in Pennsylvania with 65 member organizations and growing. KEEA is the premier trade association representing Pennsylvania's energy efficiency and advanced energy companies, entrepreneurs and workers.

KEEA thanks the Department of Environmental Protection for this opportunity to address the Clean Power Plans proposed standards for existing power plan emissions.

KEEA strongly supports the Clean Power Plan and its inclusion of demand side energy efficiency as one of the four major proposed building blocks available to states under the EPA carbon dioxide standards for existing fossil fuel fired power plants.

Energy efficiency can rightly be viewed as an energy source similar to traditional energy sources and is a carbon free way to meet energy demands at the lowest compliance cost to customers. Efficiencies inclusion in the Clean Power Plan alongside other clean advanced energy, technologies strengthen Pennsylvania's fuel diversity and offers Pennsylvania a broad range of options to meet EPA's proposed standards.

While the EPA has asserted that efficiency has the potential --- that's end use energy, to contribute 22 percent of Pennsylvania's targeted pollution reduction under the plan efficiencies potential is actually higher. When EPA calculated the potential each state baseline resources they include --- I'm sorry. Resources they included only existing energy efficiency potential from utility or state run programs in order to project percentages in the building blocks.

This approach leaves significant voluntary energy efficiency assets unaccounted for, such as performed contracting. Since energy efficiency is the cheapest, fastest resource to deploy, it should be given greater consideration when Pennsylvania is developing its state implementation plan.

No matter what the outcome of the final rules or any legal challenges, KEEA urges DEP to begin the process of developing statewide implementation plan as soon as possible in order to integrate the resources under the EPA building blocks.

The Department's White Paper points out that, quote, EPA must recognize state leadership and authority to regulate pollutants within their boundaries and should ensure preservation of state's discretion in the development and implementation of flexible emissions control programs that are consistent with Section 111(d) provisions, end quote.

KEEA asserts that the EPA proposed standards are among the most flexible ever developed and provides the states with significantly way to develop a plan as long as the policies meet the targets by including, quote, outside events, building blocks EPA takes the responsible approach by allowing

lower cost options to participate in lowering emissions through the best system of emissions reduction.

It is only a state's submit a plan that doesn't meet the overall target will the federal government step in and impose a plan. States have discretion in designing plans and can propose any mix of technologies and policies.

The draft standards don't specifically require states to use the building blocks, but we as Pennsylvanians can do just that. States need to take a leadership role in drafting the plan that takes up where EPA left off by providing additional guidance to both power plant operators and those businesses that can assist with mitigation strategies.

By eschewing a one size fits all approach, EPA has enabled each state to utilize their unique resources to reach the goals. This flexibility allows for least cost resources in each state to participate. I would like to take the next few minutes to share five of the major points we made with EPA and would like to share these with the Department.

One, compliment existing programs. KEEA encourages EPA to seek ways to compliment and build on existing renewable entity and energy efficiency state

programs so that states like Pennsylvania are able to fully leverage those investments. The foundation has been built in our state to ramp up quickly and efficiently to meet those standards if we fully utilize these resources.

Two, quantify reductions from efficiency investments. KEEA asks EPA to clarify the methodology that would be acceptable to EPA to demonstrate the reliability of end use energy efficiency. Pennsylvania has proven EMV protocols for verifying energy efficiency in the marketplace through both the Act 129 programs and for PJM.

Both energy efficiency and demand response are currently bid into PJM's forward capacity market and have been for the past several years. The efficiency industry has consistently been able to meet high standards for measurement and verification of energy efficient products, yet our businesses would benefit from additional guidance from EPA in this area.

Pennsylvania has developed and tested one of the nation's most robust measurement and verification protocols under Act 129. The PUC updates and approves a technical resource manual that attributes savings to energy efficiency measures and

amends the manual to include new technologies regularly.

In the manual savings values are rigorously developed and provide a highly credible guide for efficiency investment. They even provide a copy of the manual to the Department or it is available on the PUC's website along with a more detailed description of these tools and processes if the Department is interested.

In fact, the Commission will soon take public comments on a new draft of the manual as part of this document of phase 3 of 129 2008 planning process that's getting underway.

The PUC also engages a statewide evaluator that we use program performance, measures energy efficiency potential in the state by customer class and publishes a report to help determine program goals for each of the seven major EDC's, Electric Distribution Company, territory programs. This process has begun for phase three.

KEEA believes EPA's efficiency goal of 1.5 percent per year is achievable in our state. Some states are currently meeting that standard now. Pennsylvania isn't far behind if we ramp up to accomplish the goal. Three, enable interstate agency

collaboration.

KEEA suggests that EPA adopt an approach that allows regulators to easily incorporate PUC's analysis into the state. It is understandable that air regulators may not be as familiar with the best approaches to end rate non-traditional or outside the fence options while complying with air quality issues, but this is a great way to continue diversifying our resource mix at the lowest possible cost to consumers or consider demand response.

KEEA suggests that EPA consider demand response for inclusion into Clean Power Plants best system of emissions reduction currently isn't included. If EPA does not include demand response, we suggest that there is enough flexibility in the EPA's design for states to add it as a compliance option.

Consider regional state approaches. KEEA asks DEP to engage with other states early in the process in order to examine whether a regional planning approach makes the most sense for Pennsylvania. Because our energy efficiency business is working in multiple states and a regional approach benefits not only our consumers --- our businesses, but benefits all consumers by lowering the cost of implementation.

Because our businesses do work in multiple states businesses are generally going to be more attractive to states that provide plug and play set of rules across state boundaries. The time may be right for Pennsylvania to consider joining the regional greenhouse gas initiative.

RGGI already has the infrastructure and rules in place that are proven to work and are transparent. KEEA understands Pennsylvania is --- has been reluctant to join anything in the past. We understand that.

Importance of Act 129. Pennsylvania Act 129 under which the seven major electric distribution companies in state have been implementing energy efficiency programs since 2009 provides Pennsylvania with a fully developed and tested brainwork that Pennsylvania can quickly expand.

Act 129's framework is a natural mechanism for achievement pursuant to the plan as Act 129 timeline dovetails perfectly with the Clean Power Plan's deployment schedule. The third phase of the implementation under Act --- under the Act will begin in June of 2016, the same month that state implementation plans are due to EPA.

As we prepare for the third phase of Act

129 implementation the Public Utility Commission is conducting a review of performance to date. Extract lessons learned and use them to iterate Pennsylvania's efficiency programs.

It is now to employ these programs to be incorporated into Pennsylvania's SIP, which will be drafted during that same period. Pennsylvania can and should leverage this occurrence to facilitate the development of the SIP.

Pennsylvania's energy utilities are well positioned to serve as a springboard for energy efficiency programs and the like. The 70 DCs that conducted energy efficiency programs have dedicated and experience staff that are capable of delivering these programs.

Additionally, several Pennsylvania natural gas utilities have voluntarily developed energy efficiency programs. Philadelphia Gas Works, Columbia Gas and UGI have invested their staff and program developing and are currently helping their customers save money on their utility bills.

We believe that the current draft standards are achievable even for fossil fuel heavy state such as Pennsylvania, and its enactment will strengthen Pennsylvania's economy overall, create new

clean jobs and benefit electric ratepayers.

Pennsylvania has a history of successful implementation of greenhouse gas reducing energy efficiency programs upon which it can build through our Act 129 programs and advanced energy portfolios standard. The proposed Clean Power Plant carbon dioxide intensity reduction for Pennsylvania is 31 percent.

This is well within range for Pennsylvania. Pennsylvania will likely achieve half its goal through assisting efforts such as requiring under Act 129 and the EPA's and through currently scheduled power plan retirements. How's my time? Am I all right?

CHAIR:

Three minutes.

MS. MULLIGAN:

Three minutes. Okay. I'm going to summarize a little bit under the 129 just say that it has saved 5,430,270 megawatt hours of electricity from 2009 to 2013, which equates to 3,431,140 pounds of avoided carbon dioxide emissions according to the Pennsylvania statewide evaluator. I have other statistics on the economics in my testimony.

Other benefits of advanced energy

efficiency, I'd just like to take a minute and make a few points here. Energy efficiency should reduce the need for transmission and distribution infrastructure, construction and upgrades where it is very difficult to site and expensive to ratepayers.

Two, it reduces suggesting pricing and bottlenecks in the TD system. Three, energy efficiency investments provide price consistency in a world of energy price volatility. There's an example there, and I hope you take the time to read that, please.

Even in communities that are experiencing flat or declining electric demand growth, efficiency saves ratepayers money by lowering utility bills. Not only do the recipients of the end use efficiency permits benefit all 5.3 million utility ratepayers experience lower wholesale electricity prices.

DEP and PUC will need to keep rate impacts top of mind when developing any plan, integrating both end use energy efficiency and demand response will be key to responsibly managing early cost impacts. The cost of efficiency is predictable over time. It's not reactive to weather events or vulnerable to supply disruptions in the same way that

generation is.

No matter the route that carbon pollution reduction takes in Pennsylvania, jobs will be created in the state as a result of the Clean Power Plan if renewable energy and energy efficiency are included.

I have a quote there from Governor Corbett on the amount of jobs that will be created, but I do want to share on the record that also the Lawrence Berkeley National Lab conducted a multi-state survey that found that 6.2 person years of employment were created --- could be created in the energy efficiency service center per 1 million investment.

By that metric Pennsylvania may have created more than 10,000 jobs under Act 129 alone. Pennsylvania's Act 129 programs are a hope for job creations, success that the legislation is built upon by state policies favorable to energy efficiency, expansion investment.

For example, ACEEE projections are for 7,900 new efficiency jobs by 2020 and 16,600 by 2030 if Pennsylvania utilizes the demand side energy efficiencies to meet the clean power plan standards. Such jobs span the diverse set of functions from construction to technology to marketing. These jobs

are attracting young Pennsylvanians and they are ready for us to create these opportunities and are interested in innovation. So finally KEEA's 65 member businesses ---.

CHAIR:

The alarm just went off.

MS. MULLIGAN:

Oh, I saw the one minute. Okay. Thank you.

CHAIR:

Thank you very much. Are there any questions?

MR. RAMAMURTHY:

Good morning. Is it your position that no additional action is needed to meet the proposed particular target section, the reading block involving demand side and the consumption side of reduction?

MS. MULLIGAN:

Yes, that is our position. We do believe that if Pennsylvania enters into RGGI then most likely state will need to have legislative authority to do that. Most states in RGGI --- no, I correct that. All states in RGGI have gone down that path and have legislation.

MR. RAMAMURTHY:

I'm not talking about RGGI. I'm talking about the targets EPA building block involving the demand side and the energy efficiency reduction and the consumption --- energy consumption side that targets the proposed rule. Is it really achievable through the existing act?

MS. MULLIGAN:

Yes, I'm not an attorney, but we believe that no other legislation is needed to enact those building blocks.

MS. EPPS:

Good morning, Maureen. As you probably know, once the plan, a state plan, is adopted and approved by EPA it's codified in the code of federal regulations. Have you given thought to the implications of including Act 129 in a state plan that would become enforceable by EPA?

MS. MULLIGAN:

Again, not being the attorney, Ms. Epps, I'm probably not the best one to answer that. Since Act 129 is already on and it doesn't have a sunset date, I'm assuming there's a legal mechanism to make that happen, also along with the alternative energy portfolio standard. So whether they have to be integrated into the state plan in a formal way, I'm

just not capable of answering that.

MS. EPPS:

Thank you.

CHAIR:

Well, I will ask a question that builds off of that. As it relates to becoming part of a federal enforceful plan, I think the question is not so much can it happen, but have you considered what that means to the projects, which is different than simply being mandated under Act 129, so I think that question's different.

But to that end, PJM is requiring higher standards now for demand response to bid into the capacity market. And there's a lot more penalty associated with not delivering which starts to look similar to what might happen if a demand response program were to be part of federally enforceful plan. One of the thoughts of the industry relative to that higher obligation to deliver then was previously required by PJM.

MS. MULLIGAN:

My clients feel they can meet that challenge and they have worked closely on various stakeholder processes with PJM and feel that, you know, currently for the last several years several of

KEEA's members have been able to bid into that capacity market and meet the current hurdle. Certainly we don't know what any next hurdle will be at this point.

You know, we have a proven track record on this as does some of my clients who are in the New England ISO area as well. So they're used to meeting those protocols at this point.

Frankly maybe ten years ago, it probably stumbled with an answer on that, but that this world is changing and the KEEA members and the energy efficient community at large understands that if we're going to play at this level that the measurement and evaluation pieces are very important. And that's why we've asked for further clarification from EPA on this.

CHAIR:

Okay. Thank you very much.

MS. MULLIGAN:

Thank you.

CHAIR:

Our next speaker is Ron Celentano from Celentano Energy Services.

MR. CELENTANO:

Good morning. My name is Ron Celentano

and I'm here today on behalf of the Pennsylvania Solar Energy Industries Association and the Mid-Atlantic Solar Energy Industries Association. That's PSEIA and MSEIA. PA SEIA is a division of MSEIA, which includes Pennsylvania, New Jersey and Delaware. MSEIA is a chapter of National Solar Energy Industries Association, SEIA, and solar industries leading trade association representing over 1,100 solar companies throughout the industry from developers and manufacturers to installers.

First I would like to thank members assembled here and the EPA, Department of Environmental Protection for providing this forum to listen to comments on EPA's Clean Power Plan. I applaud EPA for their hard work and diligence crafting this immensely important regulation.

PA SEIA and MSEIA supports EPA's Clean Power Plan and is in support of an approach that allows states to take advantage of solar as part of a diverse compliance portfolio. Additionally we are very pleased to have solar and other outside of the fence measures included in definition of the best system of emission reducing, BSCR as we believe solar has an original play as a competitively priced CO2 offset in helping the states reach compliance.

In 2014 alone solar's expected to generate more than 20,000 gigawatt hours with 1 gigawatt hour of solar generation emitting 690 metric tons of CO2 emissions. Solar can be expected to void 13.8 million metric tons of CO2 in 2014. Because of this and other voided pollutants solar voids many of the health issues caused by fossil fuel emissions including bronchitis, asthma, heart disease and then, of course, water pollution, degradation and climate change. So Pennsylvania already has offset 175,000 metric tons of CO2 a year.

Potential for solar energy to offset even more CO2 is immense under PA's Clean Power Plan provided the right policies are in place. In addition to being an excellent CO2 offset for Pennsylvania and other states solar energy has experienced plummeting costs and --- that are only getting lower, making solar energy an attractive compliance method.

Nationally the average price of a residential photovaltaic installation will decline nine percent in a single year between 2012, 2013. Over the last eight years between 2006 and 2013, the capacity weighted average install price of photovaltaic fell over 67 percent. Solar falling installation cost and capacity for generating CO2

reduction is making it an attractive component of a diverse compliance plan, but the benefits don't stop there.

Pennsylvania SEIA finds that the solar has the potential for numerous other benefits outside of complying with EPA's Clean Power Plan. For instance, solar has helped reduce water consumption in comparison to traditional fossil fuel sources. Solar also uses the emissions of acid gases and air toxins that help attain, for example, ambient air quality standards for the ozone helping states meet other Clean Air Act requirements.

Recently there have been several evaluation studies conducted to quantify the benefits of implementing solar technologies, including the Minnesota Department of Commerce value of solar study, the value distributed photovaltaic study for lost energy, an independent study commissioned by Nevada Public Service Commission.

Another recent study done specific to this region includes the value distributed solar electric generation between Jersey and Pennsylvania commissioned by the PA SEIA and MSEIA, which found that solar power delivers a premium value in a range of $150 to $200 per megawatt hour, or 15 cents to 20

cents per kWh above the value of the solar electricity generated.

These value of solar studies are important because the analysis evaluates the benefits of solar to ratepayers, taxpayers and to society such as from the market price reduction, avoided generation distribution transmission capacity costs, environmental costs as well as other cost saving components.

Due to the wide variety of solar technology, solar is a perfect fit for every state and can be installed rapidly with custom scalability relative to meeting compliance deadlines. Right now in Pennsylvania the solar industry has consisted of several thousands of employees at several hundred companies over recent years.

These companies have been at every level of the solar supply chain representing manufacturers, contractors, project developers and engineers. Even though solar installation has slowed down in Pennsylvania over the last few years there are many more highly trained workers that are currently working in solar in Pennsylvania that could easily gear back up on EPA's best system of emission reduction plan.

According to the solar foundations solar

job census in 2013, there are nearly 143,000 solar workers in the U.S., a 20 percent increase over employment totals in 2012. This growing trend of solar jobs coupled with EPA's Clean Power Plan would clearly invigorate a strong economic impact in Pennsylvania.

Due to the solar capacity --- due to solar's capacity for CO2 reduction of prices, job creation and more is why we believe that solar energy's critical to helping meet EPA's strong and diverse compliance plan. Therefore we urge DEP to include solar as part of Pennsylvania's state implementation plan including both distributive generation solar and grid supply solar as well as solar water heating, solar space heating and cooling.

Pennsylvania can meet the 49 percent emissions reduction with renewable energy resources including solar wind, biomass and hydroelectric while also incorporating solar energy storage, energy pricing for solar panels and enhancing the state's current alternative energy portfolio standard, particularly the solar share requirement.

All these resources together can meet the challenge through the competitive market forces that will produce results at no or little cost to

consumers while cleaning up the air, providing good jobs with real growth potential as these technologies continue to improve and their installation costs continue to decline.

Throughout the finalization of this rule PA SEIA and MSEIA looks forward to working with PA DEP as well as the EPA as a resource to include solar in Pennsylvania's implementation plan.

PA SEIA and MSEIA members are ready to meet the challenge and we applaud you for holding this session, which we trust will lead to inclusion of solar as a logical clean and cost effective resource to assist Pennsylvania in meeting these final standards. Thank you.

CHAIR:

Thank you. Do we have any questions? Thank you very much. We're going to take a 15-minute break. It will be 15 minutes. We will synchronize our watches. I have 10:38 and we will reconvene at 10:53.

SHORT BREAK TAKEN

CHAIR:

Welcome to 10:53 and the resumption of the listening session. Our next speaker is Tom Crooks from RG Johnson.

MR. CROOKS:

Good morning. As you said, I'm Tom Crooks. I'm with RG Johnson. We happen to do business in the energy capital of the world known as Washington County, Pennsylvania and we're proud to do so.

I'm here today though with all due respect to all of the people you've heard from this morning and the people you will hear as more of a citizen than as an expert on the regulations and the challenges that we have laid in front of us by those regulations.

I feel like I'm an expert at running a business. We have 150 employees, been around here since 1917. Like to keep doing that. So in that respect I feel like I can present some expertise. However, I cannot frankly understand much of what the EPA has laid out, let alone what our challenge is as the DEP trying to figure out how to implement it.

So rather than try to touch on those things that so many have already touched on wonderfully, I'd like to touch on what I think is the outcome of these regulations and how we should try very hard as a state to make sure they're tilted in our direction.

Specifically, yes, our company's in the coal industry. Yes, I'm a mining engineer, so of course I like coal, but I also drive a Chevy Volt because I understand that doing the right thing for the environment makes sense. I also enjoyed my drive here today from Washington, Pennsylvania where I witnessed Marcellus Shale wells, railroads carrying coal, solar panels, sorry about the rain today.

Also wind was great. Three out of six were running up on the mountainside. I'm sure we had hydro on the way. If I made the right turn here in Harrisburg I'd run into nuclear. We've got it all here, so what I'd like to ask you to consider is make a policy that helps us use it all.

That would include using even, yes, coal. Now, there's important reasons for that. No matter what mix we choose the key is an employer and as a citizen is to have low cost electricity available to us, and that is somehow lost in all of this.

The middle class and the poor will be hurt by higher electricity rates that result from this legislation or this rule. I don't think anybody denies that. There will be higher electricity costs, even if they're short run.

We'll also have difficulty potentially

in having reliable electricity. That's a possibility, too. Again, who will be hurt the most by that? The middle class and the poor.

I grew up in Pittsburgh and my parents grew up in Pittsburgh. My dad worked for U.S. Steel. We used to be industry powerhouse, an industrial powerhouse. There's good reason for that.

We've got great natural resources. We've got water, we've got rivers, we've got transportation, we've got hard workers, all those things that build our city and our region, and in fact, our state as an industrial powerhouse.

Low cost electricity can return us to that place, and when that happens we'll have more work for the poor, more work for the middle class and we'll help those people. So what we ask is that you consider any regulation through the prism of low cost electricity. I wish I could ask more, but that's it.

Now, how do we do that? Obviously, that's the hard part, and frankly if I really could understand all the legalese and all the regulations I could probably help you with those answers, but specifically it just makes sense to us to use all the power.

Let's use what we have here in our great

State of Pennsylvania. Let's incentivize new power plant construction here in our state. Let's incentivize the use of all aspects including conservation, which I thought makes a lot of sense.

So I don't know how you can do that within the confines of your challenges. Frankly maybe you can't at all, but I do know that you can avoid incentivize by making the regulations be something that can help us all. With that, I thank you for your time. I'm happy to answer questions.

CHAIR:

Does anyone have any questions? I will ask a question. I'm just curious if you perhaps read our --- the Pennsylvania White Paper that was sent to EPA in April of this year?

MR. CROOKS:

In fairness, I read it in April. That was a long time ago.

CHAIR:

Well, I was just curious if you had read that.

MR. CROOKS:

Yes, it's available to us. And in fact, part of the challenges that we face as citizens is that although that is available to us, it's not really

what we're trying to do on a daily basis. So it's not high priority to us, so maybe it would be helpful if we could get that word out to our citizens maybe perhaps better than we have, would be a good suggestion.

CHAIR:

All right. Thank you very much.

MR. CROOKS:

Thank you.

CHAIR:

Our next speaker is Ray Evans from First Energy Corporation.

MR. EVANS:

Thank you for the opportunity to offer First Energy's perspective on the U.S. Environmental Protection Agency's proposed Clean Power Plan rule. My name is Ray Evans and I am vice president environmental and technologist at First Energy.

First Energy is a diversified energy company dedicated to safety, reliability and operational excellence. First Energy includes one of the nation's largest investor on electric systems. Our diverse generating fleet has the capacity of nearly 18,000 megawatts from non-emitting nuclear scrubbed coal, natural gas and renewables. And let me

state for the record that we operate both nuclear fossil generation and gas fired generation in Pennsylvania.

With nearly 500 megawatts of wind power under long term contracts the company is one of the largest providers of renewable energy in the region. We actually purchase from two --- actually, three wind developments in the State of Pennsylvania to supply renewable energy to our customers.

First Energy has demonstrated a longstanding commitment to investments that keep our plants in compliance with environmental laws and regulations, spending $10 billion in equipment upgrades since the Clean Air Act was passed in 1970.

First Energy expects to have reduced our fleet carbon dioxide emissions by 25 percent below 2005 levels in 2015, a year from now. However, due to the way EPA's proposed Clean Power Plan is written it's unclear what, if any, credit we will receive for those reductions. As an example, First Energy has retired over 2,000 megawatts of Pennsylvania coal fire generation for which the state may get no credit without changes in this rule.

As you know, EPA published its proposed Clean Power Plan rule on June 18th of this year with

comments now due on December 1st. Unlike previous rules that sought to reduce emissions from existing power plants through requirements at that plant, EPA is now seeking to reengineer the entire energy system of individual states. The proposed rule requirements will not simply reduce emissions, but will restructure how we generate this back and use electricity as a society in this state.

EPA established each proposed state goal by determining the best system of emission reduction for a state, specifically EPA established four building blocks and applied these building blocks to calculate each state's emission rate based on 2012 actual data.

As currently written, the proposed rule has generated a number of unanswered questions on issues that have serious national implications for the future, energy reliability and affordability.

Today I will share with you some of First Energy's questions and concerns regarding the scope of the EPA's regulatory authority, the implementation time frame set forth in the proposed rule, EPA's methodology for emission rate calculation and how --- not many nuclear generation will be counted toward meeting state emission goals.

The most important and unanswered question is the extent of EPA's authority under the Clean Air Act. While there's little doubt that EPA has authority to regulate the source of air pollution at the generating plant, there are important questions regarding EPA's regulatory authority over three of the four building blocks in its proposed regulation.

These building blocks fall primary under the jurisdiction of individual states, the Federal Energy Regulatory Commission, through the regional transmission organizations and the nuclear regulatory commission.

In fact, EPA clearly stated publicly that it currently has no authority to enforce any existing renewable portfolios, standards, energy efficiency requirements, dispatch orders or licensing of nuclear units. Therefore if a state includes these building blocks in its plan, is the state essentially creating and transferring enforcement authority to EPA?

Does that mean EPA in the future will be able to grant a state the authority to change its plan 10, 15, 20 years down the road after it submits its initial SIP plan? All important questions that should be addressed in this rulemaking.

In cases where EPA is required to create a federal implementation plan for those states that don't create plans, under what authority can it develop, implement and enforce a plan that is comprehensive enough to meet its own proposed compliance goals?

EPA has not yet provided a clear answer to those questions at this time. The implementation time frame of this rule also presents a number of questions and concerns. Under the proposed rule, each state will have one year to develop and submit a plan that effectively reengineers its energy system.

It is important to note that any state plan that meets EPA's rules will likely require the state legislature to pass new laws authorizing aspects of the plan that exceed the state's current legal and regulatory authority.

It is unrealistic to require a state to develop a plan to overhaul its entire energy system and pass new legislative law authorizing that plan within one year. Even if the state applied for and received a one year extension, it is difficult to imagine such a short time frame will be enough to thoroughly develop and vet such a comprehensive change to the energy system without risking the reliability

and affordability of electricity within the state.

It is also important to note that because the terms of the Clean Air Act Section 111(d) requires states, not EPA, to set performance standards for sources, states should have ultimate flexibility in building their state plans, determining what activities can be included for compliance and trajectory for final compliance.

Next I would like to highlight a few of the specific flaws in EPA's initial rate calculations. First, the six percent rate improvement within building block one is faulty resulting in an unrealistic target.

This heat rate target is based on assumptions drawn from an extremely limited data set and studied as being inappropriately applied by EPA. EPA largely ignores the fact that in order to remain competitive, generators have already implemented many of the heat rate improvements that makes technical and economic sense.

In fact, First Energy has already performed a number of the heat rate improvements incorporated in EPA's target for which we will receive no credit if this rule goes final as proposed. Mandating changes beyond what is technically and

economically reasonable puts coal fired power plants at risk of shutting down per the threatening grid reliability and affordability.

Now, I'll switch to building block two. Building block two, which encourages increased utilization of natural gas combined cycle may be technically feasible, but it is unrealistic based on operational experience.

As an electric institute analysis indicates that the average utilization rate of natural gas combined cycle plants in the United States in 2012 was 46 percent. Only 10 percent of those units operated an annual utilization rate of 70 percent or higher. The remaining 90 percent performed below this level due to economic regulatory and fuel supply constraints.

It is also worth noting that blocks one and two are contradictory. There is no incentive for a coal fire plant operator to invest in heat rate improvement in a plant that will dispatched less in favor of natural gas combined cycle plants.

In building block four EPA makes a one and a half percent annual energy efficiency gain assumption that is also flawed and sets an unrealistic target. EPA concluded that three states have already

reached the highest level of performance in their analysis of the proposed rule.

These states are saving more than one and a half percent in annual savings. As a result EPA applied an annual incremental energy efficiency savings rate of one and a half percent to all states even though the average state efficiency rate during this period that EPA studied was only 0.85 percent. Missing in the proposed rule is the basis and rationale of how and why the efficiency standard that EPA has applied can be met by the rest of the country.

Using a limited group of states to determine a nationwide annual incremental savings rate for all energy efficiency programs is inappropriate in my view, and EPA continues to acknowledge that its proposed energy efficiency savings are well above the average savings that most states have been able to achieve to date since energy efficiency programs were first developed at the beginning of this century.

Another of First Energy's concerns is how nuclear generation is treated in EPA's proposed rule. EPA determined that 5.8 percent of all existing nuclear units are at risk of economic shutdown. This figure, when applied to individual states is neither credible nor accurate. The EPA also assumed that

relicensing of all existing nuclear units up to a final life span of 60 years will occur in the rule.

Relicensing of nuclear plants is overseen by the NRC, an extremely thorough multi-year process with the outcome being far from certain. And in fact, in the United States there are approximately 22 units yet to be relicensed, yet EPA assumes they will be relicensed.

It is unreasonable for EPA to assume both the initiation and outcome of any other federal or state permitting process over which it has no authority. First Energy is further concerned that for the purposes of compliance with the proposed rule, the EPA largely excludes the critical role of existing nuclear plants.

Nuclear generating facility provide 20 percent of the country's electricity while generating zero emissions operating in a 90 percent capacity factor and maintaining stable prices for the consumer.

In order to avoid and reduce CO2 emissions without compromising greater reliability, it is essential that nuclear generation facilities remain a feasible and cost effective source of electricity to meet current and future energy needs.

In closing I would like to reiterate

that First Energy has a longstanding commitment to environmental protection and it continually looks for ways to reduce the impact of our operations.

While we are confident that the proposed rule was written with the best of intentions, it is a complicated and unprecedented rulemaking that First Energy is still trying to fully understand, and we encourage the state to carefully consider our comments and include them in their own comment to bring more transparency to this process.

The concerns I have highlighted today represent only some of the questions that remain regarding the rule and its all many implications. As Pennsylvania determines its course of action to consider the far reaching implications of these significant changes to its highly reliable and affordable electric system, we all have to consider those carefully. Thank you for your time and for your invitation.

CHAIR:

Thank you very much. Do we have any questions?

MR. RAMAMURTHY:

Good morning.

MR. EVAN:

Good morning.

MR. RAMAMURTHY:

You had testified that the six percent proposed is unrealistic in building block one. So what's your recommendation for that target in building block one?

MR. EVANS:

Our preliminary analysis of this, and we continue to look at it, is that in a competitive market situation maybe one percent is achievable.

MR. RAMAMURTHY:

Thank you.

CHAIR:

Any other questions? Thank you very much.

MR. EVANS:

Thank you.

CHAIR:

Our next speaker is Eugene Trisko. He's presenting on behalf of the United Mine Workers of America and the International Brotherhood of Electrical Workers.

MR. TRISKO:

Good morning. Thank you. I'm Gene Trisko. I'm here on behalf of the IBEW and the UMWA.

These are two of the unions that are most affected by EPA's proposed Clean Power Plan. We appreciate DEP's effort to collect public input to the development of its response to EPA's proposed rule.

DEP has estimated that the rule would lead by 2030 to a 76 percent reduction from a 2005 levels in coal consumption by Pennsylvania electric generators. Clearly this is an unacceptable level of consumption to the thousands of affected families and dozens of communities in Pennsylvania that depend on employment at nearby coal mines and power plants.

EPA's proposal gives no credit to Pennsylvania for its CO2 emission reductions due to renewable energy deployment, increased natural gas use or the retirement of existing coal use.

Since 2005 CO2 emissions from all fossil fuel plants in Pennsylvania have decreased by nine percent based on EPA's statement, but Pennsylvania must reduce its CO2 emission rate in pounds of CO2 per megawatt hour by 31 percent from 2012 levels.

EPA projects that the clean power rule will cause the loss of 41 to 49 gigawatts of coal generated capacity by 2020. This would occur just after the expected loss of more than 50 gigawatts of coal capacity by 2017 due to compliance with the EPA's

mercury and air toxic standard rule and other factors.

Overall the nation has projected to lose 126 gigawatts of coal capacity between 2010 and 2020 assuming implementation of the clean power rule.

This level of base load capacity loss equivalent to more than one-third of the coal fleet and more than ten percent of the nation's total generating capacity raises serious issues about the future adequacy and reliability of our electric power supplies. Pennsylvania is the fourth largest coal producing state.

Estimating the impact of EPA's proposed Clean Power Plant on Pennsylvania's coal and related electric generation deployment is quite difficult due to uncertainties about the compliance methods that the Commonwealth and its electric generators would choose to meet EPA's targets.

We have analyzed EPA's regulatory impact analysis for the rule to estimate the nation direct and indirect job impacts associated with implementation of the rule. Now, this is an analysis of the direct job impacts for coal miners, for utility workers, railroad workers, those associated with coal generation.

We're not talking into account potential

offsetting jobs in green energy, energy efficiency and the like. In looking at the regulatory impact analysis that EPA issued we see that national coal production for electric generation declines by 25 percent in the year 2020 due to the Clean Power Plan from a 2020 base case level of 844 million tons to 616 to 636 million tons that occurs in the year 2020, a 25 percent reduction.

Now, we estimate the direct utility, rail and coal permanent jobs at risk in 2020 be 52,000 for the clean power rule. When we use the U.S. Department of Commerce multiplier for the electric utility industry, we estimate the total direct and indirect jobs at risk in 2020 are 167,000 just for the clean power rule.

In addition there are job losses associated with the rule and the other power plant closures that I noted. These indirect jobs at risk are typically in coal and power plant dependent communities. We estimate the cumulative loss of wages and benefits and this is discounted using a three percent discount rate. The cumulative loss of wages and benefits for direct and indirect jobs from 2015 to the year 2035 at $52 billion for direct jobs and $126 billion for direct and indirect jobs at risk.

This is a measure of the potential gross loss of income that workers and communities affected by plant and mine closures and reduced rail shipments. We have a few suggestions about EPA's proposal and I'll summarize them. EPA should provide incentives for the development and deployment of carbon capture and storage technologies.

This rule is about reducing carbon and it has no incentives whatsoever for the development of CCS technologies. EPA's plan should provide states with credit for prior CO2 reductions as a means to meet targets consistent with a 30 percent national reduction from 2005 levels. EPA's six percent target heat rate improvement is unrealistic and unachievable without revisions to the NSR program as DEP has recommended in its White Paper.

The assumed 70 percent re-dispatch natural gas combined cycling units penalized as coal generation with little or no net greenhouse gas reduction benefit due to increase methane leakage. It is unproven in the real world of economic dispatch and cannot be considered adequately demonstrated as a component of a best system of emission reduction.

We also believe that the interim target should be modified to a reasonable progress or mid

course review requirement similar to that employed in EPA's regional haze rule. The interim target is the principle reason that the adverse impacts of this rule are front loaded to the year 2020.

EPA's rule effectively use surf's energy policies traditionally reserved for states and goes well beyond the agency's authority under the Clean Air Act. The Supreme Court's June 23rd decision in UR vs. EPA may support substantial revision of the clean power rule, limiting EPA's authority under Section 111(d) to emission reduction measures achievable within the fence of affected facilities.

EPA seeks to achieve through this rule just what the UR court cautioned against, a vast expansion of its regulatory authority without Congressional approval by discovering and, quote, a long extinct statue an unheralded power, close quote.

EPA has relied on Section 111(d) on five previous occasions mainly for the control of emissions from municipal waste disseminators. The IBEW and the UMWA will welcome these efforts to moderate the EPA rule limiting its scope of greenhouse gas emission reductions that can feasibly be achieved at individual sources.

DEP's proposal for revising the MSR

applicability test to encourage investments in power plant efficiency is a good example of a constructive approach to greenhouse gas management at existing sources.

We thank DEP for the opportunity to speak today on this issue of critical importance. The Pennsylvania's coal based electric generating fleet and the employees, families and communities who depend upon it. We simply cannot afford this EPA rule. Thank you.

CHAIR:

Thank you. Do we have any questions? I have a question. You identified 126 gigawatts of coal loss between 2010 and 2020?

MR. TRISKO:

Yes.

CHAIR:

You identified that as a percentage of installed capacity. I'm not sure. Was it ten percent you ---?

MR. TRISKO:

It's more than ten percent.

CHAIR:

Okay.

MR. TRISKO:

We have approximately 1,000 gigawatts of installed capacity of all resources. Coal is 300 and change and that projection of 126 gigawatts comes from EPA's regulatory impact analysis for the state option one of the Clean Power Plan in the year 2020 compared with 2010 actual installed coal capacity. It's a loss of 126 gigawatts.

CHAIR:

All right. So it's something greater than ten percent?

MR. TRISKO:

No, it's more than one-third of the coal fleet.

CHAIR:

I understand, but the total fleet. Now, the question that I --- this is kind of leading up to this question. What percentage of generation does that represent? I would suspect that it represents more than ---

MR. TRISKO:

More.

CHAIR:

--- more on a percentage basis?

MR. TRISKO:

Yes, coal punches above its weight. If

coal represents --- let's go back to a previous year. If coal represents 30 percent of installed generation of megawatts capacity it may be supplying 45 percent of total generation because it tends to run at higher capacity factors than other resources. The only resource with a higher capacity factor is nuclear because it's base loaded all the time.

CHAIR:

Do you have that percentage or ---?

MR. TRISKO:

I'd be happy to supply that percentage. I believe that it's discernible from the data in the regulatory impact analysis.

CHAIR:

All right. Thank you. Anyone else? Thank you very much.

MR. TRISKO:

Thank you.

CHAIR:

Our next speaker is Tom Kovalchuk from AmeriKohl Mining, Incorporated. I'll remind folks that they can provide supplemental information. They can send an e-mail to Krishnan Ramamurthy.

MR. KOVALCHUK:

Good morning. My name is Tom Kovalchuk.

I'm a professional geologist with AmeriKohl Mining, Incorporated, a Pennsylvania corporation. Thank you for the opportunity to testify on EPA's proposed Clean Power Plan rule. We appreciate that you realize the importance of hearing from Pennsylvanians that will be directly affected by this proposed rule and for considering our concerns on the issue.

AmeriKohl mines coal by the surface mining method in 13 Pennsylvania counties. We continue to mine and last year we produced approximately a million tons of coal and directly employed 120 workers with family sustaining jobs that averaged $30,000 more than the median income of the counties in which we operate.

Our coal is supplied --- coal fire power plants. For the past 30-plus years we have successfully completed mining at more than 300 separate mine sites and have re-mined and reclaimed hundreds of acres of abandoned mine land and put it back into productive post mining uses including parks, residential communities, working farms and forestland.

The abandoned mine land reclamation was done at no cost to the taxpayer. Working on so many projects scattered over a wide multi-county area impacts many small communities. We take a proactive

approach when working with municipalities and home owners surrounding our sites and take pride in our accomplishments, and take very seriously our role as stewards of the land within the communities where we live and work.

AmeriKohl contributed tax revenue for multiple counties in Pennsylvania. These counties rely on that revenue for schools, roads and development and we are proud to provide it. In short, we don't just do business in these counties, we play an integral role within them and wish to continue to support them.

That brings me to the current state of our industry. The coal industry has been hit hard by market forces, as you know, the Marcellus Shale boom and low gas prices and a weak economy that have suppressed energy demand, but this is a cyclical issue that without government intervention will adjust itself by market forces over time as we have seen before.

In Pennsylvania coal provides about 40 percent of the electric make up and is a base load supply that is able to meet continuous electric demand an produce electricity at a constant rate at night or day, and during cold and hot weather trends. Coal is

a reliable and economical fuel. We do not need to be regulated and forced into improvements.

The industry is already working on them. Early retirement of coal fired power plants forced by reductions in emission standards will lead to increased electricity prices. Coal fired power plants have come a long way in technological advancements. There is a constant evolution of improvements and changes in the way plants are run.

The economics of making boilers are more efficient and squeezing more net energy out of each pound of coal makes sense for plant operators. According to you at DEP, CO2 emissions from Pennsylvania's electric generating fleet declined by 12 percent from 2005 to 2012 and are projected to decline by 22 percent from 2005 through 2020.

Even with reductions in use by conservation measures and increased boiler efficiency domestic coal use will increase. Although we don't necessarily believe that CO2 should be reduced at power plants without other CO2 generators in the world participating in the same program, we do agree in general with the pragmatic approach that DEP has taken in the White Paper on the proposed rule.

DEP said that in their letter to EPA and

we agree importantly Pennsylvania --- I quote, importantly Pennsylvania does not believe that environmental agencies should regulate or influence energy markets, and that energy markets should not be in the business of environmental regulation. AmeriKohl agrees with that.

This rule is a continuation of the EPA's and the administration's demolition of coal. Humanization. I'm sorry. Federal government overall is prevalent in our industry. Overreached. I'm sorry. I misread my own printing here. Examples are in what we do in the field every day is coal engineers redefining navigable waters and their federal nexus for wetlands expanding their jurisdiction.

When the raindrops fall on the drainage divide to when it leaves the United States Corps of Engineers wants to have authority to regulate coal. EPA is finding operators not for environmental degradation, but rather for exceedances and not unrealistically set affluent limits.

An example is stormwater falls on surface mines, which are set by 2710 standards. When the bottoms would only receive water during rain events. At 2710 there is no flow because that's the dry season of the year so the ponds have no discharge,

but for the entire year it's set at that 2710 level, which doesn't make any sense at all, but we have been fined for exceedances during the year.

Why should we trust that CO2 limits have any more realistic consideration, or possibly is this just being set to fulfill an agenda? This rules sets a national energy policy that is divorced from the legislative process. The market not the EPA should determine energy ---. Sorry about that. That was handwritten.

With this new rule we are we are embarking on CO2 reduction regulations that will do little, if anything, to the atmospheric CO2 levels, but we will be increasing electricity rates for Pennsylvania and PJM customers by increasing the regulatory burden of fossil fuel use.

At the UN Climate Summit China, not represented at the UN meeting, will not be participating in talks or be available to sign any sort of treaty concerning global CO2 emissions. China is by far the world's largest producer and consumer of coal, accounting for 46 percent of global coal production and 49 percent of the global coal consumption, almost as much as the rest of the world combined.

The top 10 coal producing countries supplied 90 percent of the world's coal in 2012. China produced nearly four times as much coal as the second largest producer, the United States, which had a 12 percent share of global production. China has accounted for 69 percent of the 3.2 billion ton increase in global coal production over the past 10 years.

There doesn't appear to be a declining demand curve for coal. Consider this, in Africa some 60 percent of the continent's 600 million people do not have access to electricity. The EIA, which is the Energy Information Administration, predicts African coal consumption will rise by 70 percent by 2040. In India, another big consumer of coal, 300 million people remain disconnected to the electric grid.

The country plans to increase its use of renewable energy by 15 percent by 2020, but still faces the challenge of energy demand exceeding supply by 10 percent. Projections of the Energy Information Administration show that Organizations for Economic Cooperation and Development, or the OECD, will be using coal in the 2040 future and non-OECD developing countries will have growing energy requirements that coal will fill.

They'll be reaching for a higher standard of living that requires more energy investments and coal is the low price fuel alternative. There is little or no incentive for these countries to participate in CO2 reductions regardless of the threat of real or perceived climate change.

We should be proud to have an abundant supply of domestic natural resources right here in Pennsylvania establishing us as an energy leader. We should have the right to continue to reap these rewards from them. Thank you for the opportunity for letting me speak.

CHAIR:

Thank you. Do we have any questions? All right. Thank you very much.

MR. KOVALCHUK:

You're welcome. Our next speaker is Terry Jarrett who is speaking on behalf of the National Mining Association.

MR. JARRETT:

Members of the panel, good morning. My name is Terry Jarrett. I'm a former Commissioner with the Missouri Public Service Commission and today I'm appearing on behalf of the National Mining

Association's Count on Coal Program.

I appreciate the opportunity to share my perspectives on the Environmental Protection Agency's proposed 111(d) for fossil fueled electrical generation units. The Environmental Protection Agency is charting a new course with its proposed rules to limit carbon emissions from existing generation units principally aimed at coal fire electricity plants.

As a former state utility regulator, my first priorities were to ensure reliable electricity to customers at an affordable rate. My experience has shown that the best way to achieve reliability and affordability is to have a diverse portfolio that includes all fuel sources for generating electricity.

Coal has been an important cornerstone of a reliable and affordable energy mix in the past, and moving forward must remain so to maintain reliability and affordability. Our country needs an energy plan that focuses on the consumer and the costs to families and businesses, that keeps electricity reliable, protects the environment and improves our economic and national security. Such a plan must include coal, natural gas, wind, solar, hydropower, nuclear, geothermal and others along with energy efficiency and demand response programs to meet our

energy needs.

An approach that truly includes all of the above will accomplish the goals of protecting the environment while keeping rates affordable and the power grid reliable. The proposed EPA regulations will change the system of power generation in fundamental ways.

By the agency's own estimates, nationwide electricity prices will increase 6 or 7 percent and in some cases as much as 12 percent. Other studies, such as one in Ohio, estimate that electricity prices could increase by as much as 30 percent. I have attached a copy of the Ohio report to my written comments.

Closing down coal fired utility plants will drive up consumer costs because there isn't a way to replace the base load power that these coal plants generate. As a result, ratepayers can expect sharp increases in their monthly bills and must prepare for the eventual reality that there may not be enough energy available on the grid to heat and cool their homes, power their businesses or drive the manufacturing renaissance many experts predict over the next few years.

States that rely heavily on coal as a

fuel source for electricity, like Pennsylvania, will be especially hard hit. My understanding is that Pennsylvania generates about 44 percent of its electricity from coal.

The EPA is proposing that Pennsylvania lower carbon emissions to a rate of 1,052 pounds per megawatt hour by 2030, down from 1,540 in 2012. This is a 32 percent increase. It means that Pennsylvania likely will have to shut down 13 coal plants to achieve this mandate.

Shutting down coal plants and using more expensive sources for electric generation means that electricity prices will increase for Pennsylvania ratepayers, and many of these other fuel sources are not as reliable as coal, putting the reliability of the electric grid at risk.

Last winter's Polar Vortex gives us a window into a future without coal. The Polar Vortex pushed electricity prices to more than ten times last year's average in many parts of the country as electricity use surged due to the extremely cold weather. And the Polar Vortex shows how vulnerable the grid can be.

Some areas in the Eastern United States came perilously close to blackouts, saved in large

part by coal plants running at peak capacity. Many of the coal based power plants that operated during the coldest days of this past winter are slated to close in the next few years due to current EPA regulations.

Now, a recent report from PJM Interconnection, the regional transmission organization that coordinates the movement of wholesale electricity in all or parts of 13 states and the District of Columbia has found that in the event of another polar vortex-like winter, without coal plants there could be insufficient electricity to meet peak demand.

At best this means that consumers will get walloped by massive electricity bills to meet peak demand. At worst it means that the grid will be stressed and blackouts could occur. The Mid Continent Independent System Operator, or MISO, which is the regional transmission organization that manages the grid for much of the Midwest and South, is predicting 2.3 gigawatt capacity shortfall in 2016 due to planned coal plant retirements in its territory.

Blackouts could be a real and persistent threat in the coming years if too many coal plants are forced to retire prematurely. A reasoned and responsible approach is needed. What we do not want,

and what consumers will not accept, are skyrocketing electricity prices and blackouts because of ill-timed and poorly planned closing of coal plants.

Our current economic recovery may not be able to withstand the impacts of this proposed rule without significant harm. Overreaching change that would negatively impact reliable service and affordable electricity prices could be devastating. If the result is less productivity, higher unemployment and consumers struggling to pay higher electric bills, the costs are simply too high.

Economic, reliability and security concerns must be more prominently considered than is conceived in the proposed rule, which appears to rely almost exclusively on projected benefits that are difficult to quantify and even more difficult to assign a fair economic value.

The EPA and the administration are out of step with mainstream Democrats and Republicans and the general public who support a rational, sensible approach, one which is sensitive to the needs of both the environment and of the middle class and the working poor, which will be crushed by the EPA rules. We simply can't afford the EPA in its current trajectory.

And on a concluding note you heard today from a lot of different stakeholders with all different kinds of perspectives. I would urge you to listen very carefully to the folks that actually have to implement whatever regulations the EPA finally produces, the electric utilities.

Today you heard from a gentleman from First Energy Corporation. Utilities like First Energy have the responsibility to provide reliable and affordable electricity to its customers. Utilities also understand the capabilities of its plan and infrastructure and understand what they can and cannot do more than anyone else.

I think the utility perspective is an important one for you to consider. Thank you and I'm happy to answer any questions.

CHAIR:

Thank you very much. Do we have any questions? All right. Thank you.

MR. JARRETT:

Thank you very much.

CHAIR:

Our next speaker --- there he is. Saw you leave the room, is Mike Catanzaro, who is with global energy and natural resources sector of FTI

Consulting.

MR. CATANZARO:

Thank you, Deputy Secretary Brisini and panel for the opportunity to testify today. My name is Mike Catanzaro. I'm with FTI Consulting. I'm a managing director in their energy and natural resources practice.

FTI Consulting, just for background purposes, is a global business advisory firm dedicated to helping organizations protect and enhance enterprise value in complex legal regulatory economic environments.

FTI has been helping several co-ops and emergent plants such as Homer City generating station in Indiana County assess possible impacts of EPA's clean power rule to implement Section 111(d) of the Clean Air Act.

Now, before I get into the nuts and bolts of my testimony I wanted to recognize the deputy secretary and staff from DEP White Paper released in April outlining the recommended state framework for compliance of the EPA's Clean Power Plan. The White Paper delineates a number of sound principles that EPA should follow to provide states with true, meaningful compliance flexibility.

It also includes alternative proposals that, among other things, provide a more realistic baseline of emissions profile for the Commonwealth and remove regulatory obstacles that discourage plant efficiency improvements.

I'll comment on these proposals in more detail later in my testimony. Now, today I'm speaking on behalf of Homer City generating station. As I think folks know, Homer City is an 1,800 megawatt coal fired electric generating facility that provides enough electricity to power two million homes.

The facility has and continues to be a good citizen for the local community in the Commonwealth as a whole. Homer City has about 260 full-time employees, 75 percent of them are unionized and supports thousands of additional local jobs and purchases a hundred percent of its coal from Pennsylvania coal producers.

It also pays $2.9 million annually in state and local taxes. Now, in addition to its many economic benefits Homer City is committed to environmental stewardship. The facility is undergoing an $800 million renovation project to install state of the art pollution control equipment.

As the Pennsylvania DEP stated in 2012,

quote, the controls are expected to remove approximately 100,000 tons of actual sulfur dioxide emissions annually, secondary control of particulate matter, mercury, lead, sulfuric acid missed, hydrochloride, chlorides and volatile organic compounds is also expected, end quote.

When completed, this project will make Homer City one of the cleanest burning coal fire power plants in the United States. Another important fact about Homer City, it's a so-called merchant power plant, meaning it's self-powered in the wholesale competitive electricity markets, has no way to pass on its environmental costs directly to ratepayers, and gets dispatched based on variable costs.

For purposes of reducing carbon dioxide emissions this point is significant. Merchant plants are different than integrated utilities, which can obtain a regular rate of return from state officials. Moreover unlike other electric generators in the Commonwealth which have a diversified fleet consisting of gas fire plants and renewable Homer City is a standalone power generating facility.

As a result because no cost effective commercially available technology exists to control carbon dioxide emissions. Homer City's only option to

comply with proposed rule would be to purchase credits from lower emitting entities in the event Pennsylvania adopts or joins an emissions traders union, or curtail operations.

Both of these options would cause Homer City to operate less frequently, as a result would impair its ability to recover the $800 million investment I just mentioned, an investment made, by the way, to bring the facility into compliance with EPA's recent regulations including the cross state air pollution rule and mercury air toxic standards finalized in 2012, and to repay its bondholders and investors.

That's an important point, too. This outcome threatens the continued operation of the plant, the jobs both at the plant and throughout the Commonwealth. Affordable electricity, an economic opportunity to provide to the local community.

Now, you don't have to take my word for it. Just look at EPA's analysis. Under EPA's option one, the state option, EPA's IPM model forecasts Homer City's unit one retiring in 2020 and unit two in 2025. Again, that puts not only Homer City's investors in jeopardy, but also the community that relies on Homer City for jobs and economic development.

Now, some may conclude that from EPA's analysis that there are other options. EPA has proposed option two in a couple of different erations. Under those options Homer City units, according to EPA's analysis, run at relatively high capacity factors and therefore some think would continue to profitably generate power and revenue. But this conclusion obscures an important underlying reality.

As a merchant plant and one that relies on a project finance model to pay for the plant's operations and investments, that's a point I will expand on more below, Homer City must generate sufficient revenues to not only run the facility, which includes fixed, variable and overhead costs, but also the interest and principal due to its investors and bondholders, not to the mention a rate of return on equity capital.

At 70 or 80 percent capacity factor, Homer City would soon fall short of these obligations. Thus EPA's IPM model results don't offer a realistic picture of Homer City's future, which under the Clean Power Plan no matter which option is chosen, would be clouded by a significant risk of default and bankruptcy. FTI completed a White Paper on 111(d) rulemaking earlier this year, copies of which I

provided the panel.

And in that White Paper we found that the costs of EPA's rulemaking will fall disproportionately on non-diversified coal fired generators, such as Homer City. We examined several cases of individual plants in different parts of the country ranging from merchant to municipal coal units operating in organized, competitive markets to geographically remote rural co-ops.

In each case examined there is no feasible means of complying with EPA's proposal aside from carbon capture and storage technology, which has not been widely demonstrated at commercial scale and is not yet cost effective.

These plants then under EPA's proposed regime will be faced with some combination of increased costs and decreased revenues, which will likely produce one or a combination of the following outcomes. Number one, higher electricity costs borne by their customers often, by the way, with no material reduction in CO2 emissions. Number two, failure to recover the investment of bondholders and other creditors in electric generation backed securities and three, reduced likelihood that investments in emission reduction technologies to comply with other EPA

regulations would be recovered.

Now, that last point is worth exploring in more detail because some analysts, including those at EPA, have overlooked its significance. Some have assumed that investments in pollution control technology amount to sunk costs, in other words, a cost that has been incurred and cannot be recovered.

But as we show in our paper, the capital spent installing pollution controls is far from sunk once the technology retrofit is in service. To the contrary, as I noted earlier, many of these plants, including Homer City, rely on a project finance model to raise funds needed for large scale retrofits.

This stands in contrast, as I mentioned, to entities with numerous assets that can use so-called balance sheet financing. Now, simply put, with project finance, the project itself may be the only cash flow producing asset an entity owns. In this case, the owner has no choice but to issue debt supported by the assets and cash flows of the project, or the revenues that can be collected from captive customers.

Thus revenues from the facility must not only support material financing costs in the form of interest and principal payments over the life of the

investment, but also provide an opportunity for recovery of, and return on equity capital.

Now, I should note that our White Paper, which was completed, prior to the release of EPA's proposal examined impacts stemming from emissions averaging a training regime on these particular entities. Though EPA's proposal does not specifically require averaging or trading, but instead allows states to use those mechanisms to comply with the rule we still believe our analysis and central conclusion about the rule still holds.

EPA's proposal sets unrealistic requirements and timetables that will leave coal dominated, non-diversified entities without meaningful, cost effective compliance options to remain in operation.

To add to my testimony here's some background on the Clean Power Plan, but I think others have sort of amply covered that ground. I do want to point out, however, that last year when President Obama announced his Climate Action Plan he did instruct EPA to follow several criteria when they were putting the rule together and I think, again, it's worth reiterating those.

President Obama ordered EPA to do the

following, abide by these criteria and they are, one, directly engage the states given their central role in establishing and implementing standards for existing power plants as well as the public and leaders of affected stakeholder groups, tailor the regulations and guidelines to reduce costs consistent with other rules and regulations affecting the power sector.

Develop approaches that allow for regulatory flexibilities and ensure that the standards are developed and implemented in a manner consistent with the continued provision of reliable and affordable electric power to consumers and businesses.

Under the Clean Power Plan the state emission rates as we've been discussing will establish, according to EPA's application of four so called building blocks. They're heat rate improvements of six percent at existing coal fired EGUs, re-dispatching natural gas combined cycle power plants to a 70 percent capacity factor, maintain financially at risk nuclear units, increasing electric generation from non-hydro renewable resources and increasing demand side energy efficiency.

Now, these building blocks compromise EPA's determination of what constitutes, quote, the best system of emission reduction, or BSER, under

Section 111(d). Now, in Section 111(d) there's an important term called standards of performance.

That's when states are supposed to come up with a plan to establish standards of performance for any existing source for any air pollutant for which air quality criteria have not been issued or which is not included on a list published under Section 108(a).

Now, the Clean Air Act defines the term standard of performance as the standard that reflects the degree of emission limitation achievable through the application of the best system of emission reduction, which taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirements, the administrator determines has been adequately demonstrated.

Now, EPA has elected in this rule to look beyond the fence line of individual EGUs to other components of the electricity system. It's my understanding that this is the first time that EPA has taken this approach to establish performance standards. Apparently requiring only unit level reductions would not achieve the President's more ambitious emissions goals. So to get more reductions,

EPA has developed a systems approach that treats the entirety of the electric grid as the source category.

Hence EPA's determination that BSER constitutes elements stretching from the generating plant all the way to the end-use consumer of electricity. As the legality and appropriateness of a system based approach under 111(d) is controversial, it's not within my scope of my testimony today, but I do want to comment on EPA's approach and how it applies to Pennsylvania and what it portends for some electric generating facilities in the state.

Now, after applying all four of EPA's building blocks using 2012 emissions and generation data for Pennsylvania, EPA under the option one state option calculated an emissions rate for the state in 2030 of 1,052 pounds CO2 per megawatt hour.

The final goal, according to EPA, is equivalent to a 31 percent reduction in CO2 emissions from the 2012 level. Now, you need to look at the relative contribution of each of the four building blocks achieving Pennsylvania's final target in 2030, and they are as follows. Number one, coal rate heat improvements 11 percent, natural gas re-dispatch from coal units 11 percent, nuclear energy 7 percent, renewable energy 43 percent and demand side energy

efficiency 27 percent.

Now, EPA's proposed emission rate for Pennsylvania is not achievable by any individual coal fired unit. The only way for the Commonwealth to comply with the emission rate is to reduce coal generation and increase generation from other sources. According to EPA's calculations, the lion's share or about 70 percent of eventual compliance for Pennsylvania must come from building blocks three and four.

Given that the Commonwealth now generates 40 percent of its electricity from coal and that its renewable energy potential is limited, achieving its emissions targets primarily with new renewable generation and demand side energy efficiency will be extraordinarily difficult and will have substantial costs ultimately borne by consumers and the state's economy.

Now, the path forward, disproportionate economic impacts on these facilities can be alleviated in a number of ways. Some of them were outlined in the White Paper prepared by the Pennsylvania DEP. Based in part on our review of the PA DEP White Paper we see four prudent steps that EPA could take to improve the Clean Power Plan and mitigate the impacts

on plants such as Homer City.

Number one, EPA should establish an emissions glide path that provides more time for entities to recoup investments in pollution control equipment installed to comply with other EPA regulations.

Two, EPA should adopt reasonable changes to the Clean Air Act's New Source Review program, to prevent units that make efficiency improvements under the Clean Power Plan from triggering NSR.

Number three, EPA should allow states to utilize flexibility found in the Clean Air Act and in EPA's own regulations implementing Clean Air Act in Section 111(d)(1). Those provisions allow states the option of adopting different standards and compliance schedules based on, quote, remaining useful life and other factors such as recent investments in pollution controls. EPA's proposal needlessly eliminates this flexibility.

Number four, EPA should provide states with greater flexibility to use more representative baselines to establish mandatory emission rates, and allow credit for CO2 reductions that have already been achieved.

Unless EPA adopts significant changes to

its 111(d) proposal and at the same time affords states the true flexibility that exists under the Clean Air Act and EPA's own regulations, a significant number of coal fired power plants serving communities across the country, including Homer City, face the dire prospect of bankruptcy and retirement, threatening to disrupt the communities that rely on those plants. Thank you for the opportunity to testify.

CHAIR:

Thank you. Thank you. Do we have any questions?

MR. RAMAMURTHY:

Do you know any specific recommendation for what the more appropriate interim targets for Pennsylvania?

MR. CATANZARO:

That's something that we're currently looking at and doing some analysis of. I know there are a number of commentators who have called for eliminating the interim targets and just sticking with 2030. That's a better glide path. I think as Mr. Trisko indicated, here's a substantial burden that hits in 2020.

It's a very short time frame, so from

our particular perspective we don't have, I guess, a solution that we proposed on that yet, but certainly more time is something that we do need. That is an important consideration as we move forward to allow plants like Homer City the ability to recoup their investments that they've made.

MR. RAMAMURTHY:

As a follow up, you kind of mentioned about the standard. I think there was a lot of discussion in the public arena. Do you have any specific comment on the standard or the --- one is less stringent with ---.

MR. CATANZARO:

Yeah. Again, that's something we're looking at and analyzing. Certainly under option two I think, you know, Homer City would fair a little bit better, but I think their ultimate fate would still remain the same. And the point is if you're not providing for some sort alternative compliance pathway for plants like Homer City you're going to be stripping them of cash.

And if you're stripping them of cash that means that they're not able to pay back their investors and bondholders, and leads to, as I indicated, bankruptcy. So you need to be very careful

about how you treat those specific plants. I don't think option two is going to be the answer, but again, that's something we're taking a careful look at.

MR. RAMAMURTHY:

The last question I have is from policy perspective, what's appropriate percentage?

MR. CATANZARO:

Certainly six percent we believe is grossly overstated, exaggerated. I just don't think that can stand at the end of the day, so we're taking a hard look at it. I think, for standard, you said one percent. You know, maybe somewhere between one and three percent would be more appropriate.

We haven't nailed down exactly what the number is, but I think we are confident that six percent is way too high. In the analysis that EPA used the study that they relied on was not appropriate in this particular instance to use.

CHAIR:

Thank you. Any further questions? All right. Thank you very much.

MR. CATANZARO:

Thank you.

CHAIR:

Our next speaker is John Shimshock with

NRG, Incorporated.

MR. SHIMSHOCK:

As mentioned, I'm John Shimshock with NRG Energy. NRG has crafted a White Paper that I distributed to the panel entitled EPA's Proposed 111(d) Rule Glide Paths Instead of Cliffs, Greater Emission Reduction at Lower Costs. My testimony today is --- includes selected portions from that paper.

On June 18, 2014 EPA released its proposed rule for the regulation of greenhouse gases under the Clean Air Act's Section 111(d). NRG Energy views climate change as the preeminent challenge of this generation, and supports effective and well-designed policies to reduce greenhouse gases and accelerate the deployment of clean energy technologies.

Accordingly we have carefully reviewed EPA's proposed rule and have identified key aspects that we view as likely to create unintended but serious negative consequences while limiting the rule's effectiveness in achieving the overall objective of limiting greenhouse gas emissions and thereby mitigating the more serious challenges of climate change.

These problems stem from three key

features of the rule. One, too many short term emission reductions up front, but not enough long term. The vast majority of the emission reductions required by the states by 2030, often 90 percent or more, will be required in the very first rule --- first year of the rule.

As a result, the rule is likely to threaten reliability and accelerate the lock-in of large amounts of new natural gas generation, particularly in some regions, while generally delaying the deployment of tomorrow's cleaner and cheaper renewable energy, and emerging competitive distributed energy resources.

Two, vastly disparate impacts on the states. The proposed rule has dramatically different state emission reduction targets based on a small number of assumed or administratively-determined factors. These factors appear likely to impose disproportionate costs of achieving the required emission reductions on certain states, particularly those that face the largest emission reductions. This approach is inconsistent with the joint state, federal approach that is at the heart of the Clean Air Act.

Three, complex, unprecedented policy design burdens for states while providing little

flexibility in terms of when states must meet the rules emission requirements, the proposed rule grants nearly unlimited flexibility to states in terms how to meet these aggressive and, in some cases, unrealistic goals.

The result is a heavy burden of complex and aggressive air, climate, clean tech, utility and electric market policy reform for the states to carry out that will in many cases require contentious state legislation in a very short time.

The lock-in of new gas generation and corresponding lock-out of renewables and other energy technologies could seriously delay the longer term de-carbonization of the power sector. However, this unintended consequence of the proposed rule can be readily avoided by one or more of the following modifications in the EPA's final rule.

One, EPA should broadly defer to the states to set the actual emission reduction trajectories needed to obtain --- needed to achieve the ultimate emission reduction goal in EPA's final rule. Each state can craft an emission reduction trajectory to achieve these goals that will address legitimate state concerns such as resource adequacy cost and stranded assets.

Two, alternatively EPA should modify the rule's ten year average compliance requirement, which is largely responsible for the dramatic first year reduction requirements of the proposed rule. Allowing states to comply by meeting on average in the first ten years, half of the reductions required by the interim goals would allow each state to select a uniform glide path trajectory from its 2012 benchmark levels to EPA's 2030 goals.

Three, EPA should modify the timing of and the degree to which various building blocks in its assumed best system of emissions reductions are activated. In particular, EPA's assumption that a full re-dispatch of existing gas to displace coal could be implemented overnight is unwarranted.

Such a dramatic change needs to be phased in over time to avoid the significant resource adequacy, cost and other consequences of suddenly rendering large numbers of existing power plants uneconomic. These changes will support state plans to ensure the gradual but persistent transition from a high to low power sector CO2 emissions while limiting the reliability, risks, price shocks and other significant problems the proposed rule is poised to create.

At the same time they will help to avoid the immediate lock-in of large amounts of new gas. Instead, they will ensure states can devise gradual transitions to renewable energy, fossil resources that capture and use carbon and efficient distributed clean energy systems, thus producing far greater CO2 reductions at lower cost.

In closing, we look forward to engaging with EPA states and various stakeholders in further developing such improvement to the proposed rule. Thank you.

CHAIR:

Thank you.

MR. RAMAMURTHY:

Good morning.

MR. SHIMSHOCK:

Hi.

MR. RAMAMURTHY:

I'm confused about two comments, a national perspective. For Pennsylvania specific, are you saying that the targets set for Pennsylvania are appropriate or the path is --- the trajectories left to the states? I'm not clear about your position on EPA's proposed targets for Pennsylvania.

MR. SHIMSHOCK:

Yes, certainly the targets vary by state and Pennsylvania's extremely aggressive. And so that may be --- and I think it was mentioned in testimony. It may be, in fact, unrealistic for particular states like Pennsylvania. So on a national basis as well it may be achievable. Certain states are going to be, you know, obviously challenged.

MR. RAMAMURTHY:

And then what's the company's position on EPA's proposal including controlling emissions beyond the fence line?

MR. SHIMSHOCK:

We are still evaluating that right now. Right now I don't have a formal position on that for this panel as yet.

MR. RAMAMURTHY:

Building block one, what's the recommendation of energy efficiency within the plan?

MR. SHIMSHOCK:

There can be some emission efficiencies realized. Whether six percent is achievable is debatable. It would depend on a plant specific basis, but that's a very, very high target to achieve.

MR. RAMAMURTHY:

You're not opposed to dispatching from

coal to gas? I'm just wondering, is it --- what's your take on building block two?

MR. SHIMSHOCK:

I'm sorry?

MR. RAMAMURTHY:

Are you in favor of ---?

MR. SHIMSHOCK:

We see no other outcome if the rule as written goes forward is that it would certainly need to be early retirement or certainly re-dispatch the gas. I think coal plants would become very uneconomic by that time, in the 2020 and beyond time frame.

MR. RAMAMURTHY:

Thanks.

CHAIR:

I do have a question. In your testimony you talked about locking in too much natural gas and you talked about locking out renewables. I guess the question in my mind is, in competitive energy markets all of the generation is at risk by virtue of their economics. How is it in a competitive energy market that you would lock something in and lock something out when it's really their ability to price themselves that would determine who functions, who operates, who provides?

MR. SHIMSHOCK:

Lock out is not meant in a sense that you are purposely excluding them by means other than price. They become uneconomic in that arena, in that dispatch model. That's what the term --- that's what the lock out is in reference to.

CHAIR:

Okay. That confuses me because it's a matter of they would be able to be there, so the lock out is the term I think that confuses me.

MR. SHIMSHOCK:

We can revisit that term. There may be a better word than lock out. Preferential dispatch may be a better way to describe it.

CHAIR:

All right. Thank you. Our next presenter is, and I hope I get this right, Nathan Sue from the Central Pennsylvania Clean Water Action. Okay. Possibly he will be here this afternoon. At this time do we have any unregistered members of the audience that would like to provide a presentation at this time? Okay. We're going to break for lunch. We will return and resume the listening session at 1:00 p.m. Thank you.

LUNCH BREAK TAKEN

CHAIR:

Okay. It is one o'clock. Time to resume. We've had Nathan Sue scheduled for the end of the last session. I wanted to find out if he's available now. Okay. Our first speaker of the afternoon will be Jackson Morris from the Natural Resources Defense Council.

MR. MORRIS:

Good afternoon. My name is Jackson Morris, director of Eastern Energy at the Natural Resources Defense Council and a resident of Montour County. I'd like to begin by thanking DEP for allowing me this opportunity to provide testimony today.

NRDC is a non-profit environmental organization with more than 1.4 million members and online activists including nearly 54,000 in Pennsylvania. Since our founding in 1970 our lawyers, scientists and other environmental specialists have worked to protect the world's natural resources, its public health and the environment. NRDC's top institutional priority is curbing global warming emissions and building a clean energy future.

I'm also a father of three and my top personal priority is taking care of my kids. For both

of those reasons I'm here to support EPA's proposed Clean Power Plan and provide NRDC's perspective on the opportunities for Pennsylvania to comply in a manner that maximizes job creation, consumer savings and public health benefits.

The Clean Power Plan is the largest single step ever taken to reduce global warming emissions in this country. By reducing emissions it will reduce the risk of climate impacts for our children, including droughts, severe storms and the climate change-related health impacts that we are already experiencing in Pennsylvania and across the country.

Here's the good news. In its proposal EPA has afforded states an almost unprecedented level of flexibility on how to meet their carbon reduction targets, and if the state pursues a constructive compliance plan by 2020 alone, according to NRDC modeling, the proposed guideline can create more than 5,100 new jobs in the Keystone State, contribute $456 million in energy savings to Pennsylvania families and businesses and significantly cut pollution in ways that will help prevent thousands of asthma attacks, heart attacks, lung cancer diagnoses and other illnesses.

And by cutting carbon emissions that are turbo charging our weather, these standards will be a step towards moderating a trend of increasingly extreme weather events such as floods, heat waves and wildfires. These events not only disrupt our daily lives, but result in huge costs to our economy.

In 2012 alone extreme weather cost our country more than $140 billion, and taxpayers picked up nearly $100 billion of the cost of cleanup according to an NRDC analysis.

How we got here. I believe it's important to briefly ground this discussion in a scientific, legal and regulatory reality in which it is unfolding. The science of climate change is conclusive. Over 97 percent of the scientific community agrees that the planet is warming and the human activity is the primary driver of this trend.

Existing power plants are the single largest source category of these emissions in the nation, and the Clean Air Act requires that EPA regulate them, just as they already do for pollutants like NOx, SOx and mercury. Since 2007 the Supreme Court has repeatedly upheld EPA's ability to regulate carbon, including most recently in a June 23rd decision.

The most important message from that decision is that the Supreme Court stands behind its prior decisions that EPA has the authority and responsibility to curb dangerous carbon pollution. In 2007 the Court decided in Massachusetts versus EPA that EPA can set carbon pollution standards for motor vehicles under Section 202 of the Act.

And in 2011 the Court held in American Electric Power vs. Connecticut that EPA can do the same for new and existing power plants under Section 111. This is the authority EPA invoked in the carbon pollution standards proposed on June 2nd. While we fully anticipate future legal challenges going forward, the case law clearly indicates that EPA is on sound legal footing as it moves forward with carbon regulations.

Since the four building blocks have been discussed throughout the morning I will skip over this section of my testimony. You have a written copy and I've transmitted an electronic copy to Krishnan for review. Under the rule, once EPA sets the final target in the case of Pennsylvania 32 percent reduction in carbon intensity by 2030 from 2012 levels.

The states themselves are in the

driver's seat to chase it. Each one will need to submit a state plan that includes a recipe for what volume of reductions they will deliver from each block as well as any reductions a state plans to deliver from outside those four blocks. It is important to note that the blocks were used to set state targets. They are not a prescription for how a state must comply.

The role of clean energy in compliance. In Pennsylvania we already have some good, ongoing models that will help us meet our proposed target. In fact, since EPA used fairly conservative assumptions to generate its estimates of our renewable energy and energy efficiency potential, Pennsylvania could harvest significantly greater cost-effective carbon reductions with increasing benefits.

On energy efficiency, the state's energy efficiency law, Pennsylvania Act 129 enacted in 2008, has already delivered huge cash and energy savings to customers and is set to deliver many more. Customers of the state's largest distribution utility, PECO, have saved roughly $331 million since the law was first implemented, and customers of PPL, my own utility, have saved roughly $428 million.

There's huge potential to do more on

efficiency in Pennsylvania. The state's own analysis shows we can cost effectively cut more than 27 percent of our forecasted energy use over the next 10 years using currently available technology. By contrast, EPA assumes cumulative energy savings in 2029 of just over 11 percent. Analysis concluded that --- sorry.

EPA's assumptions include a gradual ramp up to 1.5 percent of annual savings from energy efficiency, and these are conservative in both terms of pace, as illustrated in the figure you'll have in my printed testimony, many states such as Arizona, Michigan and Ohio have gone from virtually zero savings annually to 1.5 percent in just a few years.

In addition, the assumptions are conservative on --- in terms of the ultimate savings level reached. Best practices in leading states such as Massachusetts have demonstrated annual savings in excess of two percent. EPA is 1.5 percent at the terminal level of annual savings.

Furthermore, EPA estimates the cost of acquiring energy efficiency to be nearly double what many leading analysts estimate. Collectively, these conservative assumptions mean that the potential for cost effective carbon reductions from building block four are significantly underestimated, and

Pennsylvania could capture far greater reductions from this resource with a rapidly scaled up Act 129 portfolio.

On the renewable energy front, while the state's alternative energy portfolio standard definitely needs to be strengthened, Pennsylvania is well-positioned to ramp up. Even in its current relatively modest form, the standard has already driven the installation of more than 1,300 megawatts of wind power. Pennsylvania has 25 wind farms providing 1.5 percent of the state's energy in 2013 and powering the equivalent of 300,000 homes.

A solid solar power foundation has been established as well. There are more than 440 solar companies in our state, employing 2,900 workers and our installed solar capacity is 11th in the nation.

It is important to recognize that both of the aforementioned renewable and efficiency programs are under the jurisdiction of the Public Utilities Commission while the obligation for submitting a state plan to EPA falls squarely to DEP. This dynamic means it will be very important for these two agencies to closely coordinate on crafting Pennsylvania's plan.

Doing so will ensure the final

submission is well designed and can be implemented in a manner that is enforceable and maximizes the state's vast renewables and energy efficiency potential. EPA also leaves it up to states whether to enter into multi-state regional agreements for compliance, and affords states pursuing such agreements an extra two years to submit their plans in order to work through the necessary negotiations to structure them.

I will now briefly expand on this option and explain why we believe it makes sense for Pennsylvania to consider it. Pennsylvania is the second largest producer of electricity, behind Texas, and is the number one net exporter of electricity nationally. In 2011, roughly 35 percent of all power generated was exported.

As a result, a significant volume of the carbon emissions from our power plant fleet is attributable to power consumed elsewhere. NRDC strongly supports EPA's proposal to allow states to pursue regional and multi-state approaches to compliance.

As the Regional Greenhouse Gas Initiative demonstrated, a regional approach has a number of advantages. These include, but are not limited to, greater flexibility for compliance

entities, better alignment with energy markets as electricity flows don't stop at state borders, and lower net costs for compliance, which benefits consumers.

In fact, a recent report from the analysis group found that RGGI produced in total $1.6 billion in net present economic value for the RGGI region. Such interstate value might be achieved by linking the energy-intensive states of Ohio, West Virginia and Pennsylvania, and potentially Illinois, New Jersey, Maryland and Delaware, and their assets to achieve these benefits at the lowest cost. States entering into such agreements need not be geographically contiguous.

This approach would --- could involve exploring what joining RGGI would entail, but is by no means the only option. Alternatively Pennsylvania could engage in discussions with other interested states to establish a separate, parallel, multi-state program independent of RGGI, but that could draw on lessons learned in that program regarding the establishment of an auction system, allowance tracking, model rule and MOU experiences and other components.

In addition I'd like to point out that

the MISO recently conducted modeling of various compliance pathways for the states in its footprint with EPA's Clean Power Plan.

While NRDC disagrees strongly with a number of the assumptions and conclusions of that analysis we would point out that MISO did conclude that if the MISO states were to comply regionally as opposed to state by state, it would reduce compliance costs by over $3.3 billion annually for the MISO states. This further reinforces the --- one of the main advantages of a regional approach.

In addition we've recently seen the OPSI state Commissioners, including Pennsylvania, submit a letter to PJM explicitly requesting comparable modeling of various compliance scenarios and that is at PJM now, and I know PJM is in contact with the OPSI representatives. And we look forward to seeing some of the outputs of that modeling and commenting on it further. But I just wanted to draw that to the panel's attention.

Now, I will briefly touch on the issue of reliability. There's been a great deal of somewhat alarmist rhetoric circulating in the wake of this past winter's polar vortex and its impact on the electric system.

Some have argued that it illustrates that EPA should not implement the Clean Power Plan because it would threaten reliability, but if we begin to look at trends that have already been in motion for years in the generation sector due to market forces and already finalized mercury regulations, a different picture emerges.

A 2012 Brattle Group analysis assessing coal plant retirement trends due to various drivers found that, quote, 59 to 77 gigawatts of coal plant capacity are likely to retire instead of retrofit with environmental equipment. These retirements occur absent any future regulations restricting carbon emissions.

Brattle's range of projected retirements drops to 21 to 35 gigawatts if there were a $1 per million metric BTU increase in gas price relative to current forwards, and increase to 115 to 141 gigawatts with a $1 per million metric BTU decrease in gas prices. Thus gas prices are a much more significant influence on retirements than the stringency of the remaining regulations.

The entity responsible for operating the grid and maintaining reliability in Pennsylvania and the region is PJM and has provided its perspective on

this issue in various forums. As reported by my colleague, John Moore, after a thorough assessment of reliability concerns related to projected retirements PJM has determined that thousands of megawatts worth of power plants can cease operations without causing any grid reliability problems.

Reflecting on the polar vortex in April PJM informed FERC that it will have more than enough power to meet reliability needs after accounting for all planned retirements from companies across the region.

I'd also like to point out that during the polar vortex wind was one of the few resources that was running at near full capacity while other fossil resource and nuclear plants struggled to deliver energy they were committed to do due to the extreme weather conditions.

PJM secures necessary power supplies through an annual auction that runs three years into the future. As a result PJM has determined what it needs --- that its needs through 2017 will be met by existing coal, gas and nuclear power plants supplemented by nearly 19,000 megawatts of new power generation, energy efficiency resources and power imports from neighboring regions of the country, plus

over 12,000 megawatts of demand response.

The combination of resources will more than offset the approximately 15,000 megawatts in expected regional coal plant retirements, leaving PJM with about 20 percent more capacity available than needed to meet projected demand. In addition to these PJM perspectives, FERC recently weighed in on the issue at a June 29th Congressional hearing.

As summarized by my colleague, Allison Clements, Acting Chairman Cheryl LaFleur has consistently embraced working with EPA and others to ensure the grid stays dependable under the plan. And the rest of the commissioners were explicit that any reliability issues related to the plan could --- would be manageable.

Commissioner Norman Bay characterized such challenges as, quote, manageable. Commissioner Philip Moeller, a Republican appointee, described them as, quote, not insurmountable and Commissioner, John Norris, called the plan, quote, feasible and, quote, workable.

In summary, while more detail is needed as the rule is finalized and states come forward with compliance plans, despite the claims by opponents of the proposal, the entities who closely monitor the

system and are tasked with keeping the lights on appear to believe the EPA Clean Power Plan can be implemented while also maintaining reliability.

The DEP White Paper. And finally I'd like to briefly provide NRDC's perspective on the DEP's White Paper released in April, which was the focus of DEP's testimony at a Senate Energy and Environment Committee hearing on June 27th.

First, we agree wholeheartedly with the White Paper's conclusion that, quote, states must be allowed to join with other states in multi-state or regional programs. EPA has clearly stressed in their proposal and they welcome such approaches, and afford states wishing to pursue them extra time to submit state plans.

However, beyond this point based on our read, if Pennsylvania were to submit a state plan to EPA along the lines of what is laid out in the White Paper we believe it would be rejected, resulting in the state being subject to a federal backstop plan. This assessment is also consistent with the response provided by Deputy Secretary Brisini when this very question was posed by a member of the Senate hearing in late June.

Such an outcome is not in the interest

of regulated entities or consumers. A better approach is for Pennsylvania to craft a smart plan that can be approved by EPA, thereby empowering the state to chart its own path in a manner that best suits the state while meeting the target.

One last point on the regional compliance pathways. NRDC conducted some independent ICF modeling on various compliance scenarios nationally and one of the conclusions that was striking that we came away with was that state by state compliance would result in a net compliance cost of roughly $9 billion in 2030. When we converted that to a regional nationwide approach that allowed states to comply across state borders the net compliance cost were near zero.

Conclusion, EPA's proposed plan is an important step forward for the nation. NRDC is now working to build on this proposal and adopt a strong final rule next year. In the meantime regulators, both at DEP and the PUC, can now begin exploring smart compliance options that will make us national clean energy leaders. The science is conclusive, the case law is clear.

What remains is for Pennsylvania to seize this opportunity and devise a smart plan that

maximizes job creation, bill savings for consumers and public health benefits. We look forward to continuing to work with your committee and other state decision makers to ensure Pennsylvania pursues such an approach. Thank you.

CHAIR:

Okay. Do we have any questions?

MR. RAMAMURTHY:

You mentioned that the state by state was $9 billion and ---.

MR. MORRIS:

Right. And I didn't want to come with a bunch of slides, but essentially we --- NRDC modeled compliance costs including the public health benefits the EPA uses to basically model the same assumption that EPA built into their cost benefit analysis. And when you account for the net public health benefits and also the results of scaling of energy efficiency, which is also net savings, that the overall costs and benefits were essentially balanced out when you factor in those public health benefits and social costs for carbon.

CHAIR:

In your statement you identified the building blocks were simply used as targets, but

they're not required to be used as part of the state plan; is that correct?

MR. MORRIS:

Correct.

CHAIR:

In that case you made it a point to say we didn't have what measures other than the building blocks then would we be able to use to provide the electricity that's lost due to the retirement of the coal plants? Because to get to those targets it really is a matter of replacing coal with something else. So in terms of flexibility what is there other than the building blocks to achieve the reduction but still provide the necessary electricity?

MR. MORRIS:

Right. So a couple of points. A couple of examples of the areas where we could further reduce demand for electricity on the demand outside the fence, include building codes, which were not included as part of the energy efficiency building block. In addition we're looking into some assumptions around what gains could be made in transmission and distribution investments to reduce line losses, which would thereby further reduce demand.

That's obviously not included explicitly

in the building blocks. So those are two examples on the demand side. And as far as capacity and meeting demand for electricity going forward, as you're well aware, I think it's important to recognize that this is an existing source rule and that you can look at the overall system in the context of what resources will be available in terms of strictly existing. They're outside of the 111(d) rule, you have potentially new sources coming online that could potentially provide that, any demand that couldn't be met from demand side.

CHAIR:

But you raised building code standards, but isn't there a need to differentiate between essentially --- I mean, there would be potentially an increase associated with it although not as high. I mean, I'm not ---.

MR. MORRIS:

Right.

CHAIR:

I'm not sure how you would count ---

MR. MORRIS:

Right.

CHAIR:

--- that in a reduction plan is my ---.

MR. MORRIS:

Right. So it would be in the case --- first of all, any new building code would apply to new construction, but as well it would apply to any significant renovation.

And depending on some of the modeling that you would do around assumptions on new builds versus significant renovations, those significant renovations would result in significant reductions from the existing building side.

CHAIR:

So basically what you're stating is the point we've made in our White Paper, which is you have to be sure to count reductions as opposed to avoidance. Are you making that point?

MR. MORRIS:

I wouldn't say that unless --- we have somewhat of a disagreement on the terms of what exactly avoidance resource reduction is, so I'm not comfortable agreeing with that being what I'm saying. What I'm saying is that what I would agree with is that you --- we definitely absolutely need stringent and transparent monitoring and verification for any efficiency investments that occur in order to ensure we're achieving the actual reductions for compliance

purposes.

And we're confident that EPA is going to require those if these resources are going to be utilized for compliance.

CHAIR:

Okay. You identified RGGI as a possible multi-state program. Could you identify to us how many RGGI states are either met electric neutral? In other words, within their borders produce adequate power for their population or are exporters versus the number of RGGI states who are importers of electricity?

MR. MORRIS:

Don't have the numbers in front of me, so I'm not --- I mean, I could certainly give you that information, but ---.

CHAIR:

That would be helpful.

MR. MORRIS:

Okay.

CHAIR:

Are there any other questions? Thank you very much.

MR. MORRIS:

Thank you.

CHAIR:

And my esteemed colleague just reminded me that I need to repeat the rules of engagement for this group. We have 15 minutes and we did have some people who were --- ended early in the first part of the day.

We as DEP will ask clarifying questions. There will be no questions from the audience and there will be no assistance in answering questions from the audience as well as we did at our previous listening session. So I express my appreciation to Ms. Epps. Our next speaker is Donald Brown from the Widener University School of Law.

MR. BROWN:

Hello. I see some former acquaintances up there. I congratulate DEP for having a public hearing on this stuff. Public participation is fundamental to thinking about complex problems, so congratulations.

Let me tell you a little bit about myself since some of you don’t know me. I think it’s relevant to my testimony. I was program manager at the United Nations for the Clinton Administration. I negotiated climate change issued. I’m an author for the IPCC report working for free.

I work on planet issues in 30 countries, I have written over 150 articles and 3 books on climate change policy and because of all that I'm going to bring your attention an important issue that is completely missing from this debate, which I think you have to understand to get this.

And that is that there were features of this problem, climate change, which unlike any other problem that DEP ever had to regulate. And the features lead to the conclusion that scream for attention that climate change is not simply a scientific issue, it's an ethical and moral issue.

We never talk in those terms about policy, but you can't be clear about policy until you face several ethical issues. The fact that it's a moral issue has profound significant for policy, and I will explain that, and that will lead me to a discussion of the EPA rule and Pennsylvania's current reaction to that rule.

One of the features of climate change that make it a moral issue, well, one is the problem caused by high emitting countries and individuals that are putting other people, tens of billions of other people, at risk.

The second feature of climate change

which makes it unique even as the international environmental problem is that the harms to the vulnerable people are not inconveniences. They're cataclysmic or catastrophic. It's not only a future problem, it's an existing problem.

I've traveled to Africa. I've seen places where people are starving from drought that would tear your heart out to see those people. So the harms to those that are vulnerable are not pure inconveniences.

A third feature of climate change is that the vulnerable people can't do anything to protect themselves. Their only hope is that high emitting countries will take duties and responsibilities into consideration and stop what they are doing. Their only hope is that high emitting countries see their responsibilities.

The fourth feature of climate change that makes it --- screams for attention is a moral issue comes from the science of climate change, namely that the atmosphere has limited volume is like a bathtub. We're filling the bathtub up. It was 200 parts per million of carbon dioxide for 10,000 years.

Now, because of high emissions from places like Pennsylvania the bathtub is now at 400

parts per million. And here's the fact we really have to understand to get this, that we're running out of time to prevent likely catastrophic non-linear only in your responses of the climate change.

And as a result of that when you go to the climate negotiations --- which I have been doing since 1992. I'm a former negotiator for the United States. The developing countries are screaming at high emitting places like Pennsylvania, stop what you're doing. This is a matter of justice.

So this is an ethical issue and because it's an ethical issue, you can't think in policy terms like you think about other issues. Other issues you send a scientist out to say, what does the science say in terms of what the target should be? You can't do it for this problem.

In fact, any target, Pennsylvania target, is implicitly a position on two ethical questions that are at their core ethical questions. Any target is implicitly a position of the atmospheric stabilization level.

Pennsylvania has communicated and other governments have. Some governments have. How their target relates to the atmospheric goal. Every target is implicitly in position of the atmospheric goal.

The atmospheric goal is not a scientific question, it's a moral question because the higher the atmospheric goal the more Pennsylvania is willing to put other people at great risk. So the implicit position of the atmospheric goal is every target is implicitly in position of the atmospheric goal.

The second ethical issue that we target is implicitly position on what is the government's fair share of the remaining greenhouse gases that can be emitted to prevent dangerous warming. I'm sure all of you know the whole world has agreed to live in the two degree centigrade. Some of you probably know that that requires --- is to set an atmospheric concentration goal. The whole world has agreed to limit the warming two degrees centigrade. What a lot of people haven't woken up to is the profound significance of that two degree centigrade.

IPCC calculates pretty easy quantitative problem to translate the 450 atmospheric goal which only gives the world a 66 percent chance of limiting the warming two centigrade into gigatons. IPCC has calculated 271 gigatons. 271 gigatons for the entire world.

The entire world is emitting emissions at 10 gigatons per year. The practical implications

of that is the world is out of greenhouse gas emission stay within the budget for 27 years at existing rates. And so you can't --- Pennsylvania can't think about what it's doing until it addresses these ethical issues. Whether you like it or not your position is implicitly a position on these ethical issues. So you can't think clearly about policy until you get this. You need to discuss this. All governments need to discuss this when they're setting targets. They need to acknowledge what their --- why to have the goal ---.

The atmospheric target, how they arrived at the conclusion that what they're doing is fair. IPCC summarizes all the literature on fairness. I was one of the authors in that.

There's a reason people can disagree what is fair, but there's only five or six variables that everybody agrees to be considered in determining what fair is, what is per capita emissions, what is historical emissions, what is luxury emissions versus heat emissions.

And so what Pennsylvania does --- the governor had said that Pennsylvania is doing its fair share. That conclusion leads me to two possibilities. Either he's completely unaware of the scale of this

problem or he's trying to protect economic interest in Pennsylvania. There's only two possibilities it seems to me.

Now, one of the practical significance of being an ethical issue, you can't use economic interest alone to Pennsylvania as justification for what you're doing. For the Africans, for the Southeast Asians what --- and here's Pennsylvania is claiming that climate change regulations are war on coal.

Seeing through a justice lens that argument seems to be like claiming that boss gets a solar battery or war on mothers. From their point of view, using Pennsylvania coal --- Pennsylvania coal, if the science is correct, is mugging. Currently it's mugging other people in other parts of the world.

Pennsylvania cannot, as a matter of justice, as a matter of international law, in fact, simply look at Pennsylvania impacts and justify this policy based upon Pennsylvania impacts alone. If it just says we can't do this because this is what will happen in Pennsylvania that's not good enough.

Because it's a moral issue Pennsylvania has duties, obligations and responsibilities to the rest of the world to stop what they are doing.

By the way, if we had more than two degree centigrade the science says not only are there extraordinarily harsh consequences we're running --- the probability has increased dramatically that we have rapid climate change, which turns out to be a catastrophe for most of the human race.

So what Pennsylvania says, oh, we're not going to do this because electricity prices will go up. The rest of the world says, that sounds like a --- isn't there a law against assault and battery? There's a law against muggers for the rest of the world. You can't only think that way. You have to think about your responsibilities to the rest of the world.

Let me now turn to the EPA rule and what I see Pennsylvania's response to it. I've read the White Paper, I've read the Governor's statement. I believe that only one conclusion.

What Pennsylvania's real problem with the EPA rule is, I believe, although it's stated in legal terms about the meaning of 111(d) is that it doesn't want to commit to reduce Pennsylvania's greenhouse gas emissions from the electricity sector.

As you well know, the federal rule would result in a 30 percent reduction, but I'd like to 20,

30 from the power sector. The science is saying that the developing countries must reduce their emissions by 25 to 40 percent by 2020.

The EPA rule is not tough enough as a matter of justice for the rest of the world. Pennsylvania has no target. It has a law that encourages it to develop a target. It had a plan in 2013 in which it identified 52 steps it could take which would create 6,500 jobs.

From what I can tell Pennsylvania has not implemented that. If you were worried about jobs --- it was a plan that told you how to get it. When you revised the plan in 2013 you had no target. The Pennsylvania position is that we're switching from natural gas to coal will get Pennsylvania where it needs to go.

Two important problems with that. Everybody up there knows about the methane problem. No one at that table can tell me authoritatively what the method is. I can't tell you either. You know that the studies are all over the ---.

The most recent study in November 13th said when you look at the methane from the entire system, not from the well, that it's twice EPA number. I believe that Pennsylvania's claim about methane was

not based upon monitoring, it was based upon modeling from the EPA estimate, which is 2.6 percent.

As you all know, methane is above 3.2 percent. Natural gas becomes worse than coal. So Pennsylvania, to be honest, when it makes claims about what's happening, you should put it in upper and lower baths (phonetic), given methane leakage. It is not doing that. Honesty --- basic honesty, would require that. So that's the first problem about coal.

The second problem is a bigger problem, a much bigger problem and no one is talking about it. The whole world must reduce emissions. To stay within this 271 gigatons the whole world must reduce its emissions by 80 percent. Okay? Developed countries have to go much faster because to not do so freezes poor countries into extraordinarily low per capita emissions. That's not fair.

Pennsylvania must go faster than the rest of the world. The whole world must reduce emissions by 90 percent. Pennsylvania must not only develop a short-term target, it must develop a long-term target for 2050 and the reason why that's important is you can't evaluate the short-term target until you know what the long-term target is.

And the reason for that is natural gas

for instance --- even if there's no methane, it still contributes to slightly over 50 percent of carbon dioxide. It's still adding carbon dioxide into the atmosphere at a time the world greatly needs to reduce it.

In order to develop the short-term target you got to think about the emissions pathway that you need to get to the long-term target. You can't get there with natural gas. You can't get to any long-term target with natural gas. You're wiring in natural gas facilities for 30 or 40 years.

In 2045 U.S. emissions have to be reduced probably by 90 percent if the mainstream science is, in fact, correct. To claim that natural gas is a solution to climate change is only, only, only true if the state is ramping up full time --- at full speed its commitment to non-renewable, non-fossil energy.

There's no significant commitment to non-fossil energy. Relying upon natural gas without relying on ramping up non-fossil is irresponsible given the status the scale of this incredible problem. So thank you for listening to me. I think you should not only support the rule, you should adopt a charge that's tougher than the EPA's rule.

Justice would, in fact, require it. if Pennsylvania was taking responsibility to protect its own environment as a trustee of Pennsylvania's resources, which I could have talked about, but Pennsylvania has a duty to the Africans, to the people on the --- the Ganges, the Brahmaputra's, which are drying up, to the small island developing states who have been screaming for 30 years, stop it. Stop what you're doing to us.

So thank you for listening to me. I have written testimony and three copies of my testimony.

CHAIR:

Thank you very much. Do we have any questions?

MR. RAMAMURTHY:

The scope of proposal, do you think the plan really accomplish ---. We're not talking about the need for gas reduction, we're talking about as a national level and state level to have ---. Right now the issue in front of us is the EPA proposal in 111(d) of the Act, is it the right way to really achieve what has been proposed?

MR. BROWN:

If you take your legalistic objections

to the limit of 111(d) it is, in fact, the right way because it gives the state a great deal of flexibility to set whatever target it thinks it should get at, but --- by the way, in your 2013 report all you claim is that there's a five percent reduction from the electricity sector.

Okay. That's not near good enough, but 111(d) gives you the flexibility. I like it myself. I think we should encourage states to be innovative, cooperative and consultative about how to solve the problem, but it's a simplization challenging problem of the highest order and 111(d)'s best tool that is --- but it would be better if there were better legislation than that. But given the legislation that we have, it's the best --- I think it's the best approach.

MS. EPPS:

Mr. Brown, since we're talking about legislation, you stated explicitly that we need to develop short and long-term targets. Do you believe we currently have the necessary statutory authority to set those targets? Do you believe that we need additional legislation to make this happen?

MR. BROWN:

You know, Joyce, I haven't really looked

at the federal --- at the state clean air legislation. I believe it gives broad authority for pollutants and you start down the same path as the Supreme Court did in construing Pennsylvania's legal authority. I haven't looked at it closely. It deserves a close analysis.

MS. EPPS:

Thank you.

CHAIR:

Okay. Thank you very much. Our next speaker is Robin Mann.

MS. MANN:

Thank you for opportunity to speak today. My name's Robin Mann. I'm from Rosemont, Pennsylvania. I appreciate the DEP accepting input at this juncture on the EPA's proposed Clean Power Plan. Given the profound urgency, I personally support EPA's stepping up to put forward the proposed Clean Power Plan. And as a Sierra Club volunteer I support our recommendations for making the plan even stronger and ensuring that safeguards are added to prevent increased emissions or hotspots in some communities in the implementation process.

As has been noted and will be detailed by other speakers, Pennsylvania has been and is a

disproportionately large contributor of greenhouse gas emissions that are disrupting the climate and threatening the future livability of the planet.

Pennsylvania has a commensurately major role to play in contributing to the solution, as Don had eloquently said, there are significant opportunities as well as challenges presented by meeting our obligations under the Clean Power Plan. I'll focus my remarks on Pennsylvania's design of its implementation of the Plan.

Given the major directional influence this planning process will have on Pennsylvania's energy economy it is very important for DEP to hear from citizens and communities not represented here today. Communities and people most impacted by our current fossil fuel-dependent economy through pollution, and health impacts, and economic dependence and disadvantaged communities that could benefit most from targeted investment in building the clean energy economy need to be afforded the opportunity early on to shape the plan.

I urge DEP to go where those communities and citizens are and hear from them. Regional hearings at this early stage could help accomplish that purpose. Future Pennsylvanians can't afford our

failure to act now. Even with aggressive, collective action to curb carbon emissions, we are already likely facing a rise of two degrees Celsius in global average temperatures, posing threats and challenges to health and safety, and Pennsylvania's economy, most especially the agricultural sector.

Failure to curb emissions and allowing global average temperatures to rise by three degrees or more would invite more costly catastrophic events and health impacts, and reduce annual economic productivity projected nearly one percent, translating to $6 billion per year for Pennsylvania.

Pennsylvania can and should meet its obligation by building on its clean energy progress to date. The draft Clean Power Plan calls for Pennsylvania to achieve a 31 percent reduction in the carbon pollution intensity of electricity by 2030. Already half of that reduction can be achieved by a scheduled coal plant retirements and maintaining the existing Act 129 energy efficiency requirements for utilities and the targeted eight percent clean power in tier one of the alternative energy portfolio standard. But Pennsylvania, which was once a national leader on clean energy, now significantly lags behind neighboring states.

If we were to bring our clean renewable energy target to 20 by 2030 and double the very modest Act 129 target of reduction in electricity consumption to 1.5 percent per year, more or less even with other states in the region, Pennsylvania's Clean Power Plan goals would be nearly met. And that is without taking the very reasonable step, thus far rejected, of upgrading our building code to meet energy --- current energy efficiency standards.

Why should Pennsylvania rely on energy efficiency and clean renewable energy to meet its Clean Power Plan predominantly --- Clean Power Plan obligations for the predominantly? Quite simply, well-designed, it is the best approach economically and it puts people first.

Boosting renewable sources of electricity and demand reduction reduce electricity prices and vulnerability to fuel price swings for everyone, especially those for whom the household energy cost burden is greatest. Investing in clean renewables and energy efficiency boosts the economy through comparatively greater job creation and larger, more distributed tax revenues.

And contrary to industry claims, the evidence shows that significant investment in

renewable energy and efficiency increases reliability. The alternative of relying on shifting from one fossil fuel to another, from coal to natural gas fired electricity, cannot be expected to achieve the necessary greenhouse gas emissions reduction, given the methane releases associated with production and will not achieve, but rather undercut the above objectives.

Pennsylvania must shape its energy future around the needs of energy consumers, workers and communities, investing in a just and equitable transition for those impacted by reduced reliance on fossil fuels.

I want to quote Sierra Club's Pennsylvania's organizing representative Tom Schuster's recent testimony on this point. He said, we also recognize that even though the transition to cleaner forms of energy will be a net benefit to the Commonwealth, there are some coal dependent communities that will be disproportionately impacted by this transition.

We support an effort by leaders at the federal, state and local levels to work to understand the needs of these communities and their workers, and to develop fully funded programs to aid the

transition. We cannot afford to postpone the transition, but we cannot put all the impacts on the shoulders of a few.

In closing I want to reiterate my opening point. People in frontline communities need to play a significant role in designing Pennsylvania's Clean Power Plan. As a Sierra Club volunteer I work closely with leaders of an environmental justice --- an environmental coalition in the Environmental Justice community of Eastwick in Southwest Philadelphia. Not only is the community burdened disproportionately by legacy and ongoing pollution and chronic flooding, it is also the most vulnerable of Philadelphia's neighborhoods to sea levels rise and storm surge.

At the same time there is a high incidence of poverty and joblessness. Residents of that community and other similar ones can best inform the design of an approach that confronts the urgency for aggressive carbon pollution reduction in an economically just and forward-looking way. Thank you.

CHAIR:

Thank you. Do we have any questions? Thank you very much. Do you have a copy of your testimony? Thank you very much. Our next speaker is

Joy Bergey on behalf of Penn Future.

MS. BERGEY:

Good afternoon. Penn Future is a statewide public interest membership organization founded in 1998 with offices across the state. Our energy center focuses on helping the transition to a clean energy economy.

We are pleased that the Pennsylvania Department of Environmental Protection is holding this listening session today. Thank you. We fully support the EPA's proposed Clean Power Plan Rule to limit CO2 emissions from existing power plants, urging that the standard to be adopted quickly and without any weakening.

We are, however, dismayed that DEP does not seem to be taking seriously the Commonwealth's responsibility to meet the standard despite EPA's proposal offering abundant flexibility to each state in the methods it chooses to meet the reduction targets for the state.

We are disheartened that the Commonwealth publicly acknowledges that they know their proposal will be rejected, and we simply don't see how this approach is useful to the citizens of Pennsylvania.

And frankly, with Governor Corbett stating as recently as four months ago that he believes there's still significant debate within the scientific community about the existence and risks of human made climate change, it's not surprising that his administration is offering what we see as an inadequate response to the EPA.

We're concerned that the Governor Corbett and his administration do not think that cost saving energy efficiency of homes and businesses should be considered in formulating our goals in EPA. The Pennsylvania Public Utility Commission found that for every $1 spent on energy efficiency in Pennsylvania, ratepayers receive $3 back in benefits.

And by the way, all the studies that I quote are footnoted in my remarks, which I'll give to you. PJM, the operator of the electricity grid that serves Pennsylvania, found that the grid can increase renewable energy to 20 to 30 percent of electricity supply while reducing wholesale electricity prices $9 to $20 billion annually, all while maintaining a reliable grid.

However, we're troubled that the Governor and DEP do not want renewable energy to be considered when setting targets. We question why DEP

intends to respond to EPA with a state plan that does not represent a good faith effort to comply with the proposed rule that will undervalue the need to reduce carbon pollution, and will discount our public health and economic benefits of addressing climate change.

We also urge you, the DEP, to evaluate carefully the protests from the coal industry about the standard, protests which frankly can seem a bit disingenuous. A number of coal plant operators have, in fact, retired uneconomical coal plants since 2012 or have announced plans to retire such plants in the next couple of years.

Current data shows that this will result in a drop of about 17 percent of 2012 baseline capacity. These retirements were all announced before the EPA proposed the standard, so it would be a stretch of the imagination to claim that these closures were caused by the Clean Power Plant Rule.

We must also reduce methane leakage from traditional and fracked natural gas development if we are to make real progress on swelling climate change. I understand that’s not part of this rule, but that has to be part of an effective solution.

We do know that overall costs to society will drop with cleaner fuel sources due to the public

health problems and associated costs like lost productivity and property damage, that will be avoided as a result in years to come if we enact this standard now.

As the third largest emitter of global warming pollution, it's clear that Pennsylvania needs to take seriously the charge to reduce emissions from existing sources. Globally we now have 354 consecutive months above the long-term average temperature. This means that a 29 year old has never lived through a cooler than normal month.

It is so clearly past time that the Commonwealth of Pennsylvania take seriously the challenges of climate change to current and future generations. Please do know that Penn Future is eager to work with you and DEP in formulating the state's plans. We are especially interested in employing strategies that will help keep electricity prices stable and dropping. Thank you for allowing Penn Future to testify.

CHAIR:

Thank you. Do we have any questions? Thank you. Our next speaker is Sister Mary Elizabeth Clark speaking on behalf of the Sisters of St. Joseph Earth Center.

MS. CLARK:

Thank you very much for permitting me to speak. For 18 years I taught in Catholic elementary schools. Most of those years were spent with junior high students and I remember telling them that if they wanted to get ahead, they had to excel.

I also expounded on the social justice tradition of the Catholic church and encouraged the students to get involved with service projects of feeding the hungry and donating clothes to collections for victims of fire and floods. That was the easy part.

When I taught about social justice, at times parents would complain that I was getting too involved in politics. However, I knew I was not getting involved in partisan politics but the political process, which is an obligation of every citizen.

While public policy issues are often complex, and I don't pretend to be a scientist or to solve the problems of the DEP, the Catholic church has a substantial body of social and moral teaching that guides us in the formation of priorities and policies relative to the public's interest.

There are seven principles that guide us

in assessing public policies, and in particular, issues related to, for instance, the leakage of methane gas from pipes and wells in Pennsylvania. The Catholic church teaches that we show our respect for the Creator by our stewardship of God's creation.

Care for earth is a duty of our faith and a sign of our concern for all people. We should strive to live simply, to meet the needs of the present without compromising the ability of future generations to meet their own needs.

One of the key functions of government is to assist citizens in fulfilling their responsibilities to others in society and promoting the common good. In a large and complex society these responsibilities cannot be adequately carried out on a one-to-one basis. Citizens need the help of government such as the Department of Environmental Protection.

At this moment we cannot ignore the rate of global climate change and especially its affects on those among us who are poor and impoverished. As Catholics we have the leadership of Pope Francis who has called us to protect creation. One way we in Pennsylvania can make a difference is by strengthening the current emissions rule for the oil and gas

industry.

Data from the intergovernmental panel on climate change suggests roughly 30 percent of the warming we will experience in the next 20 years will come from the methane emissions this year alone. Reducing methane emissions from the oil and gas sector will slow the rate of climate change we will experience in our lifetime and our children's and grandchildren's lifetime.

As the fastest growing producer of natural gas, Pennsylvania has a significant role to play to secure a safer future. We must strengthen the current emissions rule for the oil and gas industry. Not to move forward on this issue is morally wrong. Let us raise our voices and call for just regulations on methane emissions from the DEP.

In Pennsylvania we are falling behind other states such as Ohio, Colorado and Wyoming in capturing and reducing methane leakage. We need comprehensive methane regulations now. Thank you for the opportunity to speak to you today.

CHAIR:

Thank you. Do we have any questions? I would just like to offer online ---

MS. CLARK:

Yes.

CHAIR:

--- we have prepared along with a lot of documents relative to the oil and gas industry, we have a side-by-side comparison of the Pennsylvania air quality requirements with those in Colorado, Ohio, West Virginia and the center for sustained shale development to allow people to really do a side by side comparison of the different programs for emission requirements from the different states. And I would offer --- I think you'd be pleasantly surprised when you review that document.

MS. CLARK:

Thank you. Thank you very much.

CHAIR:

Thank you. Our next speaker is Ed Perry from the National Wildlife Federation.

MR. PERRY:

My name is Ed Perry. I'm an aquatic biologist. I'm working with the National Wildlife Federation on their global warming campaign. I think I could refer to myself as the Lorax today. I'm here to speak for our nation's fish and wildlife resources that really aren't having a voice in this.

When I first started working on this I

would tell the audiences I spoke to that, you know, I'm not going to be living long enough to see the effects of climate change. And I have to tell you that I was completely wrong about that.

I'd just like to give you some sense of the urgency. Those of us who fish and hunt and spend time in the outdoors are already seeing what effects we're already seeing, not speculation, not projection. This is what's already happening on the ground. Every decade these last 40 years has been hotter than previous decades.

This last decade has been the hottest decade on record. Sea level is rising causing islands and the Pacific to go under water and now Norfolk, Virginia is almost --- flooding is almost a weekly event for them. Glaciers around the world are melting. The land based Greenland and Antarctica ice sheets are breaking up at unprecedented rates and the Artic sea ice is at an all time lowest level in human history. There's only one thing that I know that melts ice.

Parts of the southwest are in the midst of a 14 year drought that the scientists now think is --- this is going to be the new normal for the southwest. And this drought has caused raging

wildfires that have extended the fire season by up to three or four months.

There's only been 3 times in the last 50 years when more than 9 million acres have burned and they've all been in the last 6 years. And finally, as all of us know, we're getting far more extreme weather events. We don't get these nice rainfall events we used to get. Now we're getting torrential downpours. And these disasters are causing our government billions of dollars, and that's the national perspective.

Pennsylvania is not escaping this. Already our fish and wildlife in Pennsylvania are already seeing impacts and our state tree, the Hemlock, our state bird, the ruffed grouse, and our state fish, the brook trout, are on the way out of the state. The best scientists are saying this.

Instead of getting late winter, early spring snowfalls we're getting torrential downpours that are not only affecting bass spawning in one of the finest small bass streams in the eastern United States, the Susquehanna River, it's also affecting upland game birds like wild turkey and ruffed grouse.

In the past 30 years we've lost over 28,000 breeding males of ruffed grouse and scientists

say that by the end of this century grouse will likely be gone from Pennsylvania. Longer winters are allowing these obnoxious insect pests like ticks and are going to explode.

Twenty (20), 25 years ago we just never really heard of someone having Lyme Disease. Now we all know someone who's had it and if you've spent any time in the outdoors chances are you've gotten it. Woolly adelgid is decimating Hemlocks all across our state and actually all across the entire eastern part of our country and Hemlocks are considered to be what we call a Keystone species. And that is a species upon which a lot of other species depend on. And a good example of this is the brook trout, our state fish.

Brook trout are so closely tied to Hemlocks that at one time they were called Hemlock trout. And as the Hemlocks go we're going to see our brook trout go on the way up also, and scientists --- we've already lost about 35 percent of our brook trout habitat in the state and scientists are forecasting that we're expected to lose brook trout from not only Pennsylvania, but from the entire country by the year 2100.

So that's the urgency that all of us who

fish and hunt, and spend time in the outdoors are seeking to this global warming that while we walk from our air conditioned homes to our air conditioned cars to our air conditioned buildings that we're not seeing.

Wildlife does not have that benefit and despite all the evidence and all the studies produced by the most prestigious scientific institutions in the world our Governor has stated he still believes there is a significant debate in the scientific community about whether climate change is happening or not.

I have to say that, you know, there are some scientists that still question whether climate change is happening. When you look at the sheer numbers --- in a recent study they looked at 14,000 papers that had been produced from 1991 to 2011 and 97 percent of those papers dealt with global warming.

And there was only three percent of them that questioned whether climate change is happening or not. It'd be like you going to a hundred doctors and 97 percent telling you that you are seriously ill and needed immediate treatment and you listened to the three that said there was --- you were perfectly fine.

Instead of continuing to debate whether global warming is happening, we need to discuss how

we're going to begin the process of getting our fossil fuels and other clean renewable energy.

I understood your question to the NRDC representative asking, well, how are we going to meet our electric demand? You know, no one's going to go home at night and sitting in the dark with all your appliances pulled out.

We know we're going to have to depend on fossil fuel for some time, but what we are not seeing out away from our government we are not seeing the emphasis on essentially a man in the moon effort to get us off these fossil fuels and on to clean renewable energy.

What we are seeing is every effort that we can possibly come up with to maintain this outdated industry and mainly just switch from one type of fossil fuel to another as if it's going to solve our problem when actually the shale gas industry is really a bridge to nowhere. And they are now in the process of converting the last best part of our state into a mass industrial force.

The Environmental Protection Agency's proposed rule is going to give you wide latitude to accomplish the goal of reducing carbon pollutions similar to what they did for acid rain when EPA gave

the industry-wide latitude.

But while the Governor's --- your DEP has already issued a White Paper that you know is not going to be adequate for EPA. First Energy, my former utility states that they are in a strong position to meet the federal requirements.

So here you have our Governor denying that global warming exists and requesting, writing to the President asking for major pollution control exemptions for dirty power plants while my major --- my utility, my ex-utility by the way, announces they can meet EPA's rule 15 years before the deadline.

So I have to ask, what's wrong with that picture? So all of us out here are really counting on our Department of Environmental Protection to become our nation's leader in tackling global warming by developing a viable plan that EPA's going to accept. It would be truly unfortunate if you came up with a plan that would be so unacceptable that EPA would be in a position or would have to be put in a position to develop a plan for us.

You know, the adverse impacts that we are already seeing --- we're already seeing these impacts through our nation's fish and wildlife resources should be our canary in the coal mine that

we're going to ignore at our own peril.

We have a moral imperative to attack this problem that is devastating --- that is causing extreme weather events that's devastating our communities and adversely affecting our heritage, our fish and wildlife resources. And this is simply one problem we just can't pass on to our kids and grandkids. We have to tackle this.

So thank you for the opportunity to offer this testimony, and I urge you with all speed to help us to begin this process of getting off these fossil fuels and onto a different energy future. Thank you.

CHAIR:

That's correct. Any questions? Any questions? I do have to --- I feel compelled to make one point, and it relates to what you and others have raised. I think in the perspective of our White Paper I think what's important to understand is our White Paper predates the EPA proposal.

That is actually something that we produced in Pennsylvania offering to EPA what we think is the appropriate mechanism to use under Section 111(d). Those are not comments to EPA's proposal. They simply can't be because they were produced and

provided to EPA prior to EPA's proposal.

MR. PERRY:

Okay. We'll give you a pass on that, but I have to tell you on the next round if, in fact, you send in a proposal to EPA that this won't be acceptable if they have to produce a plan for us.

You know, this is our Department of Environmental Protection and we're counting on you to be a leader in the nation to tackle this and get us off these fossil fuels. There's really no time to waste here. All those impacts they talked about have occurred just with a one and a half degree temperature increase. We are forecast to go up 7 to 11 degrees by the year 2100.

CHAIR:

Well, the circumstance --- and I appreciate that. We actually have looked at the language inside the development of the federal recommendation plan and that's actually problematic because it doesn't provide for the mechanisms by which --- there's a variety of issues, but thank you very much.

MR. CLARK:

Which we have to figure out how to do this.

CHAIR:

That's what we try to do preemptively. Thank you. Our next speaker, and I hope I get this correctly, is Gretchen Dahlkemper-Alfonso. She is with Mom's Clean Air Force.

MS. DAHLKEMPER-ALFONSO:

Good afternoon. How are you? My name is Gretchen Dahlkemper. I'm the national field manager for Mom's Clean Air Force. We are a force of over 370,000 parents across the county, 15,000 of those here in Pennsylvania. I am a Pennsylvania native myself. I was raised in Erie and I now live in Philadelphia.

Today I want to thank Pennsylvania's Department of Environmental Protection for taking the time to listen to my thoughts and protecting Pennsylvania's children, including my three, from the devastating effects of toxic climate pollution.

Climate change is the greatest public health threat we face as a civilization. It is also the greatest challenge that I face as a mother. Children and other vulnerable populations worldwide are already suffering from the health effects of a changing climate.

Without aggressive action to limit the

air pollution that causes climate change we will see increased suffering among children, both here in Pennsylvania and across the globe. To turn the tide on the coming public health catastrophe we need prompt action to sharply limit carbon dioxide emissions, one of the major drivers of climate change.

You may be asking why mom's, such as myself, care about a 640-page, highly technical proposed rule on power plants. The answer is pretty simple. Our current path of unchecked carbon emissions harms our children.

EPA's Clean Power Plan provides a critical opportunity to address carbon emissions from the largest source in our nation, our existing power plants. States across the country have already paved the way for Pennsylvania to put in place a smart, common sense policy that’s driving innovation in and deployment of manmade --- or made in America clean energy solutions. Improving efficiency while saving families and businesses money, creating jobs, and stimulating local economies, all while cutting dangerous emissions of carbon pollution and other air pollutants.

Last December representatives from 15 states expressed their support for strong carbon

pollution standards and described the success that they have had in reducing carbon emissions from power plants, successes that our own states can learn from.

These states have cut carbon pollution from their power sectors by 20 percent between 2005 and 2011 with many individual states achieving reduction upward of 30 to 46 percent through a mixture of market mechanism, energy efficiency, renewable energy portfolio standards, utility planning and innovative funding commitments.

Under the Clean Air Act EPA has designed a flexible framework for states, like Pennsylvania, to build on this foundation of innovative state policies to secure a cost effective emission reduction and health and economic co-benefits through tailored state plans.

Today I am here to urge you, DEP, to draft a state plan that both protects public health and saves Pennsylvania families money through investment in and deployment of renewable energy and energy efficiency standards. Expanding renewable energy can dramatically improve air quality.

In 2013 wind energy reduced emissions of CO2 by 127 million tons, SO2 by 347 million pounds and NOx by 214 million pounds. States that are deploying

renewable energy are keeping their customer's rates down.

The 11 states that produce more than seven percent of their electricity from wind energy --- and there may be the unlikely heroes in the story, Texas, Wyoming, Oregon, Oklahoma, Idaho, Colorado, Kansas, Minnesota, North Dakota, South Dakota and Iowa all saw their electricity prices drop by 0.37 percent over the last five years, compared to a 7.7 increase in all other states.

Energy efficiency offers an especially attractive opportunity for cost effective carbon reductions. Massachusetts' energy efficiency programs will cut more than 15 million tons of greenhouse gas emissions and will save families and businesses more than $6 billion in lower utility bills. In Kentucky, energy efficiency programs aim to cut energy use by 18 percent by 2025.

Already, Kentuckians have saved approximately $16 million through the energy efficiency initiatives. Decades of energy efficiency measures have saved California over 15,000 megawatt hours of electricity. The California Energy Commission estimates that California has saved $74 billion by implementing energy efficiency standards

and analysts predict that the program could create over 400,000 jobs. Something that's desperately needed in this state.

The nine states in the Regional Greenhouse Gas Initiative, or RGGI, estimate that its program has prevented eight million short tons of carbon pollution, returned more than $2 billion in lifetime energy bill savings to customers, and invested $700 million in the region's clean energy future.

Analysis indicates that the investment of allowance sale revenues in energy efficiency have created a net present value economic benefit of $1.6 billion for RGGI states during the first compliance period.

Looking forward, analysis by the American Council for Energy Efficient Economy estimates that if every state implemented four key energy efficiency policies, 600 million tons of carbon dioxide emissions could be eliminated by 2030, resulting in a 26 percent reduction of carbon pollution in the power sector relative to 2012 levels.

In addition, these measures would also provide co-pollution benefits by avoiding 980,000 tons of SO2 and 527,000 tons of NOx. This is by 2030. I

want to say that I sympathize with the families across the state and the industry voices who speak to you guys on a regular basis about the loss of jobs. As I said, I grew up in Western Pennsylvania. I understand the fear that ripples through this state when families are worried about jobs, economic shifts.

However, I sympathize with the families, but I do not sympathize with an industry that has little to no regard for my children's health. Just like the tobacco industry, the fossil fuel industry continues to lie and manipulate the American people by refusing to admit that their product is directly responsible for deaths across the globe.

I am mom to three small children, two of which suffer from chronic health conditions that are currently impacted by climate pollution. Fiona is three years old. She loves to play outside and she suffers from asthma. I am no stranger to late night ER runs as her tiny body struggles to breathe.

Declan is only one. He suffers from a rare form of mast cell disease. Extended and intense allergy seasons, along with extreme heat cause his tiny body to become severely inflamed, itchy and sore. My story's normal. One in five children in this state are suffering from asthma and many more families will

be suffering from the effects of climate pollution if we don't take aggressive action now. If industry voices have their way and DEP crafts a weak state implementation plan, we can be sure that climate-related health impacts will continue.

Heat-related illnesses such as heat stroke and heat exhaustion, already the leading cause of weather-related deaths in the US, will become even more common. The air pollution that triggers asthma will worsen. Like I said, one in five children here in Pennsylvania already suffer from asthma and this number is only likely to go up.

Changes in rainfall will increase the risk for serious floods in North America, and the related injuries and infections diseases that accompany major flooding. Droughts will also become more common and severe in many regions, potentially increasing wildfires and the harmful air pollution that they cause.

Yields of food crops, including corn, soybeans and rice, are already being depressed by climate change and will fall even more, a burden felt by families every time we go to the grocery store. Food shortages will exacerbate starvation conditions, particularly in those nations where childhood

malnutrition already affects almost half of the kids.

As a mom, I simply can't sit by any longer without raising my voice. The only way to grow Pennsylvania's economy while protecting the health of our residents is to craft a plan that focuses on energy efficiency and moving to renewables as quickly as possible. Our families, my children, can no longer afford to wait. It is past time to use the Clean Air Act to safeguard the health of our children by limiting the amount of carbon dioxide power plants are allowed to emit.

Mom's know that climate pollution is harming our families and our communities, and EPA's Clean Power Plan and a strong plan from Pennsylvania is an important first step in addressing greenhouse gases. The Clean Power Plan can't solve climate change in isolation as a nation we'll have to tackle methane leaks from oil and gas production as a planet, we'll have to forge unprecedented systems of international cooperation, but all journeys, much like my one year old, begin with a first step.

As the world's most advanced nation we owe it to other children, our grandchildren and generations to come to take that step boldly and soon. Thank you.

CHAIR:

Thank you. Do we have any questions? All right. Thank you very much. Okay. Our next speaker will be John Bechtol.

MR. BECHTOL:

I'm going to testify on behalf of PAIPL and then also speak in my own voice.

CHAIR:

Okay.

MR. BECHTOL:

My name is John Bechtol. I'm a Board member with the Pennsylvania Interfaith Power and Light and I'm here, first of all, to speak on behalf of our executive director, and I'd like to thank you all for the opportunity to speak. And if you're Tammy, I'd like to thank you very much for rearranging schedules so we could go back to back.

Pennsylvania Interfaith Power and Light, PAIPL, delivered testimony on the same standards at the EPA hearings in Pittsburgh on July 31st. Twenty (20) additional individuals associated with PAIPL also submitted faith testimony at that hearing. All of those statements can be read on our PAIPL website or delivered directly as a set of PDFs if you so desire. All of those testimonies supported the proposed

standards as a good first step in the right direction.

Many call for further action. Most urged quick action to regulate extracting emissions in order to avoid the three steps forward, two steps back dance that will be the result of a short-sighted investment in gas rather than an athletic leap in the damaging future we want for ourselves, our children, our state and our world.

Today we will focus on Pennsylvania's response to the proposed EPA standard. First it seems we must remind our state leaders that climate change is real and urgent and that it affects our non-partisan offenders.

For clarity, we ask you to look at the reassurance industry the survival which depends on getting both the science and the economics right. Look to our nation's armed forces which identify climate change as a threat multiplier. Look to foreign secretary Homeland defense and Pennsylvania Governor, Mr. Ridge.

Climate change is not a fuzzy issue, a liberal issue, a green granola issue or a conservative issue. It is a human issue. To those who fear voters we offer this, regardless of how urgently they are concerned about climate change Pennsylvanians do want

clean energy. Please reread the 2012 report, Pennsylvanians' attitudes toward renewable energy funded by the Center for Laurel Pennsylvania a bipartisan, bicameral legislative agency Pennsylvania General Assembly.

And so to the proposed standards. Here in Pennsylvania we hope not to just tow the line. We can do better. Taking baby steps wastes time, energy and money. Taking baby steps leaves Pennsylvanians near the back of the line want clean air to breathe.

Taking baby steps means investment in infrastructure which more rightly belongs back in the 20th century. We deserve to be a 21st century state. We have the know how, we want the clean air, the clean jobs and the pride and leadership. We should invest in renewables. Our AEPS, as the Alternative Energy Portfolio Standard, is much too low.

The operator of the 13th state electricity grid that covers all of Pennsylvania tells us that wholesale electricity prices could be reduced by $9 billion to $21 billion annually by raising the proportion of renewable electricity to 20 percent to 30 percent. Robust study found that increasing renewable generations to 30 percent would cause absolutely no reliability problems.

Most importantly for PAIPL such an increase would reduce carbon pollution by 18 percent to 29 percent. We should use less electricity. The PUC's statewide evaluation, SWE is the acronym, of Act 129 included that energy efficiency and conservation of electricity use will save money for consumers and utilities.

Act 129 was rightly continued in 2012 and more can be done. We should become a participant instead of an observer in RGGI, an initiative that has exceeded emission targets, lowered electricity prices and publicly supported by most generators and utilities. We've been an observer for years.

It's time to step onto the dance floor. As important as it is for congregations and individuals to reduce our emissions as part of our faithful walk, it takes a long time to fill a bucket with drops of water. We no longer have that luxury. Taking decisive action to meet the proposed standard is the right thing to do legally as well as morally. Acting to reduce carbon pollution will yield clear side benefits for Pennsylvanians also.

PAIPL urges the DEP to create a state implementation plan that is worth something. Step up and lead us from all of the above with power from

above. Begin today.

I'm reading these remarks on behalf of the executive director of PAIPL, Cricket Eccleston Hunter. I'll do my best to answer any questions that you may have, but they won't be authoritative answers.

CHAIR:

Any questions? The only question I have and you don't need to answer that, but I might be interested if you followed up. And the question is, in there you identified implementation of renewables.

You identified a level of savings in PJM and I was wondering if you have a speculation that with PJM being competitive energy market if those savings are available why they wouldn't be --- why they wouldn't already be implemented as a part of that savings process? Because that would imply lower price. I don't want to ---

MR. BECHTOL:

Right.

CHAIR:

--- put you on ---. I'm just saying, if you could get that I --- that would be really helpful and thank you.

MR. BECHTOL:

I will get that for you. I'd now like

to switch to my own remarks and speaking in my own voice. My name is John Bechtol. I'm 66 years old, retired. I live here in Harrisburg.

I'm an acting member in two environmental groups, this one as well as a secular group, both of which work hard for the cause of clean air in Pennsylvania. I'd like to speak in my own voice today and I'd like to do that by telling you a short story from my personal life.

It's sort of a metaphor as to why I put so much time into the climate change movement nowadays. A few years ago when I was still teaching a fourth grade Sunday school class at church one of the kid's parents who was an active Army duty sergeant gave me what was, for him, an urgent call. It really had nothing to do with Sunday school or his fourth grader. She was away on her church mission trip with her mother at the time. Rather it was about Skip's urgent need to put his family's living quarters at the New Cumberland Army Depot Base Spic 'N Span shape ASAP.

The departure date for his next post of duty in Hawaii was closing in fast, but with his wife and daughter out of town and unable to help, he had fallen behind schedule with his clean up work, and he

needed to catch up fast.

So as I swept dusted and scrubbed alongside my friend that Saturday it slowly dawned on me that his all out effort was motivated in large part by what you might call a code of honor among military families. You have a duty to those who follow you. You owe it to that next family to restore your living quarters to tip top shape before you go on to your next post of duty.

Now, at the age of 66 I can't say where, when I'll go on to my next post of duty. Unless I clean up my own act soon, my next post of duty may look a lot more like God's idea of Afghanistan and Hawaii. And while the story may work well enough for me, it's actually a very poor metaphor for the gravity of climate change, which goes far beyond the threat that soot, ash and trash in our environment and our health.

As long as I'm still around, I'm going to do my best to restore our corner of mother earth to somewhat the same shape as I found her when I arrived on the scene kicking and screaming back in Reading in 1948. And that's what I feel is a duty, a moral duty, to those who follow me.

And that's why I pray that DEP will put

in place monitor and above all enforce a strong Pennsylvania version of the EPA Clean Power Plan. We need a version that goes above and beyond the requirements of the EPA Clean Power Plan to limit industrial carbon pollution from coal fired plants.

The science is settled. Dr. Brown and others have made that case here today. Climate change driven by global warming poses an existential threat to Pennsylvanians and all Americans. And as I see it, we have a sacred duty to leave our children with a safe climate, but like my friend in the story, we are falling behind schedule on a clean up job and we need to catch up fast.

Carbon emissions are the primary cause of global warming and coal fired power plants are the primary cause of carbon emissions in Pennsylvania as well as in the USA. The EPA Clean Power Plan is a great start, but please ensure that it's only the beginning of our honorable clean up job here in Pennsylvania. Thank you, again, for the opportunity to speak with you today.

CHAIR:

Do we have any questions? All right. Thank you very much.

MR. BECHTOL:

You're welcome, sir.

CHAIR:

Our next presenter is Bob Potter.

MR. POTTER:

Yes, I am Bob Potter from Boalsburg, just outside of State College. I'm very pleased to be here today despite having a slight cold, and I welcome the opportunity to speak to you on this important topic.

Although I've been a small business owner and a non-profit executive director, I've made a volunteer life by doing what I can to build a better community in State College and surrounding area.

I've been president or chair of our United Way, public library, symphony, Community Foundation, two historical societies, and our famous summer arts festival, and I probably forget a few others. In each case, I believe, all of State College would agree that I have left the organization in better shape than I found it.

Perhaps this is because of the lesson that I, and assume many of you here today, learned back in your Boy Scout and Girl Scout days, leave your campsite cleaner and in better shape than you found it.

Now, as a citizen of Pennsylvania and the world I would like to leave each of these larger campsites cleaner and in better shape than I found it, and we have the opportunity to do just that. Others today will speak of the facts and figures, the numbers. The science of climate change and global warming is solid and beyond doubt. All the information you need is readily available to anyone with the interest and curiosity to find it.

In fact, the science behind global warning and climate change is not new. The basic understanding of the effect of greenhouse gasses dates from the 1850s. It has never changed or been refuted since. In every other aspect of our lives we expect science --- accept science without question.

If you are like me, just today you and almost every person in your family used a cell phone and a computer, drove a car, watched some television and perhaps took some medicine. Each one of these was developed or enhanced by some branch of science. To now choose to deny what scientists tell us about carbon pollution is both foolish and dangerous. We don’t do this in any other aspect of our lives.

As we know, Pennsylvania played a major role in every aspect of our carbon based economy, oil,

coal and gas. We were a leader then, but we were also ignorant of the harmful effect of pumping CO2, methane and other greenhouse gases into the atmosphere. We are no longer ignorant, but we can once again be a leader.

The clean energy revolution is coming and forward thinking people, businesses and governments are backing renewables, not carbon. Indeed, just this week, the air's oil tycoon, John D. Rockefeller, announced they are joining a growing number of universities and other institutions and divesting their family fund from all carbon based investments. These are very smart people.

We can claim to the dirty and dying past or look forward and embrace the future. That's the choice we face today. That is why I support the EPA's proposed carbon pollution standard and want it to be enacted now and in the strongest possible form.

It is both the right thing and the smart thing to do. Let me close with two quotes. The first from Victor Hugo who said, no army on earth can resist the force of an idea whose time has come. Indeed, the time has come to do absolutely everything we can to leave our Pennsylvania and our global campsite cleaner and in better shape than you found it by reducing

carbon whenever and wherever we can. No army can resist the force of this idea. Its time has, indeed, come.

The second quote is by Martin Luther King. He spoke of the fierce urgency of now. You cannot avoid this. You cannot put this off to the next generation, to your children, to your grandchildren and those who follow.

Today I ask each of you how do you choose to be remembered? For fighting the future or for leaving Pennsylvania and the world a cleaner and better place by fully embracing the EPA's proposed carbon pollution standard? And I thank you.

CHAIR:

Thank you.

MR. POTTER:

Thank you.

CHAIR:

Any questions? Okay. We're going to take a 15 minute break. We're on Brisini time, and according to my watch it is 2:37, so we will be back in 15 minutes, which would be 52. Okay. Thank you.

SHORT BREAK TAKEN

CHAIR:

It's 2:52. Our next speaker will be

Karen Melton from the Chester County Citizens for Climate Protection.

MS. MELTON:

Good afternoon. Again, my name is Karen Melton, and I'm speaking as a Board member of Chester County Citizens for Climate Protection, a 501(c)(3) organization dedicated to public outreach and education on climate change.

I'm told by friends who live in Myrtle Beach that people there say thank God for Mississippi when talking about local schools, meaning at least the Myrtle Beach schools are dead last. There seem to be some areas related to carbon emissions where Pennsylvanians get to be grateful to other states so we aren't dead last.

For example, there are some states that don't have an alternative energy portfolio standard, Mississippi being one. And there are some that have a goal rather than a requirement, but of all the states that have a requirement or even a goal, none is as low as Pennsylvania's at eight percent.

Even so we see the fossil fuel industry spending tons of money through ALEC, political contributions and pseudo think tanks to roll back the standards that do exist.

Pennsylvania has an opportunity to participate in RGGI, the Regional Greenhouse Gas Initiative, but does not do so, but we get to thank New Jersey that we're not the only holdout. The U.S. is the second worst emitter of CO2 in the world, thank God for China, and Pennsylvania is only the third worst of the U.S. states.

However, even without being the very worst Pennsylvania generates one percent of global emissions and is the world's 22nd largest emitter. Given our position in the worst ranking the EPA's proposed clean power plan target for Pennsylvania actually seems modest. A reduction of about 31 percent between now and 2030, some of which is already met by coal plants they have or are planned for retirement.

Something I noticed at the Clean Power Plan hearings in Washington and Pittsburgh is that the two sides of this proposal are really not talking to each other. Each side keeps presenting their arguments without addressing those of the other side. I was hoping some industry representatives would stay to listen to the afternoon session. So the way you've structured the session today is not very conducive to a public debate. The industry speakers may not like

hearing what the afternoon testifiers have to say, but I think you might want them to hear it.

As you know, the testimony in Pittsburgh was overwhelmingly in support of the plan, but I wanted to speak to some of the industry arguments I heard there and having been hearing again here today, and will mention some arguments in support of the plan that I wish they would address.

One, America depends on the cheap energy supplied by coal. Well, energy may appear to be cheap on electric bills, but only because many billions of dollars in externality costs are paid for elsewhere. If they were included studies show the cost of coal powered electricity would be two to three times higher. Just to name a few of those costs, an estimated 250,000 coal miners have died from Black Lung disease, 10,000 just in the last decade. Three times as many suffer lifelong respiratory problems.

The Black Lung Benefits Program that is supposed to be paid for by the coal industry is reported to have borrowed $8.7 billion from the Federal Treasury so far and that’s expected to increase to $68 billion by 2040.

An MIT study estimated there are 200,000 early deaths each year in the U.S. due to air

pollution with 52,000 associated with power generation. A University of Pittsburgh study concluded that people in the Pittsburgh area have twice the risk of developing cancer within their lifetimes due to pollutants in the air they breathe.

These are all costs of coal that don't show up on electric bills, but we are paying them nonetheless both as individuals and taxpayers. And we haven't even mentioned the nearly incalculable costs of climate change.

If we had been paying the true cost of energy in our electric bills efficiency would be built into everything we do, as it is in some countries. Automobiles, appliances and places to live would compete based on their efficiency. Instead a recent ranking of the world's 16th largest economies for energy efficiency put the U.S. at number 13. Thank God for Russia.

Two, only fossil fuels are reliable and reliable here is shorthand for the sun doesn't always shine and the wind doesn't always blow. As I'm sure you know and has been mentioned a couple of times today, PJM, our regional grid operator, has said that we can get at least 30 percent of our energy from wind and solar by 2026 with no reliability problems,

minimal changes to the transmission infrastructure and net savings on wholesale energy prices.

Three, good paying jobs are at stake. Here we completely agree. We need to make sure there is a just transition to other family-sustaining jobs for displaced fossil fuel workers. Environmental groups are committed to supporting that, however, preventing the loss of these jobs is not a justification for the loss of life, health and a stable climate associated with burning fossil fuels.

Four, the Clean Power Plan is a token gesture, China is the real problem. The U.S. was the highest emitter in the world right up until about 2006 when we were surpassed by China, which has about four times as many people, but per person emissions less than half of ours.

In 1945 the U.S. was emitting more than the rest of the world combined and 47 times as much as China. And look at some of the things China is doing. Now that the Chinese people are demanding cleaner air and water they are planning for a national carbon trading market with pilot projects already in place, and an announcement on September 2nd that they will speed up national implementation with a goal to reduce emissions as much as 45 percent by 2020 and to make

environmental policy a top priority.

Five, America will no longer be competitive if energy costs rise. I have heard this actually called unilateral economic disarmament. I think America just needs a reason to embrace efficiency, a lesson a number of countries already know, in order to remain competitive.

There is no reason to have cable boxes that continue to use the same amount of energy after we turn them off, except we have this myth about cheap energy and no one takes the time to design efficiency into their products. We waste huge amounts of energy through inefficient appliances and buildings and gas guzzling vehicles.

Building codes is an area I think Pennsylvania should pursue in meeting its targets. A number of EPA testifiers made the point that this should count toward targets. Six, government shouldn't pick winners and losers, the market should decide.

I would certainly agree with this if we had anything like a free market for energy, but when fossil fuels continue to be given billions of dollars in tax credits that were written into the tax code a hundred years ago to help a new industry get on its

feet at the same time that renewable tax credits are on again off again, and as long as fossil fuels are not held responsible for any externalities and are given access to public lands and parks, the government is most certainly choosing.

Something that would help level the playing field in Pennsylvania would be putting a fee on carbon at the point of extraction at the mine or the well head. Create a more level playing field and let the market decide, but a carbon fee should be revenue neutral to the government with all revenue distributed back to Pennsylvania households to cover higher energy bills.

I do not see anything in the Clean Power Plan that precludes using a carbon fee to achieve targets, and there was testimony in both Washington and Pittsburgh asking the EPA to exclusively add that to the suggested list of policy options. And it is amore effective solution because it addresses the full scope of fossil fuels, not just power plants.

I've tried to respond to a few of the industry arguments I keep hearing and I would like to hear industry respond to just two, why you consider it an acceptable cost of doing business for your energy --- for your industry to kill and sicken millions of

people with your pollution?

And number two, why are you fighting to avoid responsibility for carbon reduction when your industry is significantly contributing to climate changes that in the easily foreseeable future threaten Pennsylvania industries and resources such as dairy farming, hardwood species such as black cherry, sugar maple and beech, varieties of apples, grapes and corn, skiing and snowmobiling?

If we don't dramatically reduce carbon emissions quickly these are all at risk and they employ far more people than fossil fuels. We know that the invisible hand of Adam Smith is invisible in the same way as the emperor's new clothes, but back in 1776 when there were only about 800 million people on the planet natural resources must have looked limitless.

Today seven-plus billion people and counting are acting in their own self-interest and continuing to operate as if resources were limitless with Americans in particular. We are consuming at a rate that is altering the very climate and habitability of the only planet we have to live on and are causing the sixth great extinction of species. Every time the EPA proposes a reduction in some

pollutant or toxic emission industry claims it will cause economic Armageddon and it never does.

This one won't either. I'm sure the same thing happens every time you propose a regulation. Near the end of Mr. Brisini's testimony to the EPA in Pittsburgh he said Pennsylvania supports efforts to reduce CO2 emissions. I was glad to read that.

It was not mentioned in the letter to the President that Governor Corbett signed onto, along with the governor of Mississippi, which said the proposed regulation should be withdrawn until every possible problem they could think of including the 30-plus year old problem of nuclear waste disposal is resolved.

I realize this is the season for political posturing, but the letter was not a serious response to a serious problem. I think you came to work for DEP because you genuinely care about the environment and I want to thank you for your public service.

If you support efforts to reduce CO2 emissions but you don't think some of the specifics of the proposed regulation are a good fit for Pennsylvania, send them your proposals for how we can

meet the targets, but make them serious proposals. Not things like giving credit for past reductions.

It's great that some reductions have already been achieved, but Pennsylvania has a lot to answer for there. The proposed Clean Power Plan makes it clear the EPA is trying to work with you and I urge you to work with them.

The targets are a challenge. I get it, probably more than I can imagine, but America's pretty good at challenges. Thank you.

CHAIR:

Thank you. Are there any questions? Questions? One thing I'd like to point out, actually the structure of today's meeting was in response to an e-mail we received from somebody who previously spoke that there was going to be a rally in the capital regarding climate change. So we tried to make sure that people could participate in that as well as participate here today.

MS. MELTON:

Okay. Thank you.

CHAIR:

Our next speaker is Kevin Stewart from the American Lung Association.

MR. STEWART:

Good afternoon. Mr. Chairman, I thank you and the panel for your work here today. I'm Kevin Stewart. I serve as director of environmental health for the American Lung Association in Pennsylvania, and I represent not only over one and a half million people in the Commonwealth who suffer from chronic lung disease, but also the millions more who desire to breathe clean air and so protect their good health.

We have supported the Environmental Protection Agency's effort to set strong carbon pollution standards for new power plants, and we have, likewise, looked forward to EPA's establishment of similar standards for existing power plants. As I stated before the Department on December 9th, there are standards, and properly so, for air toxics, acid gases, heavy metals, smog forming and soot forming emissions from power plants, and there's no excuse for there not to be standards for carbon pollution as well. Anything less shortchanges our health and our children's health.

I am here today to remind everyone of why we need strong controls on carbon pollution and on air pollution in general. Reducing carbon pollution will help protect public health. Carbon pollution results in higher temperatures that enhance the

conditions for ozone smog formation.

Even with the steps that are in place to reduce smog increasing temperatures are likely to increase the risk of unhealthful smog levels in large parts of the United States and to lengthen the ozone season.

Indeed, as the American Lung Association's State of the Air report this past spring recently demonstrated by showing an increase in the three year average number of days of unhealthful ozone at nearly every monitor in our service area compared with last year's report, we cannot rest assured that ozone levels will always continue to diminish.

In addition, just as the National Climate Assessment issued May 2014 does not limit its concerns to the direct effects of temperature on smog formation, the Lung Association also recognizes other consequences. Higher temperatures result in increased energy production and electricity use, e.g. for air conditioning, and it increased emissions of fine particles and their precursors. Pollen and mold spore production increase. These are known to act synergistically with ozone and other pollutants to exacerbate asthma and allergies.

Increased carbon dioxide levels promote

the growth of plants and hence result in the production of more ozone precursors. The risk of wildfires and their pollution increases. Vector-borne diseases show evidence of doing so. The potential for severe weather events increases.

In our service area super storm Sandy resulted in mold and health problems in tens of thousands of homes that people experience to this day.

While EPA makes clear that the primary goal of the proposed guidelines is to reduce emissions of CO2 by 2030, according to its Regulatory Impact Analysis, not only do the climate benefits alone from CO2 reductions amount to about $30 billion annually, but also the corresponding health co-benefits are evaluated at on the order of up to two times as much as the climate benefit portion.

Furthermore, the annual total benefits by 2030 accrue to a factor ranging between 6.6 and 12.2 times the accompanying compliance costs and this ratio is calculated without monetizing and including the potentially significant benefits such as those that would result from reduced environmental exposure to sulfur dioxide, nitrogen dioxide, mercury and hydrochloric acid.

Moreover, according to the

co-benefits of carbon standards report by Syracuse and Harvard Universities issued in May, I quote, with a strong carbon standard, air quality and atmospheric deposition improvements would be widespread with every state receiving some benefit.

The greatest improvements are projected for states in and around the Ohio River Valley as well as the Rocky Mountain region, end quote. Indeed, model results consistently show air quality improvements in Western Pennsylvania projected to occur under this rule to be among the largest in the country.

While the American Lung Association supports the Clean Power Plan, we find that some improvements in its Best System of Emission Reduction formulas would strengthen it. One, the more that energy efficiency and renewable energy generation displace the generation from the dirtiest fossil fuels, greater emissions reductions would result than EPA has assumed so the BSER targets should be set higher.

Two, many emission reduction measures are already occurring in the states, so the formulas need to account for that. For example, states' energy efficiency measures are already demonstrating a higher

energy savings rate, over two percent, than is recognized in the targets.

Utilities have already planned replacements of old, high emitting plants with lower emitting resources. Those changes are not fully recognized in the formula. The formula does not account for the emissions from new natural gas plants currently planned, though included as a way to comply, their additional emissions are not factored into the formula for the targets themselves.

Three, with the caution that there are several reasons for excluding biomass combustion from the menu of clean alternative energy sources, base the inclusion of a wide variety of clean renewable generation in the formulas on resource availability rather than limited to currently mandated levels.

And four, include opportunities for transmission and distribution efficiency improvements. The bottom line is this, EPA must make certain that its standards do not simply tally reductions that would have been achieved even had the Clean Power Plan not been in place.

I must stress we are in the midst of a slow motion crisis of global proportions. It is, to be sure, irregular and intermittent in its

progression. As a result many are apt to deceive themselves and others about the necessity for serious action, but the crisis is real and on the scale of decades it is inexorable. So the objective here must not be one of doing the minimum necessary to meet some arithmetic goal, but rather one of finding ways to do as much as possible to reduce the severity of the impacts already on their way.

Indeed, as the President's council of economic advisers recently underscored in its report, the cost of delaying action to stem climate change issued in July. I, quote, an analysis of research on the cost of delay for hitting a specified climate target, typically a given concentration of greenhouse gases, suggests that net mitigation costs increase, on average by approximately 40 percent for each decade of delay.

These costs are higher for more aggressive climate goals. Each year of delay means more CO2 emissions, so it becomes increasingly difficult or even infeasible to hit a climate target that is likely to yield only moderate temperature increases, end quote.

I conclude, by recounting that people at special risk of sickness or even death from air

pollution include infants, children, the elderly, persons with asthma or COPD, those who are immune compromised and people in indigent and minority communities.

We emphasize that these populations are not a small minority of particularly sensitive persons, but in the service territory of the American Lung Association in Pennsylvania are constituted of groups containing hundreds of thousands or even millions of individuals.

And they include the following, 2.7 million infants, children and teens under 18. Two million persons aged 65 or above, 285,000 children with asthma, 1 million adults with asthma, 667,000 adults with COPD, 916,000 persons with cardiovascular disease not even counting those with only hypertension, 1 million persons with diabetes, 1.7 million persons living in poverty.

Pregnant women, they're developing unborn, persons who work or exercise outdoors and many others with existing health problems are also at risk. Indeed, far from being a small minority, persons falling into one or more of these high risk groups together compose more than half the population.

And even more important to remember,

these are not faceless numbers. Every one of these millions is a real person, not a nameless statistic. Every one of these people is a human being worthy of our protection, a neighbor, co-worker, a friend, family member and maybe even yourself.

The American Lung Association's mission is to save lives by improving lung health and preventing lung disease. We've participated in this ozone state quarter consensus process in the 1990s and are prepared to work with the Department in a similar way in crafting solutions that would meet the Clean Power Plan's requirements. Let's get about the business of saving some lives. Thank you.

CHAIR:

Thank you. Do we have any questions? Thank you.

MR. STEWART:

Thank you.

MR. RAMAMURTHY:

The coal benefits of carbon standards you said ---?

MR. STEWART:

Yes.

MR. RAMAMURTHY:

When you say request for a deposition,

you're talking about a deposition of the ---?

MR. STEWART:

Yeah, the idea was I didn't plan to scrutinize --- I mean, I can certainly ---.

MR. RAMAMURTHY:

Check the report?

MR. STEWART:

Yeah, check the report. Yeah, it would be in there, but that would be certainly, for instance, even nitrogen oxide deposition as --- you know, as it's brought down in rain and so on, but certainly ---.

MR. RAMAMURTHY:

I was wondering, it's a shut down of coal fired units, is it carbon standard. The carbon standard you're not going to overcome capture, sequestration, so they're talking about --- the shut down of specific coal fire programs and therefore we need to get some deposition because of lack of operation.

MR. STEWART:

Well, I think the point --- the report he was making had to do with the idea of --- whenever there is the good co-benefit of ---. Whenever there's a carbon standard in place part of that is going to

have some sort of effect in saying, certain kinds of sources would necessarily need to be reduced.

So then there are going to be health co-benefits to the consequence as well in addition to reducing the carbon side of the question. So some of the health co-benefits will be from the SO2 and the NOx reduction that will occur as well when you're controlling the carbon. Exactly how that, you know, --- with the calculation I will defer to the authors. I know you have a meeting coming up soon that you'll be able to do that.

CHAIR:

Yeah, I don't necessarily think there's a co-benefit reduction. I think what you get to when you're in the carbon is you need additional reduction because current technologies don't work very well unless you have very low emissions and those criteria as well. So maybe that's where it came from. I'm not sure.

MR. STEWART:

Right, right, right. I think that will occur simultaneously.

CHAIR:

Right. But I don't know if that will be above and beyond what would be necessary for the Sox

or ---.

MR. STEWART:

No. Almost certainly, you know, ---.

CHAIR:

It gets into the issue of ---

MR. STEWART:

Right.

CHAIR:

--- how many times do you count that reduction and those have been brought up. And those are things we try to figure out. I just want to clarify one thing.

MR. STEWART:

Yes.

CHAIR:

There you spoke about new sources and existing sources and new sources replacing retired sources. I wanted to make --- I wanted to find out, are you proposing that the new sources be brought into the 111(d) plan? 111 the new sources are covered under 111(d). When you spoke it almost sounded like you were proposing to bring those sources into the 111(d) plan.

MR. STEWART:

No, I didn't. Certainly if it sounded

like that I wasn't intending to say that. The point is that just as the Lung Association has supported controls on new sources, and that's certainly that EPA has put in place and also recognizing that we need to control existing sources as well. I think that was simple ---.

CHAIR:

It was actually stated differently than that, but okay. But that's not what you intended to say?

MR. STEWART:

No, sir.

CHAIR:

Okay. Great. Thank you. Any other questions? Thank you.

MR. STEWART:

Okay. Thank you, sir. Our next speaker is Wendy Taylor.

MS. TAYLOR:

You know, I've been sitting here all afternoon and I have no idea who you are, so would you guys ---?

CHAIR:

We only introduced ourselves for the earlier session. Let's do that. Thank you. I

apologize.

MS. EPPS:

Good afternoon. I'm Joyce Epps. I'm the director of air quality at DEP.

MS. TAYLOR:

Thank you.

CHAIR:

I'm Vince Brisini. I'm the deputy secretary for the Office of Waste Air Radiation and Remediation.

MR. RAMAMURTHY:

I'm Krishnan Ramamurthy.

MR. VANORDEN:

I'm Dean VanOrden. I'm the assistant director for the Bureau of Air Quality.

MR. EVANS:

And I'm Craig Evans. I'm the environmental group manager for risk assessment and air toxics section.

MS. TAYLOR:

Okay. Thank you.

CHAIR:

Thank you for reminding us. I apologize.

MS. TAYLOR:

Okay. Good afternoon. My name is Wendy Taylor, and I am a mother and a grandmother. I fully support the proposal to limit carbon pollution from existing power plant. The cost of failing to adequately deal with carbon pollution is amends.

It is contributing to global warming, which is changing our continent and disrupting our lives. By the end of the century, the northeast region of the United States is expected to see 157 additional days at more than 95 degrees.

This will have severe consequences on our health, our economy, the infrastructure and natural resources that we all depend on. We have to discourage the mining and burning of burning of fossil fuel and coal. We know how to do this.

Lawmakers have always used their authority to encourage certain things like enacting seatbelt laws or speed limits to encourage safe driving and discourage other things like smoking by taxing cigarettes so that people cannot afford to smoke as much as they did or not at all.

This is what we have to do with coal and fossil fuel. The proposal to restrict the pollution that an existing coal fire power plant, what they can release into the air a very modest proposal. It is a

fair proposal.

The owners of the power plants which are making profits from burning coal should have to control their emission. They are creating them, so it should be their job to control them. Otherwise the emissions become our problem. Air pollution is already a problem for many people.

People living in coal mining communities have a 70 percent increase risk of developing kidney disease, have a 64 percent chance of developing chronic obstructive pulmonary disease such as emphysema and are 30 percent more likely to report high blood pressure.

Underground mine workers often suffer from black lung. Workers get black lung disease from breathing the coal dust, which results in shortness of breath and puts individuals at risk of emphysema, bronchitis, fibrosis.

It’s surprising after many years of decline black lung is on the rise again. People living near or downwind from coal fire powered plants suffer increased rates of asthma, cardiovascular disease and premature and low birth weight births. Emission tests at coal plants reveal 67 different types of air toxins.

Fifty-five (55) of these toxins are neurotoxins or developmental toxins. Twenty-four (24) are known probable or possible carcinogenic. The Clean Air Task Force updated the toll from coal report in 2010 estimated that particulate pollution from existing coal plants cause 13,200 deaths.

An analysis found that a fleet of coal plants could emit pollution resulting in more than 20,000 heart attacks, 9,700 hospitalizations and 200,000 asthma attacks. Higher average temperatures lead to worse air quality, in turn more hospital admissions and premature deaths particularly in young children.

It leads to the spread of insect borne diseases, which used to only be a problem in the tropics. It leads to more frequent intense storms, which can damage our homes and threaten our lives with high winds and flooding, and it threatens our economy.

Pennsylvania has three major river systems making it one of the most flood prone states in the country. A ten year flood in Allegheny County costs $8 billion to clean up and that is money that cannot be invested into growing a regional economy. These will only become more severe. Agriculture currently employs more people in Pennsylvania than

coal, oil and gas combined.

Farming has always been subject to the winds or the weather. If our weather becomes more extreme as projected many thousands of jobs will be lost because of the extreme heat, droughts and storms. I'm not sure why it's taking so long to require companies to clean up the air before they release it.

I heard that it keeps energy prices affordable and it helps to create jobs. That may have been the byproduct of lax in the regulations, but was never the purpose. The purpose of lax regulation of coal emissions was to reduce the cost to the owners so that they can make a certain level of profit. But now we are living in a different time. We know that coal, oil and natural gas are finite resources. We know that these things will get more scarce. The more expensive they get ---. The more scarce they get, the more expensive.

We will never be able to keep energy prices low by using fossil fuel. In fact, we know that they will become more and more expensive. Now is the time to look at other ways to create energy. Investing in renewable energy will save us all money.

Earlier this year a study conducted by the regional grid operator on the impacts of

integrating up to 30 percent renewable energy into the grid by 2026 found that by using 30 percent solar and wind we could actually $16 billion a year on electricity production because it would be placed the least efficient and most expensive power plants.

And as for jobs, wind based solar create more jobs than natural gas and coal per dollar invested, per megawatt and capacity, per megawatt hours of generation. Nationally there are already more jobs in wind and solar industry than coal mining and coal power generation. So the potential is enormous to create jobs. By one estimate Pennsylvania can create a half a million 40 year job by transitioning to a hundred percent renewable energy by 2016, which would give us ten times more jobs than the coal industry in the state's reports.

For too long we have allowed corporation to get away with passing their cost of production onto the public. The externalization of costs has to stop. We can no longer live with this arrangement. The damage from coal mining is obvious.

In Western Pennsylvania where I was raised we lived with mine subsidence, polluted streams, polluted air, slag piles and ruined land. Why? It certainly wasn't because the companies could

not afford to do it right. We thought we had no choice.

However, nature has supplied all the energy we need, we just have to begin to use it. Again and again, we have seen the power of wind, sun and water. We've seen awesome power in droughts, hurricanes, tornadoes and floods.

We are powerless against these forces of nature, yet we do have the technology to turn these awesome forces into forces for good. We just have to decide to do it. We need to curtail the use of coal, oil, gas and begin investing in clean renewable energy and we can do it now.

According to a graduate thesis written by Nadine Maine of a technical university in Brunswick, Germany it would take an area of just 158 miles by 158 miles of solar panels to power the whole world. And we have to do it now.

Now before the planet gets warmer, now before we warm our climate so significantly that we create disaster after disaster. This is already happening in places in the southern hemisphere. In the United States we've been spared the worst of it so far. What do we do --- what we do here affects other people.

Pennsylvania produces one percent of the greenhouse gases in the world. We are like the young English prince in the 1500s who was assigned a whipping boy to take the prince's punishment. It was thought by his birth the prince had a divine right to king.

We in Pennsylvania have no divine right to use the kind of energy we want while others are our whipping boy and have to live with the consequences of our behavior. In fact, we have the responsibility as people of goodwill to step up and stop the cycle.

Can we let highland nations be flooded out of existence? Can we allow droughts to cause famine in Africa? Can we allow hurricanes and typhoons devastate countries where people have no means to recuperate. This is an environmental justice issue.

Even here in the United States the people with the least able to bear the brunt of the disasters are asked to. Think of who suffered the most from Hurricane Katrina and Sandy. Some of our fellow Americans lost everything and still have not recovered.

And because of the instances of hurricane, and tornadoes and flooding the cost of

insurance has skyrocketed meaning less people can afford to pay the insurance making them more and more vulnerable to the risk of future disasters. Climate change and global warming is threatening more and more people.

This is an issue of fairness and justice. This is not about saving our planet. Our planet will survive. It has survived many calamities and it will recover from anything we do to it and it will find a new normal. The real problem is will we make the planet so inhospitable that plants, animals and people may not survive? And those that do may be living in a very different type of world.

There are those who say there is no global warming. These people are like a person who gets up after smoking for 50 years hacking and coughing, the same person can no longer climb steps or walk around the block. He insists it's a normal part of aging. Then one day he collapses and is taken to the emergency room. Upon awakening he is told he's got fourth stage lung cancer. Had this person heeded the early warning signs something could be done.

The moral of the story is just because we don't want to know doesn't mean it's not happening. History is filled with great civilization that no

longer exists. Human kind has not made a steady progression. Civilization had flourished and then all but disappeared.

How many of those past civilizations ignored the warning signs out of ignorance or arrogance? And because they did not want to do what it took to stop the problem they're no longer here.

We need to do something now. We need to do it before it's too late. We have to make it expensive for companies to continue investing in fossil fuels. A small step in that direction is to require power plants to stop polluting the air. This will not put companies out of business. If they can no longer make money in fossil fuel they may move toward renewable energy. Despite all their advertising oil companies, coal companies and natural gas companies know that their products are dwindling.

They know that the more they extract the less there is. Many corporations are already getting ready for the time when they run out of oil, or natural gas or coal, but in the meantime they want to continue to operate as long as we let them. If we act to limit our carbon pollution the coal mining sector will certainly be impacted.

Those working in power plants fueled by

coal will be affected, but if we don't act all other sectors will be impacted. That's not to mean that we're going to neglect the mine workers and the energy worker, their family, and their communities, we need to commit to helping them.

They've got transition just as we have helped tobacco farmers and logging communities transition in the past. There are certain things these communities have in common. Where there is mining there is a lot of work to restore the land and the streams. That means jobs.

Where coal fire powered plants exist, there's an entire infrastructure already there to transmit power. It can easily be converted to the future sites of solar panels and wind arms. And where there are coal plants there is coal ash waste to be cleaned up. That's more jobs.

With training programs we can employ people right where they live so they can maintain their communities and keep their family ties. The bottom line is that we will get off fossil fuel, either when we run out of it and we have to scramble to survive or by making this transition now with a well reasoned plan that will require a minimum of disruption. I choose the latter. EPA and the

Pennsylvania Department of Environmental Protection should lead the way. To do less is to let us all down.

I began telling you that I'm here because I am a mother and a grandmother. I would do anything to protect my family. I don't want my grandchildren and their children to have to live through the effects of climate change and the horror that it will create. That is why I am here.

CHAIR:

Thank you. Are there any questions? Thank you very much. Our next speaker will be Cece Viti.

MS. VITI:

Good afternoon. And thank you for this opportunity. The EPA's Clean Power Rule is necessary because of two important reasons. Number one, it will limit CO2 from dirty elderly coal fired plants, which are the source of 40 percent of the country's carbon pollution.

The rule isn't enough to keep us at two degrees centigrade temperature rising, but it's a step in the right direction. The second reason is fossil fuel companies that have become rich beyond their wildest imaginings have continued to keep the energy

profits private and the pollution public.

We get the mess, they get the money. The rule starts the important process of turning around the practice of fossil fuel companies polluting our water and our air with impunity. The earth is our mother ship and the coal is a deadly process. There is no planet B.

My government has allowed fossil fuel companies to use our spaceship earth as an ATM reaping quick, buck profits while leaving us the mess. We got the mess and they get the money. It's always been that way, but now fossil fuel use is on target to making a mess we can't clean up.

We've known the dangers of global warming since 1988 when James Hanson of NASA made it official, yes, fossil fuels are warming the earth. What did we do?

We continued to coddle the fossil fuel industry with tax incentives and relaxed regulation added to lukewarm at best support for the one thing that could help, alternative non-polluting energy sources. We have enough solar power, enough wattage in Arizona to power the world. Why have we not scrambled to develop that source?

Why have we instead continued to protect

the profits of already rich owners of fossil fuel plants, a technology of two centuries ago? Where's our Manhattan project for solar and wind? Or as someone said earlier, where's our man on the moon project?

I end my voice to those supporting a national target of 30 percent reduction in carbon emissions from fossil fuels by 2030. It's everyone's duty to support this initiative. I need you today to understand and to stand by the science behind the assertions you've heard this afternoon.

I need you to support and accelerate in any way you can the transition from dirty fossil fuels to clean renewables. You are PA's first line of defense and we need you to stand strong and to protect us. I believe that climate health is a human right. Thank you.

CHAIR:

Thank you. Do we have any questions? Thank you very much. Do you have written testimony?

MS. VITI:

I don't have a clean copy. I've arranged to send one to Tammy who will forward it.

CHAIR:

All right. Thank you. The next speaker

is Matt Walker from Clean Air Council.

MR. WALKER:

How you doing? My name is Matt Walker. I'm the community outreach director with Clean Air Council. We're an environmental health non-profit headquartered in Philadelphia with the mission to protect everyone's right to breathe clean air and we've been operating since 1967.

The Clean Air Council supports the EPA's historic pollution reduction standards that limit the amount of carbon existing power plants can emit into the air. Climate change is here now and it's having devastating impacts in our communities. The cost of further delay is too high for Pennsylvania's taxpayers.

Pennsylvania's three wettest years ever have all occurred during the 21st century, putting Pennsylvania third in the country in flood-related automobile damages. Since the Industrial Revolution, sea level has risen an average of eight inches and continues to rise at an increasing rate, causing increasing damages.

The Southeastern Pennsylvania Transportation Authority just secured a much needed $87 million in taxpayer dollars to repair damage

incurred during Hurricane Sandy. The Susquehanna River Basin now incurs an average of $150 million in flood damages every year.

Storms like super storm Sandy are more likely with climate change and are exacerbated by rising sea levels. DEP must take these real economic impacts seriously and take strong action on limiting greenhouse gases.

There's no more serious public health, environmental justice or economic development threat than climate change. Pennsylvania leaders need to stop denying climate change and start accepting that using coal for electricity for almost 250 years has caused major impacts on the health of Pennsylvanians and downwind residents.

Coal pollutes our air, water and land and is largely responsible for global climate change. EPA scientists predict that warmer temperatures resulting from climate change will cause an increased number of bad ozone days. Pennsylvania counties had a combined 485 dangerous ozone days in 2013.

Ground level ozone is linked with many respiratory diseases, cancer, stroke or premature death. Yet Pennsylvania DEP seems determined to squander this unique opportunity to address carbon

emissions. This April DEP published a draft carbon rule implementation white paper that was short sighted, unambitious and will not be approved by EPA. The paper included ideas for exemptions to the 111(d) program for certain electric generating sources like coal waste and waste to energy facilities.

While DEP states that the emissions reduction goals in the EPA's rule are achievable inside the fence-line reduction --- with inside the fence line reductions, the Council believes that DEP's ideas for implementing the plan as it stands will simply not be enough for reducing carbon pollution.

EPA set reasonable goals for Pennsylvania to create a cleaner and healthier power grid that is more reliant on clean sources of energy and less reliant on large coal burning power plants.

EPA's approach requires a level of emission reduction that is technically achievable, cost effective and protective of health. DEP needs to stop further delay and work with all Pennsylvania stakeholders to develop a plan that reduces greenhouse gases by prioritizing the switch from using almost all fossil fuels to using as much renewable energy and energy efficiency as possible.

The longer the state waits to develop a

serious carbon reduction plan, the harder it will be to construct a plan that makes sense for Pennsylvania's future. If DEP continues to delay or insists on developing a plan that EPA cannot approve, then EPA will simply impose a solution on Pennsylvania.

Contrary to the claims of Governor Corbett and DEP, there's nothing in Section 111(d) of the Clean Air Act that prohibits the use of outside the fence efficiency and renewable energy measures to reduce the amount of carbon intensive fuels needed to power Pennsylvania's economy.

EPA's four building blocks clearly support the idea of states using innovative policy solutions beyond power plant boundaries to comply with the reduction targets. Now is not the time to merely phase out one fossil fuel, coal, just to promote the use of another fossil fuel, natural gas, for power generation.

While the market is already pushing Pennsylvania's fleet of old power plants to be pushed aside by newer natural gas plants, the Council strongly advises DEP to develop a plan that maximizes curbing pollution from power plants while advancing energy efficiency and renewable energy to meet the

standards.

If the ultimate goal of DEP's plan is to curb the effects of climate change, then DEP must recognize the significant climate impacts of methane that would result from coal fired power plants converting to gas or from new gas power plants, especially if Pennsylvania does not fully address methane leaks from the gas industry.

The ICCC recently reported that methane is 86 times more potent than greenhouse gas than carbon dioxide over a 20-year time period. Research by a NASA scientist shows that methane is 105 times more potent when including aerosol effects. In the past Pennsylvania pioneered coal, oil and natural gas.

We now have the opportunity to be pioneers again, this time by innovating in energy efficiency and non-polluting energy sources like wind and solar. Complying with the EPA's carbon limit will not require an end to fossil fuels or the adoption of cost prohibitive carbon capture and sequestration technology.

Pennsylvania must be merely willing to do more to conserve energy and encourage innovation in renewable sources. Energy efficiency is the cheapest and fastest way to cut emissions and should be a

prominent part of Pennsylvania's plan.

Residential and commercial buildings consume almost 58 percent of Pennsylvania's energy and it is embarrassing that the DEP does not consider this rule an opportunity to conserve energy, limit pollution and promote safe jobs in efficient construction and retrofitting.

Seizing such an opportunity comes with challenges and one of the most significant of which is the difficulty of adequately and accurately quantifying reductions in carbon emissions achieved by efficiency measures and renewables. So DEP should incorporate credits for emissions reductions achieved through utility-wide programs, building code updates, updates to the state's electricity grid and emissions offsets from the use of renewable energy sources and incorporate that into the plan.

In order to do so the plan would need to include a clear, supportable and consistent system for accounting for such reduction and applying appropriate credits. The groundwork has already been laid. Over recent decades at least 14 states have developed protocols for quantifying such energy savings. Pennsylvania can and should do the same.

Within the PJM grid the energy saved

from increased efficiency practices has been growing steadily during the last few years. Gaining 100 megawatts from 2014 to 2015, 194.8 megawatts from 2015 to 2016 and then 221.7 megawatts during May's auction for the 2017, '18 year.

Energy efficiency now provides 1,339 megawatts, equivalent to more than two large coal-fired power plants like the Keystone Generation Station in Western Pennsylvania. Several coal plants are scheduled to close down within the next five years and in May the PJM grid chose not to pick up the Bruce Mansfield Power Plant for the 2017, '18 year.

In 2011 Bruce Mansfield created 6.6 percent of the state's carbon dioxide emissions and now the PJM grid has decided that its energy is no longer needed. This proves that Pennsylvania can, in fact, increasingly meet energy demand using fewer fossil fuels and more energy efficiency and renewables.

The Council also believes DEP should focus significantly more attention on EPA's option for using renewable energy deployment to comply with the standards. If you don't count the waste incineration and fossil fuels such as coal waste, which is allowed under PA's AEPS, Alternative Energy Portfolio

Standard, the current requirement is only eight percent renewable energy by 2021.

This is embarrassing particularly for states that at one time was at the forefront of wind and solar energy development and installation. DEP must do everything in its power to encourage increasing the Commonwealth's Alternative Energy Portfolio Standards and Pennsylvania could advance renewable energy quickly by offering incentives and increasing the percentage in Pennsylvania to at least 25 percent by 2022 without raising requirements for tier 2 alternative fuels, or at least be open to including such measures in the implementation of 111(d).

This requirement would be conservative compared to more progressive renewable energy standards such as New York, which has a 30 percent goal by 2015. Pennsylvania currently only takes advantage of less than a third of its wind generation capacity of 4,000 megawatts that are available, which would power over a million homes.

Just a few years ago Pennsylvania employed 4,000 people to build, install and maintain wind turbines. Pennsylvania's two turbine manufacturing plants in Cambria and Bucks Counties are

now closed due to the lack of supportive policies.

While American solar jobs increased by 20 percent in 2013, Pennsylvania lost 1,100 solar jobs, more than a quarter of our market. Lastly, DEP should include safeguards in their implementation plan to protect environmental justice communities living near power plants that may be subjected to disproportionate health impacts from power plants that may not undergo upgrades.

The Council urges the DEP to see the damages of climate change at face value and to set increasingly stringent standards for coal plants while encouraging clean renewable energy and energy efficiency solutions. DEP should view the proposed limit on carbon dioxide pollution as an opportunity to benefit public health and create a vibrant economy for Pennsylvania. Thank you.

CHAIR:

All right. Thank you. Any questions? All right. Thank you.

MR. WALKER:

Thanks.

CHAIR:

My next speaker is Dr. James E. Jones.

DR. JONES:

Good afternoon. Yes, I am Dr. James E. Jones, a father, a grandfather, a great grandfather and a retired pediatrician who worked many years in this local community. I have cared for many children gasping in the middle of the night with asthma. It's frightening.

As a pediatrician we don't want to just treat things, we want to try to prevent the causes because it's so much better to do it that way. That's why we use vaccines, that's why we give other things to prevent the medicine. So with this, I'm interested in public health and retirement, and I'm active with the Physicians for Social Responsibility, who I represent today. And I'm on the Board with Penn Future.

Even though there has been an improvement over the last 50 years there's still millions and millions of Americans living with bad air, and we in Pennsylvania unfortunately are near the top of that list. Coal fire power plants, and the older ones especially, are one of the big sources of major problems threatening us. Well, what are some of these threats? Well, one of them is the black carbon, that small particles of black carbon get sucked right down into your lungs and cause lung problems.

Actually, go into your bloodstream.

It's responsible for much cardiovascular disease. So in addition we have ground level ozone, not ozone up high where it protects you but ground level where you get O3, which is highly oxidizing and extremely irritating and can trigger attacks and actually cause death and permanent damage.

So ozone is made from ingredients that are not only in our power plants, but our trucks and so forth. So we need to look for ozone and black carbon. Secondly the greenhouse fact is real and tons of CO2 are putting up scientific consensus is that global warming is real, caused by humans and it's serious, requiring immediate attention.

It's already affecting our health. We see asthma attacks increasing, we see the storms, droughts, we see the rising sea level, we see the infestations of mosquitoes and ticks bringing their own disease with them that increasingly come north or come to --- growing fast. New disease lots of them.

The Clean Power Rule will include CO2 as a pollutant and reduce by 30 percent by 2030. Even though this is not a full solution it's a good place to start. Increase energy efficiency means less pollution per kilowatt along with a conservation and

more rapid use of renewable energy.

We can save 150,000 asthma attacks by 2030 in summary. Our air continues to pollute the ozone, small black carbon particles and rising CO2 levels. Our children are especially vulnerable with their immature lungs. Implemented fully the Clean Power Rule is a step in the right direction. Thank you for your attention.

CHAIR:

Thank you. Are there any questions? Thank you very much.

MR. JONES:

I gave her a copy.

CHAIR:

Thank you. The next speaker is Daniel Kremer.

MR. KREMER:

Thank you for your time today. Thank you for the time to address you today on an important matter of both state and national significance today. I'd like to state, it's not in my paper here, global warming is a fact. I know that.

My name is Daniel Kremer. I reside in Youngwood, Pennsylvania in Westmoreland County. Since birth my place of residence and work has been within

the area of 40 miles --- within 20 miles of Pittsburgh, Pennsylvania, which is my place of birth. My wife of 43 years is also a resident of Pennsylvania, Pittsburgh.

At this time I'm retired. Previous to my retirement I was a coal miner for almost 33 years. I hold coal miner's certification in both Pennsylvania and West Virginia. I also hold mine foreman certification in Pennsylvania.

My experiences also include being a member and past captain of Mine Rescue Team Number Two out of the DEP's Mine Rescue Station in Uniontown. Environmental remediation is also a part of my employment background with work at a high --- low level radiation clean up sites and other types of environmental cleanup sites.

At the age of 53 I returned to school, received a degree as a respiratory therapist. Up until my retirement on April 1st of this year I worked as a registered respiratory therapist in a hospital situation. My license is still active in the Commonwealth of Pennsylvania.

My background gives me a multi-faceted way of looking at proposed carbon emission changes. I do not agree with the proposed carbon emissions

guidelines by the United States Environmental Protection Agency. It is a change that will have an adverse effect upon a wide variety of people and industries.

It is too soon to enact these rules without economically sound proven technology to meet them. Why this position? In the past it was stated that the first 90 to 95 percent of air pollution would be feasible and cost effective to achieve.

Also for each percent beyond this, the price would be at least equal to or more than the whole cost of all previous achievements. When the research and technology is economical and effective, then and only then should it be adopted.

The devastating effects on these proposed changes would and will be felt by loss of jobs in the coalmining industry as well as associated industries. People that will be directly affected beyond just coalminers included include utility workers, truckers, railroad workers, machinists, state and federal inspectors, et cetera.

The list goes on and on. Indirectly the money produced from these high paying middleclass jobs support whole communities including grocery stores, department stores, hospitals, schools, local taxes, et

cetera. Do not forget the retired people and widows who depend upon their pensions and medical benefits provided by these industries.

Another economic point is who will pay for the loss of jobs and the change in infrastructure required? The coal fired power plants under these proposed changes will in all likelihood shut down, just like the one in Masontown, Pennsylvania.

The cost to build alternatively fueled plants, retrofitting old plants for new fuel sources and the laying of new pipelines would all be placed on the consumer in increased electricity costs. We have been trying to climb out of recession and have not gotten completely out of it yet.

We do not need this added burden at this time. All energy sources have their inherent problems. Nuclear, disposal of waste, long term radiation effects. Just remember what happened at Three Mile Island and recently in Japan. Wind power, no wind there could be no power, people --- unwanted eyesores. People do not want these windmills in Fayette County and certain areas of the East Coast.

Infrared has incineration of low flying birds. Solar, no sun, no power. Geothermal's not feasible in metropolitan areas.

These are but a few examples. Coal has been a proven source of power for over 150 years in the Commonwealth of Pennsylvania as well as the United States and needs to be a part of our energy policy now and into the future, not eliminated by regulations adopted too soon.

The world is an ever changing environment. New power plants in developing countries are coming online daily with few pollution controls, if any. We need to first show the world our ingenuity and technological know-how ways to create economically sound proven ways to use coal in electrical production, not the adoption of regulation before their time.

An analogy would be the auto industry. Suppose that in 1970s we told the auto industry to meet the standards of air pollution they have to meet today within five years. Do you think they could? No, it would not have been possible. The effect on multiple industries would have been devastating. Well, these changes will have the same effect on the coal industry, and related industries and many communities.

In conclusion, the impact of my submission --- of your submission to the EPA will have

a great impact upon the decision making process. People need to be considered in your decision. As a respiratory therapist my patients were of the upmost importance to me. In the medical field all factors are weighed carefully before a final decision and plan of treatment is made, just as in this case.

When people are taken out of the equation the solution is not complete. We are the best in innovative thinking and when economically feasible, sound solutions are found without the elimination of coal, by all means implement them. Until that time arrives, we do not need to implement these carbon reduction standards. These standards are not in the best interest of the Commonwealth of Pennsylvania or the United States at this time. Our National Security is at risk if we eliminate coal as a proven energy source from energy self-sufficiency now and in the future.

Do not forget the people's economic future who will be adversely affected by elimination of the coal industry. Thank you.

CHAIR:

Thank you. Are there any questions? Thank you very much. Our next speaker is Susan Edwards.

MS. EDWARDS:

Hi. My name is Sue Edwards, and thank you for sitting through this today. And I hope that my words won't get lost in the barrage of what you've been hearing. I'm a retired educator and an environmental activist from Delaware County. I live in Philadelphia. I got up at 5:15 this morning to be here.

I volunteer with the Sierra Club and also other environmental organizations in my retirement. I am led to do what I can to shoulder responsibility for curbing damage to our civilization from the ravages of unrestrained dumping of greenhouse gases into our atmosphere.

I regret that I've only taken up this effort in the past four years, although it has been brought to our society's attention for several decades now. My husband and I have two sons who are young adults and I am very concerned about what kind of world they will have to live in. I see the issue of climate change as the test of our generation.

I was heartened when President Obama and the EPA announced there would be restrictions on continuing to spew carbon dioxide into the air. Of course, not so long ago, carbon was not regarded as a

pollutant and it's not in the strict sense of the word. However, scientists are now clear that it endangers our society nevertheless.

A huge experiment is being conducted and we are the subjects, willing or not, along with all of the animal and plant species on earth to see how much carbon dioxide and other gases can be added to our atmosphere before the resulting global temperature rises to a level that, while not killing all human life, will seriously upend our civilization.

How much can we humans tolerate of plagues of Biblical proportions including droughts, floods, weather disruption, super storms, food resources diminished, water shortages, wildfires, tropical diseases, and insects in temperate zones and more? You've heard about these several times.

According to the National Oceanic and Atmospheric Administration's National Climatic Data Center, August 2014 was the warmest August on record for the globe as a whole since recordkeeping began in 1880. Additionally, August 2014 marked the 38th consecutive August with a temperature above the 20th century average.

We humans are on track to experience temperatures not seen in hundreds of thousands of

years if we don't take action to reverse course. It doesn't take thermometers to know what we can learn from ice cores, tree rings and isotopes of oxygen that we're on a course to hit high temperatures not seen since before the dawn of civilization.

The societies we have built are not designed to deal with temperatures much more than two degrees Centigrade higher than average. And unfortunately the people who have done the least to cause this situation, such as citizens of the Philippines and Bangladesh, will bear the earliest and most severe consequences of this experiment.

The most economically disadvantaged in the U.S. will also have the fewest resources to protect themselves and recover from climate related damages. And I'm thinking of the victims of Hurricane Katrina, super storm Sandy and so on.

The chaos resulting from a changing climate threatens the security of everyone, which is why the Pentagon takes the threats posed by climate change quite seriously. Burning fossil fuels has allowed humanity, especially in the developed world to advance and save much back breaking labor.

However, even though they are still reserves of coal, oil and gas, we cannot continue to

use them for our power sources. It's time to leave them in the ground and plan a just transition to a renewable energy economy as rapidly as possible.

The companies who own those remaining reserves cannot continue to profit from them and receive subsidies from taxpayers. Their assets will be considered stranded, which means these companies can no longer be considered a sound investment. Fortunately, there are other options.

We simply need to decide as a society that we will invest as we have done when faced with crises or opportunities in the past. Highest priority must be placed on improving our energy efficiency, followed by renewable sources for electricity generation, in particular wind and solar power and a distributed smart grid.

These do not pollute, do not create dangerous spills and do not cause illnesses such as asthma and heart disease. These forms of renewable energy do create far more jobs than comparable investments in fossil fuel electricity generation, and they do lead to cheaper electricity rates since they tend to displace the most costly forms of generation.

We do not have to pioneer these solutions. Other countries and some states within the

U.S. do a far better job than the overall U.S. average in using energy efficiently and harnessing renewable, non-polluting energy sources. With your help Pennsylvania can decide to be a leader in intelligent planning for a transition to a renewable energy.

We can decide to assist families and communities where jobs in the fossil fuel industry are lost. We can decide to increase our Alternative Energy Portfolio Standard goals, particularly since we now are not even keeping pace with the states around us and thus are losing out to them in the development of solar and wind power as well as energy efficiency.

I ask that our state leaders commit to meeting and surpassing the goals set forth for Pennsylvania in the EPA's Clean Power Plan and that we do this without use of nuclear power, which presents a grave danger in the event of accidents and which still has not found a way to dispose of its wastes after decades of trying.

As I understand it, the targets for Pennsylvania in the Clean Power Plan are ones we can accomplish with one hand tied behind our back. I believe we can do better and I hope you will be up for the challenge. Thank you very much.

CHAIR:

Thank you. Any questions? Thank you very much. Our next speaker is I believe Gillian Norris-Szanto. I hope I didn't get that too far wrong.

MS. NORRIS-SZANTO:

No. Gillian Norris-Szanto. Thank you for being here. Can you hear me okay?

CHAIR:

Yeah, if you can bring that a little closer. There you go. Thank you.

MS. NORRIS SZANTO:

I'm speaking in support of higher standards for greenhouse gas reductions in Pennsylvania under the EPA's proposed rule on existing power plants. And I hope that in crafting new standards for the Commonwealth the DEP will set its sights as high as possible.

Under the new rule states are able to decide how best to meet an emissions reduction target by using a variety of strategies including the use of more renewable energy, increased energy efficiency, incentives for industry and other means. Fortunately the Commonwealth has already developed a base of wind and solar power on which to build, and this should be maximized.

Wind and solar energy are becoming more competitive in price with natural gas. By 2018 the U.S. Energy Information Administration predicts that the levelized cost of onshore wind energy will be lower than the cost of advanced and conventional coal. That's encouraging.

Although coal was, in the past, part of Pennsylvania's energy history, I don't think there's any need to continue to burn it now that we have clean energy alternatives, and especially now that the public, and the medical, scientific and public policy communities understand the devastating impact of the carbon dioxide and other toxic chemicals emitted when coal is burned.

Asthma, on the rise in Pennsylvania's cities and elsewhere, is directly linked with the concentration of toxic particulates emitted by coal burning power plants and others have testified on this issue. I will only reiterate that reducing the amount of carbon that is burned will have what economists call a co-benefit. That is a positive effect beyond reducing the emissions. This co-benefit will be evident in better public health, fewer work days lost to illness and substantial savings in the cost of treating some chronic respiratory and cardiac diseases

in large numbers of children and adults.

The burning of coal is costly for Pennsylvania in another ways. We've already heard about these. Warming of the air and water which enables the air to hold more water and this in turn produces heavier and more frequent rain and snowstorms of the kind that Pennsylvania has experienced over the past 30 years.

And I've lived in Pennsylvania since 1975. Before that I lived in Canada and New England, so I've seen snowstorms change, I've seen winters change, summers change, as I think all of you have. Severe storms in any season are undeniably expensive and harmful, and we should prevent them by reducing global and local warming.

Finally, I would like to mention Pennsylvania's role in the health and future of Chesapeake Bay, close to your heart as it is to mine, which has been called America's Estuary. Pennsylvania forms a major part of the Chesapeake Bay watershed and anything that we can do to improve the quality of the water in our rivers and streams, those that flow into the watershed, or the bay, really should be done, including reducing the toxic pollutants from coal fired power plants.

This will improve the health of this vital and seriously endangered natural environment. The Bay is the nursery for the fish and other marine life we depend on and one of the few remaining sources of food and rest along the Atlantic flyway for virtually all migrating flocks of songbirds and shorebirds.

It's dwindled away over time, but Chesapeake Bay Estuary and the coastline, places like Bombay Hook, for example. And we can't lose this natural resource or the flora and fauna of Pennsylvania itself. So if I conclude that what we can do today, this year, in drawing up strong carbon dioxide reduction standards will have tremendous future benefits. Thank you.

CHAIR:

Thank you. Any questions? Thank you very much. Our next speaker is Joanne Kilgour from the PA chapter of Sierra Club.

MS. KILGOUR:

Good afternoon. And thank you for the opportunity to speak today and for hosting this listening session. I understand I am probably the last speaker, so thank you for ---.

CHAIR:

Unless Nathan is here.

MS. KILGOUR:

Oh.

CHAIR:

But he's not, I don't think.

MS. KILGOUR:

But again, my name is Joanne Kilgour and I'm the director of the Pennsylvania Chapter of the Sierra Club with more than 24,500 members across the Commonwealth. Our members are committed to outdoor recreation as well as protecting human health and the environment, and have long been leading climate advocates in their communities.

I currently live in Lancaster County, which despite the pastoral image of Amish farms and river hills the name invokes, has some of the worst air quality in the nation. My community is at risk, as are 31 of the 67 counties in the Commonwealth, and will continue to be at risk for generations to come unless we act now, taking swift and bold but reasonable steps to address harmful air pollution.

Across Pennsylvania alone we have nearly 285,000 children living with pediatric asthma each of whom faces greater threat of medical complication because of exposure to ozone and particle pollution.

The proposed Clean Power Plan provides an opportunity for us to improve public health, such as threats from childhood asthma, by cleaning up the region's air and helping to address climate disruption.

Through strong implementation of the Clean Power Plan we can achieve significant reductions in harmful air pollution, create new jobs and realize the benefits of economic growth in the renewable energy and energy efficiency sectors. We all want a bright, healthy future for our families and making meaningful improvements to air quality by reducing harmful pollution is essential to making that hope a reality.

First, I want to stress that we can achieve the proposed emission reduction target here in Pennsylvania. We can do this because we're already doing many of the things we need to do to achieve these reductions. If we maintain our current energy efficiency and clean energy requirements at existing rates we will be more than one-third of the way to the proposed target.

And when we add in reductions from coal plant retirements that have occurred or been announced since 2012, that number jumps to more than half of our proposed reduction target.

This means that we get more than halfway to what EPA is proposing just by continuing our existing efforts, and we do get credit for those, but we also have the opportunity to maximize the potential benefit to human, environmental and economic health from reducing existing power plant emissions if we also achieve the remaining reduction through clean energy and efficiency.

Our current annual efficiency target are half of what many leading states are achieving. Our current tier I clean energy target is only 8 percent compared to 20 percent for Maryland, 22 for New Jersey and 25 for Delaware. If we simply mask the commitments of other leading states by doubling our commitment to efficiency and by achieving 20 percent renewable energy by 2030 we will meet over 96 percent of our target.

With these reasonable, achievable steps we can do this and we owe it to ourselves, our children and future generations to take these actions now. In addition to helping Pennsylvania meet our carbon pollution reduction targets, renewable energy and energy efficiency support jobs and our local economies. Wind energy manufacturing, construction and operation now employ at least 75,000 Americans and

the great majority of the components used are sourced domestically.

In 2013 the solar industry created 24,000 new jobs in America. States neighboring Pennsylvania, such as Ohio and Michigan, are seeing a resurgence of manufacturing jobs in the clean energy sector, revitalizing the Rust Belt.

We want the same for Pennsylvania and we can use the Clean Power Plan as an opportunity to implement policies that will bring these jobs to the Commonwealth. I also want to recognize that while this is reasonable and achievable for Pennsylvania, there will be a necessary transition in some areas of the state, and it is essential that these transitions happen with the insight and inclusion of those who have been and will be most impacted.

To this end, I would like to share some words from our Allegheny Group's Mining Issues Chair, and the community organizer for the Center for Coalfield Justice in Washington, Pennsylvania, Veronica Coptis. Veronica is a lifelong resident of Greene County and she shares the following reflections. For too many years my friends and family have suffered serious health impacts from the life cycle of coal. All too often coal extraction and

combustion in power plants occur in designated Environmental Justice areas, communities with large minority or low income population.

In fact, Environmental Justice areas are expanding in Southwestern Pennsylvania, following the industry's reckless pursuit of coal at all costs. Corporations take advantage of these areas and have for generations. The EPA needs to make sure these carbon rules are as stringent as possible to offer much needed relief to people living with the dirty coal cycle, like my community.

In Southwestern Pennsylvania many of the coalfield areas are also exploding with Shale gas extraction. Without a plan that focuses on renewables these communities will see Shale gas drilling increase even more as power plants convert to gas.

This will not alleviate the negative health impacts we see from the coal cycle because the extraction of gas has serious health impacts as well and massive methane emissions that will just increase the damages of climate change.

It’s clear that these new regulations are going to create significant changes to frontline communities and the EPA has a responsibility to make sure those are just an equitable. This transition

will have many great improvements to our communities, but if those most impacted are not part of the conversation there will also be negative impacts to those living on the frontlines.

This absolutely includes the coal miners and those who could not make the trip today like Veronica, who I'm reading currently. I doubt very much that anyone here today will argue against the benefit of clean air and water. What is the real concern is that whatever comes next we must move beyond coal and we must leave coal field residents --- I'm sorry. We must not leave coal field residents behind. Those who stand to be impacted the most must play an active role in this transition. So thank you very much for your time, and again, thank you for having this listening session.

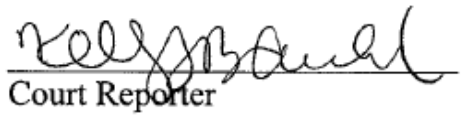
CHAIR:

Thank you. Are there any questions? All right. Thank you very much. Is there anyone else who would like to --- who's not registered who would like to speak at this point? Okay. I believe our listening session is completed. Thank you very much.

HEARING CONCLUDED AT 4:23 P.M.

CERTIFICATE

I hereby certify that the foregoing proceedings, hearing held before Chair Brisini was reported by me on 9/25/2014 and that I Kelly Arnold read this transcript and that I attest that this transcript is a true and accurate record of the proceeding.



Court Reporter