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LABORATORIES OF DEMOCRACY: THE ECONOMIC IMPACT OF STATE ENERGY POLICIES

THURSDAY, JULY 24, 2014

House of Representatives,

Subcommittee on Energy and Power

Committee on Energy and Commerce

Washington, D.C.

The Subcommittee met, pursuant to call, at 10:01 a.m., in Room 2123 of the Rayburn House Office Building, Hon. Ed Whitfield [Chairman of the Subcommittee] presiding.

Members present: Representatives Whitfield, Hall, Shimkus, Pitts, Terry, Latta, Cassidy, Olson, McKinley, Gardner, Kinzinger, Griffith, Barton, Rush, McNerney, Tonko, Engel, Green, Capps, Barrow, Castor, and Waxman (ex officio).

Staff present: Nick Abraham, Legislative Clerk; Gary Andres, Staff Director; Charlotte Baker, Deputy Communications Director; Leighton Brown, Press Assistant; Allison Busbee, Policy Coordinator, Energy and Power; Tom Hassenbohler, Chief Counsel, Energy and Power; Jason Knox, Counsel, Energy and Powser; Ben Lieberman, Counsel, Energy and Power; Chris Sarley, Policy Coordinator, Environment and Economy; Jean Woodrow, Director, Information Technology; Jeff Baran, Democratic Staff Director for Energy and Environment; Alison Cassady, Democratic Senior Professional Staff Member; Gaitlin Haberman, Democratic Policy Analyst; and Alexandra Teitz, Democratic Chief Counsel for Energy and Environment.

Mr. {Whitfield.} I would like to call the hearing to order this morning, and the title of today's hearing Laboratories of Democracy: The Economic Impacts of State Energy Policies.

And at this time, I would like to recognize myself for a 5-minute opening statement.

This is going to be an informative hearing, I believe, because we have such great witnesses that have really studied different policies being adopted by different states in a lot of different areas, and the decisions being made at the state level today about public policy, particularly as it relates to energy development, goes a long way in giving us an insight at the federal level, because we are having the same debates at the federal level in the direction that we should go.

Now, President Obama has made it very clear that he believes the number one problem facing mankind today is climate change, and a lot of his policy decisions by his Administration are being made based on his concern about climate change. Many of us on the other side of the aisle, and a lot of Democrats as well, believe that economic growth is one of the most important issues facing us today.

Now, let me just say that I read an article in Barron's 3 days ago that said before the most recent recession, there were 122 million full-time jobs in America. Four and a half years later, there are 118 million full-time jobs in America. Despite a workforce that is 1.6 million larger, and a working-age population that is 14 million larger, so full-time employment is much less today; almost 4 million less today than it was 4 1/2 years ago. And then in the 2014 long-term budget outlook of CBO, which just was released, they talk about our debt held by the public today as 74 percent of GDP, and they anticipate by 2030 it is going to be 180 percent of GDP. So the economic forecasters are saying we are genuinely concerned about the impact that this is going to have on economic growth in America, and the availability of capital for economic expansion.

So this--Supreme Court Justice Louis Brandeis described states as laboratories of democracy, and we can take some hard-known facts from decisions being made in states today, and the impact of those decisions on jobs available in those states and on economic growth. And then we are going to have the opportunity to ask our witnesses questions about it after they give their opening statements on their views, but if you do view that climate change is the most important issue

facing mankind, or facing American, then you are going to go in one direction on energy policy, but if you believe economic growth is the most important, and jobs and providing income for families, then your approach is going to be a little bit different. And we know that those approaches make a big difference, for example, in North Dakota, GDP growth last year, 9.7 percent, the highest in America. And North Dakota has been the fastest-growing state in the Nation every year since 2010. And in 2012, the GDP growth in North Dakota was 20 percent. Now that is because of the state's oil boom driven by hydraulic fracking in the Bakken state--shale formation has been responsible for much of this growth. On the other hand, let us take a state like California that--public policy decisions being made in California is about climate change, and we hear a lot about, well, there are so many jobs being created in the wind industry and solar, and so forth, but what about the jobs being lost. But here we have the opposite end of the spectrum from North Dakota is California, 7.4 percent unemployment rate, the highest among the 10 most populous states. A stagnating economy. Some of the most expensive energy in the Nation. It has been rated the worst state for doing business 10 years in a row by Chief Executive Magazine. Now, I would be the first to say it is a

beautiful state and we all love to go there, but businesses are leaving that state. So what we want to look at today is the impact of these decisions and setting the priorities, because we can learn a lot from the states as we continue our debate at the federal level on what direction we should go. President Obama wants to go down the pathway of California, which has proved not to be successful.

[The prepared statement of Mr. Whitfield follows:]

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Mr. {Whitfield.} So with that, at this point in time, I would like to recognize the ranking member of the committee, Mr. Rush, for 5 minutes for his opening statement.

Mr. {Rush.} Well, thank you, Mr. Chairman. I want to thank you for holding today's hearing on the economic impacts of state energy policies.

Mr. Chairman, currently, 29 states and the District of Columbia have already adopted renewal--renewable energy standards, or renewable portfolio standards, while an additional 8 states have non-binding renewable energy standards. And we know that these policies have helped to grow the renewable energy industry in our Nation with fully 67 percent of the all non-hydro renewable capacity growth occurring in states with RPS policies between 1998 and 2012.

Mr. Chairman, this investment in renewables as--has helped not only make us less dependent on carbon-intensive energy sources, but has also created tens of thousands of good-paying jobs all across the country in construction, in manufacturing, in retrofitting and in other sectors. For instance, Mr. Chairman, the U.S. solar industry now employs more than 142,000 workers, at more than 6,000 businesses located in all 50 states. Additionally, the development of

the wind industry has also generated tremendous economic benefits, so that by the end of 2013, the wind sector alone was employing more than 50,000 jobs all across this Nation. In fact, Mr. Chairman, my home state, the State of Illinois, has been at the heart of the wind industry in this Nation, leading the way in both turbine manufacturing and also electricity production. Illinois wind powered the equivalent of 880,000 homes in 2013, supplying nearly 5 percent of the state's electricity, while hosting 2,195 wind turbines and at least 36,000 manufacturing facilities that build wind turbine components. Aside from its forward-thinking renewable energy policies, my state, the great State of Illinois, is among the top 10 of the American Council for Energy Efficient Economy, or ACEEE, state efficiency scoreboard, as Mr. Nadel is the executive director, notes in his written testimony before this subcommittee today.

In Illinois, policymakers have implemented an energy efficient resource standard that has helped to decrease the Nation's overall electricity usage, while also working with utilities to deliver savings to the--to government agencies and to low-income consumers. As Mr. Nadel points out, the Illinois Department of Commerce and Economic Opportunity, the agency responsible for implementing the state's energy

efficiency program, was named the ACEEE's star partner of the year just this very year of 2014. Additionally, Mr. Chairman, members of the subcommittee, my state, the great State of Illinois, was also the first state in the Midwest to adopt the 2012 International Energy and Conservation Code, a national model building code prepared by the International Code Council.

So, Mr. Chairman, we are not California, we are not Kentucky, we are Illinois, and it is my sincere hope that today's hearing will serve as a platform not just to bash California or bash the Obama Administration over its much-needed climate change policies, but rather to hear about my state and other states; states that constructively are enacting smart and resourceful strategies that propel our country forward by creating jobs and investment, business more independent, more secure, while also reducing the cost of energy both in our pocketbooks as well as in our impact on our environment.

Mr. Chairman, thank you, and I agree with you, we have a marvelous panel of witnesses today, experts in their field, and I look forward to hearing every word that they have to say to us. Thank you.

[The prepared statement of Mr. Rush follows:]

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Mr. {Whitfield.} Thank you, Mr. Rush. And Mr. Upton is not going to make an opening statement, so is there anyone on our side of the aisle that would like to make a statement about the hearing this morning?

Okay. Well, at this time, I would like to recognize the gentlemen from California, Mr. Waxman, for a 5-minute opening statement.

Mr. {Waxman.} Thank you, Mr. Chairman.

Today's hearing focuses on the economic impacts of state energy policies. It is an opportunity to examine the growth of the clean energy sector, and the positive economic benefits of renewable energy and energy efficiency.

States have taken a leadership role in harnessing the power of renewable energy. Twenty-nine states and the District of Columbia have enacted renewable portfolio standards to generate more electricity from clean energy sources. As a result of these state programs and federal incentives, we have doubled our capacity to generate renewable electricity from wind and solar in just 5 years. This is important because renewable and low carbon energy sources are a fundamental part of any serious plan to address climate change.

In May, the International Energy Agency warned that the world needs to invest trillions of dollars in renewable and other clean energy technologies over the coming decades in order to avoid the worst impacts of climate change. That is a potentially huge economic opportunity for the United States. Investing in renewable energy is not only good for the climate; it is also a boon for U.S. manufacturing, jobs and competitiveness. Both blue states and red states have the success stories to prove it. Texas ranks first in the country for wind power installations and wind industry jobs. California ranks second. The wind industry has injected more than $11 billion into California's economy, and $23 billion into the Texas economy. This investment translates into jobs and a stronger, more diverse tax base.

Energy efficiency also will help play a key role as the world grapples with the challenge of reducing carbon pollution and slowing dangerous climate change. The International Energy Agency has concluded if the world does not take action to reduce carbon pollution by 2017, then the energy infrastructure existing at that time will lock us into a path toward devastating climate change, but if we invest now in energy efficiency, we can give ourselves more time. According to the IEA, the rapidly--the rapid deployment of

energy efficiency measures would give the world at least 5 additional years to develop long-term solutions.

States have taken action to make our industry, our buildings and our transportation system more energy efficient. This is a commonsense policy that saves businesses and families money on their energy bills while cutting pollution, but we need to do more. We need a national commitment to clean energy and energy efficiency in order to tackle the urgent threat of climate change. The Clean Power Plan, proposed by EPA, would make that commitment. The Plan lays out key building blocks for how states can cut emissions from the Nation's largest source of uncontrolled carbon pollution: power plants. One building block is using electricity more efficiently. EPA based its proposal on what states are already doing to make homes and businesses more efficient, but another building block is generating more power from zero and low-carbon energy sources. EPA looked at the renewable energy potential in each region of the country to determine the scope of the opportunities here for states, and the EPA found that all states can do more, even Kentucky, to cap their clean energy potential.

The Clean Power Plant--Clean Power Plan is an eminently-

reasonable and achievable proposal. It gives states the flexibility to choose how to achieve critical reductions in power plant carbon pollution, and it sets us on a path toward cleaner air, better health, and a safer climate and a stronger 21st century economy. States will play a critical role in the success of the Clean Power Plan.

So I thank the witnesses for being here. And I would be happy to yield the half a minute to anybody who wants to say anything. If not, I yield it back, and look forward to the witnesses.

[The prepared statement of Mr. Waxman follows:]

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Mr. {Whitfield.} Thank you very much, Mr. Waxman.

And that concludes the opening statements. And so I want to welcome the panel of witnesses. As I said in the beginning, we understand and know that all of you have looked into this very much, and that you are dedicated and committed to it, and we look forward to your testimony and then the opportunity to ask questions.

On the panel today, we have Mr. Tom Tanton, who is the Director of Science and Technology Assessment of the Energy and Environment Legal Institute. And what I am going to do, I am just going to introduce you individually right before you give your remarks. So, Mr. Tanton, you are recognized for 5 minutes for your opening statement. And be sure and turn your microphone on and get it close as possible.

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^STATEMENTS OF TOM TANTON, DIRECTOR OF SCIENCE AND TECHNOLOGY ASSESSMENT, ENERGY AND ENVIRONMENT LEGAL INSTITUTE; FRED SIEGEL, SENIOR FELLOW, MANHATTAN INSTITUTE, AND SCHOLAR IN RESIDENCE, SAINT FRANCIS COLLEGE; STEVE CLEMMER, DIRECTOR OF ENERGY RESEARCH AND ANALYSIS FOR CLIMATE AND ENERGY PROGRAM, UNION OF CONCERNED SCIENTISTS; STEVEN NADEL, EXECUTIVE DIRECTOR, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY; PAUL POLZIN, DIRECTOR EMERITUS, BUREAU OF BUSINESS AND ECONOMIC RESEARCH, UNIVERSITY OF MONTANA; AND BERNARD WEINSTEIN, ASSOCIATE DIRECTOR, MAGUIRE ENERGY INSTITUTE AT THE COX SCHOOL OF BUSINESS, SOUTHERN METHODIST UNIVERSITY

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^STATEMENT OF TOM TANTON

} Mr. {Tanton.} Thank you, Mr. Chairman, members of the committee.

I intend the testimony to inform the committee of essentially how to look at state energy policies in 2 regards. We have heard about climate change being an important goal. Whether you believe that or not, one also needs to undertake measures in the most cost-efficient manner to reduce carbon emissions. Many of the state energy

policies, and I will focus primarily on California, do not do that. They actually take the most expensive, the least efficient way, which leads to unintended consequences like emissions leakage. We are driving businesses to states and countries that are less carbon efficient than California already is, thereby increasing total global emissions; counterproductive to the goal.

In summary, the economic impacts of state energy policies, including the RPS, as well as others, are huge. Generally speaking, the costs exceed the benefits, even when indirect and externality costs are included, but the economic impacts cannot be attributable solely to laboratories of democracy simply because many of the policies and regulations, and implementation thereof, take place outside the democratic process. They take place administratively or evolve outside, either through mission creep, lack of legislative oversight. Costs and burdens are often imposed on residents in neighboring states creating extraterritoriality and unconstitutionality.

What I do in, say, Minnesota affects generators and residents and taxpayers in North Dakota, as the Tenth Circuit found last May. Costs are often hidden or transferred to some other party. An example of that is with wind generation

requires both balancing and backup; backup for when the wind is not blowing, balancing for when the wind is blowing, and that imposes inefficiencies on the--on those balancing plants. Similarly, the taxes that are imposed by California's A.B.32 Cap and Trade provisions affect residents in other states.

Finally, there is misinformation. A good democracy relies on informed citizens, and informed committee members, for that matter, and there is often misinformation that is taken at face value that is spread by either rent-seekers and bureaucratic advocates such as the cost of certain technologies. The other thing, and this is crucial to keep in mind, the cost of certain technologies; wind, natural gas fired combined cycles, et cetera, are often inappropriately characterized as being cost competitive, but when one considers the fact that wind provides only energy, while natural gas fired combined cycles provide energy and capacity, the value proposition is different, so it is irrelevant that the costs are the same.

Using states to test policy approaches and mechanisms result in smaller negative impacts overall, and easier to correct mechanisms. With all due respect, Congress moves slower than most states. Each state has different needs and

opportunities. What works in Georgia does not work in California, doesn't work in Florida, et cetera. Now, opportunities and challenges vary tremendously. The more centralized a policy is, the harder it is to correct and the more subject it is to cronyism and nefarious activities.

Ideally, the policy should be at the individual level. I should get to choose what I buy. Increasing intervention is seldom the solution to programs that have been put in place through intervention. The solution to intervention problems is less intervention.

Various federal programs have also impeded efficient achievement of state policy goals. The production tax credit has led to too much intermittent, volatile wind generation, which threatens the reliability of the grid in a number of states. The renewable fuel standard also impedes achievement of other important state goals, like providing reasonably priced food and fiber.

There are a number of economically-sound policies in the various states. There was mention of North Dakota earlier. California also has some bright lights, or shining lights. The economically-sound policies are invariably the result of democratic activities, not administrative or bureaucratic activities.

And with that, I will be happy to answer any questions as--at the time.

[The prepared statement of Mr. Tanton follows:]

********** INSERT 1 **********

Mr. {Whitfield.} Thank you very much, Mr. Tanton. We appreciate that, and there are those lights on the front that--on red to indicate your time is up, but we won't cut you off immediately, but I--we really appreciate your testimony.

Our next witness is Mr. Fred Siegel, who is Senior Fellow at the Manhattan Institute, and scholar and resident at Saint Francis College.

Mr. Siegel, thanks for joining us, and you are recognized for 5 minutes. And be sure to turn your microphone on and get it close. I think you might need to just push that button to turn it on.

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^STATEMENT OF FRED SIEGEL

} Mr. {Siegel.} This one. Is this working now? Yes, Okay.

Thank you for having me. Unlike the other members of this panel, I am not an energy expert. I am an historian. I have written about laboratories of democracy in a book I wrote about Los Angeles, New York and Washington, DC, and more recently, in a book I wrote about American liberalism, why it is misunderstood, in a book entitled, Revolt Against the Masses, which received positive reviews in every single magazine and newspaper except the New York Times.

The transformation of American liberalism over the last half century is outlined and disputes rolling and out-of-the-way place in upstate New York. The southern tier of New York is little-known. Tioga, Chemung, Broome Counties are not household names, but they are areas which are gone--have gone terribly. The total employment in the Binghamton metro area is less than it was in 2001. The other nearby city of sorts is Elmira. It too is a smaller workforce than it had in 2001. And if you were to drive through there, you would find it looks like Appalachia, and indeed it was. When the

Appalachian Commission was created by the Great Society, an earlier failed program of liberal policy, these southern tier counties were included, and they still are. There are several Appalachian Commission offices scattered across the southern tier. New York is not good at economic growth; it is very good at creating commissions and authorities.

In 2008, it looked like something might be done. It looked like the broken-down barn houses and people selling their land for taxes, because New York taxes--property taxes are among the highest in the country, might be coming to an end because it looked as if the fracking boom, which had hit Pennsylvania, right across the border, in Pennsylvania it is called the northern tier, in New York it is called the southern tier, of counties were bringing jobs to Pennsylvania.

And let me just read from Ed Rendell, former Democratic Governor of Pennsylvania. Thousands of solid jobs with good salaries were created in Pennsylvania. Communities came back to life, and investment in the state stored. The steel, lumber, concrete and construction industries, as well as manufacturing, purchasing and retail spending, all boomed because of fracking on the Pennsylvania side.

Now, part of the difference is Pennsylvania has a long

history of energy extraction, New York does not, but there are others. Thirty-two states now accept fracking. New York is still studying the issue. The only state that has banned fracking is Vermont, which has no shale beneath its surface. So it is--as with so many other things in Vermont, it is meaningless.

In 2010, a new governor came into office, Mario--excuse me, Andrew Cuomo. I am old enough to remember Mario. Andrew Cuomo came into office and he proposed--he floated what seemed like a genuinely intelligent compromise. In places where gentry liberals live, like Ithaca, home or Cornell, or Cooperstown, where many well-to-do retirees reside, there would be no fracking. In areas where there was a watershed for either New York or Syracuse, there would be no fracking. Fracking would be confined to the southern tier of the southern tier, to the most adversely affected counties in New York, and that is all. It seemed like a reasonable compromise. However, opposition to fracking had become totemized. The support of fracking was to be--was to align yourself with the spawn of the devil. If that sounds excessive, no, I am describing conversations I have had with anti-frackers in New York City at rallies. Fracking is inherently evil. I am told by anti-frackers that it is

fracking that creates poverty in Pennsylvania, which is a fascinating idea. It is a bit like saying Israeli rockets are what is creating the rockets coming out of Gaza. It gets everything exactly backwards.

That compromise proposal we have only applied the counties in New York State, like Chenango, Steuben, and Tioga, the southern tier of the southern tier, where there were no aquifers, where the soil is poor, and where there is desperate poverty.

What is going on--and this is when I got interested in this. I am not a person who studies energy. I was fascinated at the rejection, the flat-out, aggressive rejection of a reasonable compromise. And what I discovered was, in part, it was a matter of practical interest. People like Yoko Ono, I don't know how you would describe--

Mr. {Whitfield.} Mr. Siegel, excuse me for interrupting--

Mr. {Siegel.} Sure.

Mr. {Whitfield.} --but I just wanted to say that you are about 30 seconds over your 5 minutes, so--

Mr. {Siegel.} In that case--

Mr. {Whitfield.} --if you--

Mr. {Siegel.} --I will conclude in 30 seconds.

Mr. {Whitfield.} Okay.

Mr. {Siegel.} Sorry, I didn't realize I was--it was taking so long.

The issue of fracking turns out to be a class issue. Upper middle-class liberals are vehemently opposed in the name of preserving New York as something like a Currier and Ives photo; wonderful, beautiful place to retire, but not a place to grow--and the anti-frackers insist that the want to maintain New York as this kind of museum preserve. The pro-frackers are mostly practical people who want to get out of debt.

Mr. {Whitfield.} Yeah.

Mr. {Siegel.} That class divide explains fracking in New York.

[The prepared statement of Mr. Siegel follows:]

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Mr. {Whitfield.} Thank you, Mr. Siegel.

At this time, our next witness is Mr. Steve Clemmer, who is the Director of Energy Research and Analysis for Climate and Energy Program at the Union of Concerned Scientists.

Mr. Clemmer, welcome, and we look forward to your testimony. And you are recognized for 5 minutes.

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^STATEMENT OF STEVE CLEMMER

} Mr. {Clemmer.} Good morning. On behalf of UCS and our 450,000 members and supporters, I would like to thank Chairman Whitfield and the other distinguished members of the subcommittee for the opportunity to testify today.

My comments are--will focus on how state renewable electricity standards have been a key driver for the recent growth in the U.S. wind and solar industries, spurring innovation and creating new jobs and income for state and local economies. I will also show how utilities in most states are meeting or exceeding their targets at little to no cost to consumers. Finally, I will highlight how stronger federal policies are needed to compliment state renewable policies.

I am going to try not to repeat some of the excellent comments that both Mr. Rush and Mr. Waxman already made about these policies that are included in here in my testimony.

So a renewable electricity standard requires electricity--electric utilities to gradually increase the amount of renewable energy in their power supplies over time. As we heard, of the--there are 29 states and the District of

Columbia that have standards. Seventeen states and DC have renewable standards of 20 percent or more, and 18 states have increased or accelerated their targets since they originally adopted them. Lawrence Berkeley National Lab estimates that 46,000 megawatts, or more than 2/3 of all the renewable capacity installed since 1998, occurred in the states with renewable standards. They project this amount to more than double to 94,000 megawatts by 2035 as the states continue to ramp up their standards. California's 33 percent by 2020 standard creates the Nation's largest market for renewable energy, followed by Illinois, New Jersey, Texas and Minnesota.

State renewable standards, combined with the federal tax credits, have played a key role in the rapid growth of the U.S. wind and solar industries, as we have heard. Wind power accounted for nearly 1/3 of all new electric generating capacity in the U.S. over the last 5 years, second only to natural gas, and 9 of the top 10 states in total installed wind capacity have renewable standards. Meanwhile, the solar capacity has increased by a factor of 10 since 2009, and a record 5,000 megawatts of solar was installed in the U.S. last year. All of the top 10 states with the highest installed solar PV capacity have renewable standards.

So we heard earlier some of the economic benefits that this is delivering in terms of 50,000 jobs in the wind industry, $100 billion of investment in the U.S. economy since 2007, just in wind alone. Texas is the leader with both installed wind capacity, but also the most amount of wind jobs, followed by Iowa, California, Illinois, Colorado, Kansas, Michigan, North Dakota, Oregon and New York. All of these states but one have renewable standards. You heard about the domestic manufacturing of wind turbine components that has also increased dramatically over the last 5 years as the renewable standards have ramped up. The domestically-sourced content of U.S. wind projects has--installed today is over 70 percent, up from less than 25 percent in 2005. Wind power is also providing significant income and tax revenues for rural communities. For example, in Iowa, which now generates 27 percent of its electricity with wind, wind projects provided $16 million in annual lease payments to landowners, and nearly $20 million in annual property tax payments.

The solar industry has invested about $34 billion in the U.S. economy over the past 3 years, and as we heard earlier, there is about 142,000 people that work in the U.S. solar industry at 6,100 businesses. While California leads the

Nation with about 1/3 of those jobs, states in the Midwest, northeast, southeast and southwest are also in the top 10.

The other positive news has been that renewable standards have been a key driver for technology innovation and cost reductions. Since 2009, the cost of generating electricity from wind has fallen 43 percent. The average price of a solar PV panel has declined 60 percent.

Renewable standards are also a good deal for consumers. The falling cost of wind and solar have allowed most utilities to fully comply with their standards at little to no cost to consumers. In May, NREL and LBNL released a comprehensive of state RES costs and benefits based primarily on data from utilities and state regulators. The study found that between 2010 and 2012, the cost of complying with the renewable standards in 25 states ranged from a net savings of .2 percent of retail rates, to a net cost of 3.8 percent. This is considerably lower than the Beacon Hill Institute's studies that Mr. Tanton mentions in his testimony. UCS and several other groups have identified serious flaws in these studies funded by the fossil fuel industry that lead to highly exaggerated costs. And I would be happy to talk about that in the Q and A if you want me to.

I can wrap up with about 30 seconds on the federal

policy angle. So while federal tax credits have been an important compliment to state renewable standards, the inconsistent support from Congress has created significant market uncertainty. To eliminate the uncertainty, UCS recommends that Congress extend the PTC by at least 4 years, and transition to more stable long-term policies. We also recommend allowing renewable energy technologies to be eligible for master limited partnerships and other innovated financing mechanisms to provide parody in the tax code with fossil fuels.

Finally, let me say that, as Mr. Waxman mention with EPA's proposed carbon standards, this provides a really important opportunity to increase renewable energy use and reduce carbon emissions. We believe that EPA's proposed building blocks for the--for existing plans is a flexible and cost-effective framework for--to help states meet their proposal. Okay.

Mr. {Whitfield.} So if you will conclude.

Mr. {Clemmer.} Yeah, so my last statement is just that UCS believes that EPA can go much further. We did an analysis that shows they can achieve twice the level of emission reductions--

Mr. {Whitfield.} Yeah.

Mr. {Clemmer.} --and twice the level of--

Mr. {Whitfield.} All right.

Mr. {Clemmer.} --renewables at a net savings to consumers.

So I will conclude there.

[The prepared statement of Mr. Clemmer follows:]

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Mr. {Whitfield.} Thank you. Our next witness is Mr. Steve Nadel, who is the Executive Director, American Council for an Energy-Efficient Economy.

Thank you for joining us, and you are recognized for 5 minutes.

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^STATEMENT OF STEVEN NADEL

} Mr. {Nadel.} Okay, thank you, Mr. Chairman.

Mr. {Whitfield.} And be sure and turn your microphone on, get it close, and--

Mr. {Nadel.} Thank you, Mr. Chairman, and good morning to all of the committee.

I am the executive director of the American Council for an Energy-Efficient Economy, also known as ACEEE. We are a nonprofit energy efficiency research organization that, since 1980, has acted as a catalyst for energy efficiency policies, programs, technologies and investments. I appreciate the opportunity to testify this morning.

There has been much talk on both sides of the aisle about an all-of-the-above energy policy. ACEEE believes that energy efficiency should be one of the cornerstones of an all-of-the-above energy policy. Energy efficiency is generally our least expensive energy resource, meaning that it often costs less to save a unit of energy, than it costs to produce that same unit of energy. Large cost-effective savings are available in all 50 states. All states are promoting energy efficiency to at least some extent, but some

states much more than others. These efforts are helping to create jobs, grow state economies, and produce environmental benefits. Many states are increasing their energy efficiency efforts, but much more is both possible and advantageous.

In my written comments, I first discussed the favorable economics of energy efficiency investments; 2, provide some specific examples of how states are encouraging energy efficiency, particularly some examples of some of the most improved states in our annual energy efficiency scorecard; 3, I discussed the link between energy efficiency and economic development, with examples from specific studies on California, Ohio and the northeast, and, 4, I summarized opportunities to use energy efficiency to create jobs and economic development in all 50 states. In these oral comments, I wanted to concentrate just on economic development; the last 2 issues in my written testimony.

The energy efficiency efforts states make contribute to jobs and economic development in several ways. When money is spent to purchase and install energy efficiency measures, direct, indirect and induced jobs are created. Direct jobs are the jobs to manufacture and install the energy efficiency measures, such as producing and installing insulation. Indirect jobs are generated in the supply chain and

supporting industries that are directly impacted by an expenditure or effort. For example, as insulation sales increase, jobs might increase at home improvement stores and trucking firms. Induced jobs are produced as the direct and indirect workers spend their paychecks, such as for eating out or attending a baseball game.

Oil and gas development also spur direct, indirect, and induced jobs, however, energy efficiency investments have 2 other benefits. First, as consumers and businesses reduce their energy use, they have more income to spend on other goods and services, creating additional jobs. Second, energy efficiency jobs tend to be in construction and services industries, which are both very labor-intensive sectors of the economy. Spending a dollar in construction and services generally provides more jobs than spending a dollar in other sectors of the economy. This is illustrated in Figure 4 of my written testimony.

Several studies have documented these effects at the state level. For example, a 2008 study by an economist at the University of California found that energy efficiency measures have enabled California households to redirect their expenditures towards other goods and services, creating about 1.5 million full-time-equivalent jobs with a total payroll of

679 $45 billion, driven by well-documented energy savings of $56
680 billion from 1972 to 2006. Another example is Ohio. A 2004
681 analysis that we did with the Ohio Manufacturers Association
682 found that implementing Ohio's energy efficiency savings
683 targets would save consumers nearly $5.6 billion through
684 2020, including about $3.4 billion from reduced customer
685 expenditures on electricity, $0.9 billion from the impacts of
686 efficiency on wholesale energy prices, and $1.3 billion from
687 the impact on wholesale capacity markets. Ohio participates
688 in the wholesale energy market of PJM, and under the laws of
689 supply and demand, reduced energy use and peak demand reduces
690 the price of energy and capacity as determined in these
691 markets.
692 The economic development and other benefits of energy
693 efficiency achieved in these states can all be achieved in
694 other states. This April, we published a state-by-state
695 analysis on how much energy efficiency savings that can be
696 achieved in each state, and the costs and benefits of such
697 investments, as well as the impact on employment and gross
698 state product. The study looked at where each state was, and
699 how much more they could do, with 4 different policies, as
700 discussed in my testimony. Overall, we found that such state
701 efforts could reduce national electricity use by 25 percent

by 2030, relative to business-as-usual projections; providing discounted net benefits of about $48 billion by 2030; increasing GDP by about $17 billion in 2030; and supporting more than 600,000 net jobs nationally in 2030. State-specific estimates of jobs are provided in Table 2 of my testimony.

In conclusion, states are stepping out and leading energy efficiency efforts. They are creating jobs. Much more is possible in all of the other states, learning from some of the examples featured in my written testimony, such as Mississippi, Oklahoma and Arkansas.

With that, I conclude my testimony.

[The prepared statement of Mr. Nadel follows:]

********** INSERT 4 **********

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Mr. {Whitfield.} Thank you very much, Mr. Nadel.

At this time, I recognize Dr. Paul Polzin, who is the director emeritus of the Bureau of Business and Economic Research at the University of Montana. Thanks very much for being with us, and Dr. Polzin, you are recognized for 5 minutes. Be sure and--

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^STATEMENT OF PAUL POLZIN

} Mr. {Polzin.} Thank you, Mr. Chairman, and members of the committee. My name is Paul Polzin, and you heard that my title was director emeritus. That just simply means I flunked retirement, and I still go into the office there almost every day.

Now, I have spent the last 45 years of my life studying the Montana economy, and also studying the economies of rural communities in the west. The purpose of my testimony today is to document the economic impact of the new American energy revolution. I am going to be looking at the specific impacts on 2 rural communities, and rural communities are really an ideal laboratory to look at economic impact, because you can easily differentiate between causes and effects.

Now, when we mention economic impact, the first thing that comes to mind are taxes. Well, there are plenty of taxes associated with the new American energy revolution. In my part of the world, the oil and gas industry alone paid the Federal Government and the State of Montana about $285 million in taxes, loyalties and other payments, but the real economic impact is on people, and how the energy boom affects

their employment opportunities and their wages. I looked at 2 specific communities; Sidney, Montana, and Williston, North Dakota. They sit right on the Montana-North Dakota border, and that is at the western edge of the Bakken oilfield, which is the new field that is being developed using new technologies, and has seen dramatic increases in production.

Now, I analyzed counties rather than cities because that is just the way the data are published. Sidney, Montana, is in Richland County, and Williston, North Dakota, is in Williams County. Now, for most of the last 35 years, both economies have been stagnant. The number of jobs in Richland County and Williams County in the early 2000's was just at about the same level that it was in the mid-1980's, but the trend turned upward in 2004, and accelerated in 2010. This mirrors precisely the drilling and other energy-related activity, and the most recent data showed double-digit increases.

Now, there are boomtown atmospheres in places like Richland County and Williams County. The streets are full of petroleum engineers, drilling managers, and environmental specialists, and there are well-paid workers. Nationwide, the average annual wage in the oil and gas industry was about $108,000 a year in 2013; roughly double the average of

$49,000 for all American workers. But it is not just these oil and gas industry workers who are benefiting. I looked at 3 specific industries in each of these counties. I found that employment opportunities and wages in all 3 increased faster than expected. I looked at the construction industry, which includes skilled, blue-collar workers; I looked at professional services, and this includes lawyers, architects and accountants; and also I looked at the accommodations industry, which is traditionally a low-paying industry, and provides employment opportunities for entry-level workers. The findings in all 3 of these industries in both communities are the same. For the 10-year period from 2003 to 2013, employment and wages in all of these industries increased much faster than otherwise would have been the case. In other words, there are more jobs and the wages are higher than would have occurred without energy development. In all 3 of these industries, in both counties, average wages in 2013 were higher than their respective statewide average. Now, as an experienced rural researcher, I know how unusual it is to have rural wages higher than the statewide average. In most cases, the statewide averages are dominated by higher wages in urban areas.

In summary, higher wages and a stronger rural economy,

when they are combined with good policies on energy royalties and tax distribution can enable communities, counties and states better adjust to energy projects that may have periodic peaks before they stabilize in the long run.

Thank you very much.

[The prepared statement of Mr. Polzin follows:]

********** INSERT 5 **********

Mr. {Whitfield.} Thank you, Dr. Polzin, very much.

And our next witness is Dr. Bernard Weinstein, who is the Associate Director of the Maguire Energy Institute of the Cox School of Business at Southern Methodist University.

So, Dr. Weinstein, thanks for being with us. You are recognized for 5 minutes for your opening statement.

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^STATEMENT OF BERNARD WEINSTEIN

} Mr. {Weinstein.} Thank you very much, Mr. Chairman, and members of the committee, for the invitation to speak today.

I want to talk briefly about 2 topics; number 1, the future of coal, and, 2, state energy policies.

There may or may not be a war on coal. That may be hyperbolae, but in any case, coal is being challenged as a power source as never before. Number 1, you have competition from abundant and cheap natural gas, as well as renewables. We now have EPA greenhouse emission standards being proposed for both existing and new power plants. It is highly unlikely that a new coal plant will be constructed in the foreseeable future. We also have regulatory and legal barriers to exports. So I think it is fair to say, and you can see on this graph, that coal is slowly going away. In fact, we have lost about 15 percent, or we will lose about 15 percent of our coal-fire-generating capacity between 2010 and 2016. But a couple of caveats. Some people are very pleased about the fact that coal is going away, but we need to keep in mind that we get almost 40 percent of our electricity from coal. It can't be quickly replaced by alternatives.

Renewables, as we have heard, are intermittent. We need base load capacity. There are serious issues of grid reliability when demand peaks. Texas has got more installed wind capacity than any other state, but I guarantee you, at 3 o'clock this afternoon, 95 percent of those wind turbines in west won't be turning, and that is when demand is going to be at its peak.

Then there are issues related to distributor generation. That is posing challenges for grid reliability, as well as the finances of investor-owned utilities. You know, who is going to pay for that backup capacity? So we need to keep in mind that coal is still the cheapest way to generate electricity, and that, as coal goes away, power costs to consumers and businesses are likely to increase. And I make those comments because I think EPA needs to take cognizance of these and other issues as it finalizes the greenhouse gas rules for both coal and gas-fired plants.

Now, getting back to the main topic today: energy and economic development. We have seen an incredible increase in oil production just in the last 3 or 4 years; about a 50, 60 percent increase. We didn't see this coming. It has been great for the economy, and it is not just in a couple of states. I mean there is shale all over the United States, as

you can see in this graph. Some states have embraced energy development, while some energy-rich states have opposed energy development. So I am going to make, you know, a couple of comments about Texas, California, North Dakota and New York.

First, let us contrast Texas with California. It is a little hard to see, but the red line is--the red lines are Texas and the blue lines are California. The red line going up is increased oil production in Texas; the blue line going down is declining oil production in California, and then the dotted lines are the unemployment rates. Guess which state has the lowest--has the lower unemployment rate. Texas has added 548,000 jobs in the past 18 months. California, which is half, again, as large as Texas, has added only 322,000 jobs in the past 6 years. California is home to the Monterey shale which is estimated to hold up to 2/3 of America's shore oil--shale oil reserves, and yet, because of environmental pushback, regulations and the like, it is not being developed.

Now, real quickly, if we put the next one up, I don't want to talk too much about North Dakota and New York because we have already heard a lot about North Dakota and New York. This is employment growth in the U.S. on the left, employment

growth in North Dakota on the right.

Four years ago, North Dakota was producing 10,000 barrels of oil per day. Today, it is 1 million barrels of oil per day. Booming economy, lowest unemployment rate in the United States. We have already--Mr. Siegel talked about New York State. This study was actually done by his institute, maybe it was done by Mr. Siegel, looking at the potential job growth that could occur along that southern tier of New York State if the current moratorium on hydraulic fracturing were lifted. So we will just have to see how that plays out, but this part of the state has been losing people and jobs for decades.

Just kind of to summarize. Here are some selected energy states. The blue bar represents the increase in oil and gas jobs, the red line represents the increase in GDP growth, and you can see that in all of these energy-producing states, we have seen a tremendous increase in the economic growth. And look at Pennsylvania. We heard about Pennsylvania earlier. Look at the tremendous increase in oil and gas employment. If it hadn't been for that increase, Pennsylvania would have had a very serious recession like the rest of the country. It helped Pennsylvania avoid the worst of the great recession. And New York State, right across the

border, as we have heard, does not allow the use of hydraulic fracturing.

So I think it is incontrovertible that states embracing energy development have healthier and more robust economies than those fighting energy development.

Do keep in mind 2 other points that have not been mentioned, is that greenhouse gas emissions in the United States are at a 20-year low, even though our economy is 70 percent larger.

A final point I would make, we have heard a lot about all the jobs that have been created in renewables. The Administration says that their policies have created 75,000 jobs in renewable energy. I might add, at a cost of $50 billion in federal subsidies. The oil and gas industry has created 700,000 new jobs in the last 4 or 5 years without any new subsidies.

So I will be happy to answer any questions at the appropriate time.

[The prepared statement of Mr. Weinstein follows:]

********** INSERT 6 **********

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Mr. {Whitfield.} Dr. Weinstein, thank you very much. And thank you all of you for your testimony. And I think the testimony crystalizes exactly what we are trying to look at here. Those people who are most concerned about global warming are strong advocates for renewable, and I think all of us recognize we need renewables, but I don't think, Dr. Weinstein, we want to be like Europe, which is recognized as the leader of renewables in the world, and yet they are mothballing natural gas plants because the gas prices coming out of Russia are so expensive that they are building new coal plants to meet their needs. And yet in American, no one expects a new coal plant to be built right now because natural gas prices are so high, but shouldn't we have the flexibility, if gas prices go up, to build a new coal-fired plant? We don't have that ability to do it today. And would you like to make a comment on that, or--

Mr. {Weinstein.} Well, I would generally agree with you. I do think we need standards. We need pollution standards to apply to all power-generating facilities, but what concerns me is what we hear from the Administration is a policy that seems to suggest that we can get all--we can meet all of our future energy needs through a combination of

conservation, efficiency and renewables. I am in favor all of those things, but that is not going to get us there. If we want to grow our economy, we are still going to need base-load power plants.

Mr. {Whitfield.} Right.

Mr. {Weinstein.} We have to recognize that fact.

Mr. {Whitfield.} Absolutely, and I agree with you, we need standards, and we have a lot of standards, and the standards are so explicit on new coal-fired plants that the technology is not available to meet it on a large-scale basis.

Mr. {Weinstein.} Just as an aside, I had the chief power engineer from Luminant Energy speak to my class a couple of months ago. He runs the newest, most efficient coal-fired generating plant in the country, and he said that this plant that just went online 3 years ago would not be able to meet the proposed GHG standards for new power plants that have been--

Mr. {Whitfield.} Absolutely.

Mr. {Weinstein.} --proposed by EPA.

Mr. {Whitfield.} That is absolutely--there is not any plant that would meet that standard.

Well, thank you. You know, a few years ago when

President Obama was first elected, with the stimulus package, he talked about shovel-ready projects, and, of course, large sums of money went for renewable projects, which is fine, and we hear a lot about growth in the renewable sector, new jobs, but you all heard me in my opening statement say that today, full-time jobs are $4 million--4 million people less today than it was 4 1/2 years ago.

And the question I would ask you, Dr. Weinstein, what would be our economy today if it weren't for the huge increase in oil and natural gas production from hydraulic fracturing and horizontal drilling, recognizing there has been a lot of growth in renewables, but what would our economy look like today without what is happening?

Mr. {Weinstein.} I don't think there is any question that levels of employment would be lower, and the unemployment rate would be higher.

Let me just give you one statistic. Five years ago, the oil and gas sector contributed about 5 percent--no, excuse me, contributed about 2 percent to the Nation's economic growth. Today, the oil and gas industry along is contributing 10 percent to the Nation's economic growth, so that is a fivefold increase.

Mr. {Whitfield.} Well, I think it is something that is

quite startling; 4 million less full employed today, despite this energy boom and despite the growth in renewables, we are still 4 million less full employed.

Recently, I was talking to a CEO for a major utility in California, who was talking about the 30 percent renewable mandate in California, which is the most stringent, and he was talking about reliability and getting the electricity from where the renewables are located into the urban areas, they are having to build a new grid system, and he talked about the most recent mileage for their new grid system, the lines that they were building, was costing them $100 million per mile, which is an astounding and astonishing figure.

Now, you mentioned, Dr.--Mr. Tanton, that you felt like the RPS, that the cost far exceeded the benefits. Would you elaborate on that just a little bit for me?

Mr. {Tanton.} I would be happy to, Mr. Chairman.

There are a number of unaccounted-for costs, but let me first mention that some technologies that are eligible for the RPS, their benefits are not proportional. The first wind turbine provided some level of benefits, and the last wind turbine significantly, significantly less per turbine.

So as we look at things like RPS, we need to keep in mind that just because something has done good so far,

doesn't mean it is going to do good forever. It is a typical and traditional fallacy of composition.

There are a number of costs that are offloaded from the developer; things like transmission, significant cost; costs imposed for backup and balancing, significant cost. Our estimates are that those additional costs that have been offloaded to other nonparticipants effectively double the cost of wind generation, from being competitive to being essentially noncompetitive. But those--and more recently, we have been hearing about environmental externalities from some of the concentrating solar facilities in California, basically frying the birds and bats that fly around, and blinding pilots.

So there are--traditionally externalities in those costs have been focused on air emissions, either criteria pollutants or perhaps greenhouse gas emissions.

Mr. {Whitfield.} Thank you, Mr. Tanton. And my time has now expired, so maybe some of the other witnesses will get to you, but at this time, I would like to recognize Mr. Rush for 5 minutes of questions.

Mr. {Rush.} Mr. Chairman, thank you so very much. Mr. Chairman, I might want to--I might remind all the members of the subcommittee that--and those who are in the audience here

that, on Tuesday, we will hear from folk where we will also have a more in-depth debate on the President's power plant plan and his common regulation, and I believe, Mr. Chairman, we are moving toward mission creep here in terms of the--today's testimony.

Today, we want to hear about innovative state strategies in incorporating renewables and energy efficiency measures.

And so, Mr. Chairman, I--with that in mind, I want to address my questions to Mr. Nadel. Mr. Nadel, what are the biggest benefits to state and Federal Governments that exists in making the country's energy network more efficient in regards to job creations, savings, environmental impact and other benefits, and at the same time you ask, what are the biggest benefits, including what are the disadvantages to investing in energy efficiency?

Mr. {Nadel.} Okay. Yes, Congressman, yes, as you point out, energy efficiency does have enormous benefits. It reduces energy use so that energy bills go down, consumers and businesses have more money to spend on other goods and services in their businesses, et cetera. That helps create economic growth, it helps displace some demand for power. It is not going to eliminate the demand for power, but it helps reduce the demand for power, saving money, but also providing

environmental benefits. So there really is an enormous multiplier from investing in energy efficiency, as many states have shown, and I think it is particularly gratifying that many of the states are actually increasing their energy efficiency activities. They are recognizing this.

You are saying what are the disadvantages? You know, a--for the consumer, not really a disadvantage. You have to spend a little time familiarizing yourself with what the opportunities are. That does take some time. Clearly, those who like to sell more energy and don't want to see efficiency, they may not be happy, but for most consumers and businesses, the benefits are quite large.

Mr. {Rush.} Mr. Nadel, Dr. Weinstein was pretty persuasive in summarizing, kind of stimulating in terms of his rationing some of his conclusions. How would you address his--some of his conclusions that--particularly as it relates to economic development, job creation, and how that should impact his--America's future? If you--if we were to concentrate solely on his outlook and his conclusion without really entertaining or even discussing efficiencies--

Mr. {Nadel.} Can--

Mr. {Rush.} --where do you think we are going to wind up at?

Mr. {Nadel.} Right. I mean I think Dr. Weinstein points out that there are jobs with oil and gas development. I would agree with that. I suspect he would agree that there are jobs with energy efficiency and renewable energy. Maybe that is something we could all agree on. So that is good.

I think where we might differ is I would emphasize efficiency and renewables a bit more, particularly the efficiency because it has more jobs per million dollar's investment than just about anything else, but I would say that we do not see that, at least for the foreseeable future, we will 100 percent rely on efficiency renewable. We definitely will need natural gas. There will be a bunch of coal plants that will continue to operate. We do see a balanced energy system, although he would probably want to promote a lot more construction, particularly of new coal, than we would.

Mr. {Rush.} So are we headed down this--excuse me, this path or--of either or? Any--does that make sense, or shouldn't it be both and?

Mr. {Nadel.} Right. I mean my hope is there is a middle ground. We can all agree that energy efficiency and renewable energy makes sense. We can all agree that we do need some oil and gas development. There may be some

differences about what the appropriate rules are, but I think just about everybody would agree that, yes, we do need some oil and natural gas. There may be some differences on coal, but I think most people would agree that we will continue to use coal, it is just a question of how much. So I am in favor of trying to find that middle ground and saying it is not total, you know, left versus right, but there is something more toward the center.

Mr. {Rush.} Thank you, Mr. Chairman.

Mr. {Whitfield.} Thank you, Mr. Rush.

At this time, recognize the gentleman from Illinois, Mr. Shimkus, for 5 minutes.

Mr. {Shimkus.} Thank you, Mr. Chairman.

First of all, I want to welcome my SSA young man in the front, who just showed up. I am going to meet with him after I get through these questions, and they get to observe a little bit of a congressional hearing. So--

Mr. {Whitfield.} Welcome. Welcome.

Mr. {Shimkus.} First of all, just a statement. Dr. Weinstein, you know, the President of the United States is from my home state, I am a coal-producing state of Illinois, and you shouldn't be confused; there is a definite war on coal. It has been planned by this Administration, and the

real proof is his--if you have never seen his response to the Editorial Board of the San Francisco Chronicle in 2008, he basically said, and on record, it is--you can check it, that his goal was to make the cost of generating electricity so high that it would bankrupt the industry.

So having said that, I understand other competitive pressures, but make no mistake, this is a designed application of Executive Branch force to destroy low-cost power and coal mining jobs in this country. And I just want to put that on the record.

Don't--now I would like to go to--I also want to raise the issue of, you know, Germany and Europe is a great example of this debate. So there is a Reuters article, April 15, that says Germany subsidizes cheap electricity for its neighbors. And in the first paragraph it just says Germany's neighbors enjoy cheap imported power subsidized by Berlin's green energy policy, and paid for by German households, analysts say. And it just goes through the debate that, obviously, we believe in all-the-above energy, and we believe that renewables can be part, but it has to be a specific portion of portfolio, and that you cannot escape the need for base-load energy, even if you are a green energy supporter, because base-load helps us with the ability for the

intermittent operability of solar and wind to be applied.

I want to go to Mr. Clemmer for a first question. Has the Union of Concerned Scientists ever studied decimal output of wind generation and its effect on people in and around the area, and what a set might--a setback might be?

Mr. {Clemmer.} We haven't specifically studied that issue, but there have been other studies out there.

Mr. {Shimkus.} I would ask, just for my sake, that you do that. I do have a constituent, he has been to me numerous times, he has--for--he has a beautiful home. He actually was involved in the siding of these things. He was pro-wind. He has been driven out of his house. Every time I talk to this family and the in-laws, which I just did recently about 3 weeks ago in my office in Danville, they break down crying.

So I would ask that you would do that to help us bring some sense to the fact is this really an issue, and it also is an issue on the setback ratio. In the State of Illinois, we are having this debate right now that siding is approved by the counties, which I like at the local level. There is also a movement to take away the counties' ability to do this, which I would not support, but in local zoning--and the setback thing. So I would ask you to do that and consider that as your respective organization, and if you would do

that, I would appreciate it.

The--my final questions really go to Mr. Polzin and Mr. Siegel. Deep southern Illinois also is prime for the fracking revolution. We have been a marginal oil well producer. We were one of the major oil-producing states during World War II. Of course, now there are marginal wells. We have a very aggressive state piece of legislation. Bipartisan, environmental community, and the energy community. The problem is, is that the government--the state government has delayed rollout of the rules, so the poor communities in southern Illinois aren't receiving the economic benefits that have been planned. What--Mr. Polzin, Mr. Siegel, what should my constituents expect once the final rules are laid out?

Mr. {Polzin.} I have been looking at reasonable economies for a long time, and one think I have learned is don't generalize. One can--different communities have different impacts. But one thing I am sure about, if you add a number of jobs paying $100,000 a year, oil and gas jobs, it will have a significant impact on almost any community, except something that is very large where it would be diluted. Exactly how that plays out I think depends on the community. Is it a rural community, is it an isolated

community, is it next to an urban area, these are all the kinds of things which determine the exact impact of that increase in new jobs. But will there be an impact? Absolutely.

The--whenever you add any number of $100,000 jobs to an area, it will have an impact.

Mr. {Siegel.} I would agree. There is a considerable impact. I think New York State is peculiar. In New York State, the desirability of $100,000 job is contested by people who are considerably wealthier. And so I think that is a peculiar situation which is a function of what you in--you here in Congress have done with the Federal Reserve, in part, pouring money into the money center banks in New York, driving the stock market up, allowing people to invest in real estate, in buying summer homes all over upstate New York. So this is not something that is a national problem, but it is a New York problem.

In New York, we have the peculiarity of the--of people who see creating new jobs and new wealth as the problem. They want it just--things just as they are. There is a kind of reactionary quality to the liberalism in New York State.

Mr. {Whitfield.} Gentleman's time has expired.

At this time, recognize the gentleman from California,

Mr. McNerney, for 5 minutes.

Mr. {McNerney.} Mr. Chairman, my ears are burning from all the bashing of California we have heard this morning.

Mr. {Whitfield.} Don't take that personal.

{Voice.} And New York.

Mr. {McNerney.} And New York too, I hear.

But, you know, California is a big state. Some regions are suffering from a poor economy. My region, for example, has a poor economy, but I think that can be attributed largely to the unregulated financial market that caused the housing crash in 2008. But if you go to Silicon Valley, if you go to Los Angeles, the economy is booming, there are a lot of people that are coming in there with innovation to create jobs. And I can tell you high-end companies like to go where the environment is nice, and you will find that in California. So to say that the regulation is causing a job exodus, there are jobs that are coming and going in any state, so I will contest that.

Now, I also want to push back on something that Mr. Weinstein said that the Monterey shale hasn't been developed because of regulatory environment in California. The Monterey shale is a very complicated geographic feature. It is not economic to frack there yet. I mean you can put a

well in, you will get some oil out, but it expires quickly because of all the stratification there. So there are some misapprehensions about what is going on in California.

I would like to follow up, Mr. Nadel, on energy efficiency. Do you have a way to estimate the return of--on investment on energy efficiency? In other words, for every dollar you invest in energy efficiency, within a 5-year period, say, what would your return on investment be?

Mr. {Nadel.} Okay. Thank you. Yes, Figure 1 in my testimony--my written testimony provide an average figure. There is a great variation. Sometimes you can get 100 percent return on investment, sometimes it is only 1 or 2 percent, but on average, we find it is typically about a 25 percent return on investment. So that is better than most other alternative investments.

Mr. {McNerney.} So that is year and year--

Mr. {Nadel.} Yes.

Mr. {McNerney.} --25 percent.

Mr. {Nadel.} That would be about the average.

Mr. {McNerney.} That would be considered a pretty good ROI.

Mr. {Nadel.} Yeah.

Mr. {McNerney.} And then would you please also

reiterate about the kinds of jobs that are created with investments and energy efficiency.

Mr. {Nadel.} Yes. There are a lot of jobs, more engineering, specifying, figure-adding--out exactly what needs to get installed in a particular home or business, a lot of jobs installing energy efficiency measures. There are also jobs manufacturing more efficient equipment, whether it is a light bulb, an air conditioner, insulation, et cetera, and then each of those jobs, they spend the money, that creates other jobs elsewhere in the economy. And then perhaps the biggest effect is that consumers and businesses save on their energy bills. They have more money to, say, to spend, to go out for dinner or whatever it is, and that helps--

Mr. {McNerney.} And what state--

Mr. {Nadel.} And--

Mr. {McNerney.} --has the highest energy efficiency standards?

Mr. {Nadel.} Say that again.

Mr. {McNerney.} What state would have the highest efficiency--energy efficiency standards?

Mr. {Nadel.} Depends on how you look at it. In our scorecard, Massachusetts has been ranked number 1 overall.

If you are you looking at savings as a percent of, say, electricity sales, Vermont has typically been the leader, although Arizona is getting very close to them. They are probably number 2 now. It--like many things, it depends on what your yardstick is.

Mr. {McNerney.} And so are these citizens complaining about the utility bills in those states?

Mr. {Nadel.} Any state, you have a diversity of citizens, but no, by and large, my understanding is they don't complain.

There was actually a very interesting study that came out about a week ago that looked at energy bills around the country, and energy bills depends on both the rates as well as the consumption. And some of the states with the highest energy bills were actually states with pretty low rates, but because they often use energy inefficiently, they actually had some of the highest energy bills.

Mr. {McNerney.} Thank you.

In California, the renewable portfolio standards initially were about 18 percent. The large public utilities easily met those standards within a few years before the deadlines and the legislature increased those standards. And it looks like they will meet those 33 percent standards

easily by 2020, so the RPS hasn't been too much of a burden on the California utility systems.

Mr. Clemmer, would you please discuss the job creation effect of renewable energy in some of these states?

Mr. {Clemmer.} Sure, yeah. You know, as I said in my testimony, the--I mean the growth of the wind and solar industries has been tremendous over the past few years, and the jobs have followed that and, you know, frankly, the industry is growing dramatically globally and that really positions the U.S. to be able to, you know, provide--create jobs and export equipment to other countries. The fact that we are now manufacturing 70 percent or more of the wind turbine components in the United States, that is amazing. That has happened over a 5-year period. Companies have moved to the United States to do that. You know, the manufacturing jobs really have been spread out too all over the country. There is a high concentration in the rustbelt states, in the Midwest, where there is great manufacturing capacity, but California, Texas, Colorado, Iowa, New York, I mean they are--all of these places are experiencing incredible job growth. And I would just--

Mr. {McNerney.} Thank you--

Mr. {Clemmer.} --you know--

Mr. {McNerney.} --my time is just about over.

Mr. Chairman, we don't really need to bash renewables and fossil fuels, no need to bash each other, we can work together for--

Mr. {Whitfield.} Absolutely. Yeah, we are--that is what this is all about; working together.

Mr. Olson of Texas, I recognize him now for 5 minutes.

Mr. {Olson.} I thank the chair, and welcome to our witnesses.

Last month, my local paper, the Fort Bend Herald in Rosenberg, Texas, had a story on our economy in Texas. It was another good story. It said we added over 380,000 jobs last year. That is the largest increase we have had in almost 2 decades. Most of those jobs came in the energy sector. In fact, if we were a country again, we would be the eighth largest oil-producing nation in the whole world. But as you all have mentioned, we are not just oil and gas, we are number 1 in wind production in America, and there are many reasons for that. One is our guys in Austin do a better job than people here in DC in terms of regulation. Our railroad commission, which oversees oil and gas operations in Texas, acts with commonsense and certainty to get permits approved. Our Public Utilities Commission gets power lines

approved in a timely manner. They understand that protecting the public and growing our economy are not mutually exclusive.

When states using the Federal Government put up barriers to energy, they put up barriers to jobs and our quality of life. And beyond jobs, our state and local governments have seen billions in new revenues. That money has made things many--many things possible that weren't possible before. In Dimmit County, right on the border with the Eagle Ford shale plate, a poor, rural school district has used all its--from the Eagle Ford to rocket them into the 21st century. Their kids can't compete now in the global economy.

My first question is for Dr. Weinstein, Dr. Polzin and Mr. Siegel. When states turn their backs on energy production, what do they miss out on in terms of funding other priorities like schools, like roads? Dr. Weinstein, you are up first, my friend. And, Dr. Weinstein, speak-text and I can translate for everybody here if you want to.

Mr. {Weinstein.} You know, I actually grew up here in Washington, DC, but I escaped 40 years ago.

Well, there is no question that energy development creates all kinds of benefits for the states in which they are located, for local communities, for school districts in

Texas. I can remember when I first moved to Texas in '75 during the last boom, energy accounted for about 25 percent of the state's economy. Then after the bust, it was down to about 10 percent of the state's economy. Well, now, it is back up to about 15 percent of the economy, but, of course, we are a much bigger state overall. We are not just about energy, we are about high-tech and we are about healthcare and, I mean, you know, we have 26 million people.

Mr. {Olson.} Yes, aerospace, you have--yes.

Mr. {Weinstein.} And aerospace in your community. So, you know, you are talking about the Eagle Ford in south Texas, there is no question that the shale boom has done more to uplift the quality of life and the standard of living and employment opportunities in those low-income south Texas counties than any federal or state programs in the past. So it has been, you know, a tremendous boon to those communities.

There is an important point that I didn't have--that is kind of related to this and we need to keep in mind, is this shale boom, all of this new oil and gas production, 90 percent of it has occurred on privately-owned land. Even though there is lots and lots of federal land with shale reserves, not to mention the offshore, 90 percent of this

increase is coming from private land, and that makes us different really from any other country in the world, and is, I think, largely responsible for the fact that the shale boom occurred first in the United States and not somewhere else.

Mr. {Olson.} Dr. Polzin, any comments, sir?

Mr. {Polzin.} I would just like to build on what Professor Weinstein said. I have here a recent release from the U.S. Energy Information Administration, and the headline is Production of Fossil Fuel from Federal and Indian Land Sale in 2013. So we are seeing a very different mix of energy production. More and more of it is coming from private land, and less and less of it is coming from government land in one form or another.

Mr. {Olson.} Yes, sir, all production in Texas comes from private land, every drop comes from private land.

Mr. {Polzin.} And I would say the same thing for Montana and North Dakota. That is entirely--all of the shale oil production comes from private land.

Mr. {Olson.} I am out of time. I will submit questions to the record. Thank you, Mr. Chairman.

Mr. {Whitfield.} Gentleman's time has expired.

At this time recognize the gentleman from California, Mr. Waxman, for 5 minutes.

Mr. {Waxman.} Thank you, Mr. Chairman.

In identifying the best system of emission reductions, we certainly have renewable energy and energy efficiency success stories in every region of the country. Some states are years ahead in developing a renewable energy industry, and implementing energy efficiency programs, others are just getting started, but when we identify the best system of reduction under the Clean Power Plan, EPA estimated a reasonable amount of renewable energy and energy efficiency that each state could achieve.

Mr. Nadel, was EPA conservative in its estimate of how much low-cost energy efficiency is available to states?

Mr. {Nadel.} Yes, we do believe that EPA was conservative with its energy efficiency estimates. They assumed that every state could gradually, over many years, ramp up to 1 1/2 percent energy savings per year, but there are several states that are already achieving over 2 percent, and quite a few others are already aiming for that. And that is just from utilities sector programs. They did not include private sector efficiency investments, such as with energy service companies, they did not include building codes, they did not include combined heat and power plants, so we believe there is quite a bit more savings available.

Mr. {Waxman.} As states look for ways to improve their energy efficiency, where should they look first? Where can get the biggest bang for their buck?

Mr. {Nadel.} It is going to vary to some extent from state to state. It will often be electricity because electricity is a premium-priced energy source that is very good for highly exacting applications, but it is a little bit more expensive. Obviously, if it is a cold state, they should be looking at heating. If it is a warm state, they should be looking at cooling. There are lots of opportunities in industry, in--throughout the country, so lots of different opportunities everywhere.

Mr. {Waxman.} Mr. Clemmer, for renewables, EPA looked at what states were achieving in each region of the country, and then applied the regional estimate to each of the states in the region. Again, was this a conservative approach? Could many or most states do more at a reasonable cost, and would they benefit from doing that?

Mr. {Clemmer.} Yeah. EPA's approach is very conservative. It basically was--is a business-as-usual approach that says states are going to meet their RPS requirements. For some states, they had higher levels, but for the most part, at the national level, the amount of

renewable energy was essentially business as usual, if states just implement their RPS's.

We did an analysis that showed that they could go twice as far as that and achieve 25 percent nationally, and achieve deeper emission reductions overall for the--for their proposals for the states. As with ACEEE, we also included higher levels of efficiency in that analysis based on what the states are already achieving. So we think it is conservative, and there are some issues in their methodology with renewables too where some states are actually producing less renewable energy in 2030 than they are today because of the methodology they applied, and so we are hoping that that gets fixed.

Mr. {Waxman.} Um-hum. Many of my Republican colleagues claim that the Clean Power Plan will hurt consumers and put a drag on the economy. I think you have heard some of them this morning. I disagree. EPA's Clean Power Plan will help drive technological innovation in clean energy and efficiency technologies. I think that would be a huge benefit to the U.S. economy, boosting manufacturing and competitiveness, and above all it will take a critical step toward cutting dangerous carbon pollution and mitigating climate change.

Do you agree with that?

Mr. {Clemmer.} I strongly agree with that. In fact, our analysis, which we used the EIA's national energy modeling system to do this analysis, it was a modified version of that, we found that the benefits in 2020 with 3 times the cost, and they were even higher in 2030, and part of that has to do with implementing efficiency, which is very cheap, and cost-effective renewable technologies, but the other part of it is the public health and emission benefits both from reducing carbon, but also from reducing criteria pollutants, has a--there is a huge economic benefit to that.

Mr. {Waxman.} So do you think that the--some of these Republicans are just engaging in a scare tactic to attack the proposal?

Mr. {Clemmer.} I think there is a lot of rhetoric being thrown around, yes, and I think it would be good to have some, you know, actual data out there to look at different alternatives to see what is the best approach for achieving the--

Mr. {Waxman.} Is looking at data the same thing as looking at evidence? Is that sort of like science?

Mr. {Clemmer.} Science and economics, yes, and engineering, yes, all of that.

Mr. {Waxman.} All of that. Okay, thank you.

Mr. {Whitfield.} Thank you, Mr. Waxman.

And at this time, we recognize the gentleman from Virginia, Mr. Griffith, for 5 minutes.

Mr. {Griffith.} Thank you, Mr. Chairman.

You know, it is very interesting, it may be rhetoric to some, but I represent the coalfields in Appalachia and southwest Virginia. We lose jobs on a regular basis over the last couple of years, another 135 this week. Jobs that paid between $75,000 and $100,000. They are good-paying jobs in a region that doesn't have other jobs. As Mr. Siegel pointed out, Appalachia has long suffered from not having good-paying jobs, and energy extraction is one of the ways that we can offset that.

When you look at businesses closing, and you realize that these are real people and real families whose roots go back in the community for generations, it is just really hard to sit here and hear people say that there is just a lot of rhetoric out there. These are real people; people that I know, people that I care for, people that want to work and want to live in the communities in which their parents, their grandparents, their great-grandparents, and their great-great-grandparents have lived in. And everybody always wants to say, well, we can shift or we can alternate to something

else, but, you know, my region also heard those same arguments on furniture manufacturing and textiles and tobacco. Those were our big industries in the region, along with general agriculture and some other things thrown in. And now, as Dr. Weinstein said earlier, he is not sure whether there is a war on coal. I can assure you there is. Living in the middle of the fields out there and seeing the people who are affected, there is a war on coal.

But I would have to ask you, Dr. Weinstein, when you are losing these jobs, that clearly affects the economy of my region, but you indicated, and I think you are correct, that when you put the pressures on coal that have been placed on coal over the last few years, you are going to drive energy costs up. Is that not correct?

Mr. {Weinstein.} I would say that, you know, other things being equal, if coal is going to contribute less to the power grid, and other forms of energy are more expensive, then obviously that is going to be passed on to businesses and consumers. So that is why I argue that we--that EPA and other regulatory agencies need to proceed with caution, with a rule of reason when promulgating these, you know, the final rules--

Mr. {Griffith.} And I would agree.

Mr. {Weinstein.} --of the greenhouse gas emissions.

Mr. {Griffith.} And I would agree. We have to proceed with reason and with caution, and to make sure that we let the science get in front of the regulations, and not have the regulations in front of the science. And I couldn't agree with you more, which is why I have supported clean energy technology and clean coal technology, because we have to continue to do the research, but we cannot eliminate coal, which seems to be the goal of this Administration, without having that passed on to the consumers. And interestingly, the President said so in his 2008 interview with the San Francisco Chronicle. He said these costs will necessarily be passed on to the consumers. What people often forget is they are the consumers. And when those consumers happen to be large manufacturing facilities, and their facilities start to age, wouldn't you agree that some people, depending on the product being manufactured, would have to look at areas of the world where they can compete better because we have driven our energy costs up. Wouldn't you agree with that, Dr. Weinstein?

Mr. {Weinstein.} No, that is absolutely true, and one of the reasons we are seeing a revival in this Nation's manufacturing base is because our power costs, our energy

costs in general are lower than in most other countries. That is one of the reasons that we find companies from Germany, where power costs are so high, moving their operations or expanding in places like Texas and Louisiana. So in a perverse way, that is kind of good for the U.S.

Mr. {Griffith.} Yeah.

Mr. {Weinstein.} Something important hasn't been mentioned today, and that is the--you would think that the United States is an energy wastrel, but we are not. We have improved energy efficiency more in the United States than in any other country over the last 30 years. Today, we get $1 of economic output with half of the energy input that was required 30 years ago, and we need to keep that in mind. We have made tremendous progress in terms of energy efficiency.

Mr. {Griffith.} And we have, and we can do that and continue to use coal as well, and we should improve on all aspects of our energy, and we should always be looking for ways that we can make it more environmentally friendly.

With that, Mr. Clemmer, I would ask, have--has your group studied the impact of wind on birds? And Mr. Shimkus mentioned earlier the impact with the sound, have you all studied that impact, the loss of life to numerous species of birds?

Mr. {Clemmer.} We are part of the National Wind Coordinating Collaborative that thoroughly researched that issue and found that the impacts on avians from wind turbines are relatively small compared to other things, including--

Mr. {Griffith.} And it may be--

Mr. {Clemmer.} --fossil fuel development, and coal and nuclear plants.

Mr. {Griffith.} And it may be relatively small compared to some other things in your opinions, but I would have to say there are some opinions that, while agreeing that some fossil fuels have issues as well, wind needs to do better siting, et cetera, and I would ask that we include into the record, Mr. Chairman, if we could, the spring edition of the magazine of American Bird Conservancy. Yes, I know it probably shocks my colleagues I read this on a regular basis, in which it includes an article on the top 5 myths about wind, power and birds.

Mr. {Whitfield.} Without objection, we will enter this into the record.

[The information follows:]

********** COMMITTEE INSERT **********

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Mr. {Whitfield.} The gentleman's time has expired.

At this time, we recognize the gentleman from Texas, Mr. Green, for 5 minutes.

Mr. {Green.} Thank you, Mr. Chairman, and the ranking member for holding the hearing today.

The recently-finalized EPA carbon rule has raised some questions, and hopefully, through a series of hearings, we can get answers.

Before the 4 blocks of the rule for existing power plants were proposed and finalized, Texas is doing its part to reduce carbon emissions. Thanks to the rapid increase and production of natural gas from the Permian Basin and the Eagle Ford shale, we have been a leader in fuel switching. Thanks to an abundant wind resource, Texas now has more than 14,000 megawatts of wind power. Both of these resources are supplanting coal as our base-load fuel. On the energy efficiency front, Texas has been a leader as well. For older buildings, Texas has passed laws to encourage retrofits and increase access to financing. For the new buildings, Texas put the 2009 Energy Conservation Code into effect that requires 15 percent more efficiency. Our city of Houston is the leader in Texas by requiring an additional 10 percent

above that 2009 code. However, in the utilities section, there is--may be some room for improvement, and that is how we improve that interests me.

I support the EPA's mandated duty to regulate carbon. The recent rule has raised some eyebrows, not just amongst the regulated entities, but across the board. I have particular interest in block 4 in the energy efficiency block, and we have reviewed the rule and the EPA calculations. There are some questions I would like to have answered.

I am happy the panel is before us, and I believe we can answer some of the questions that relate to the states.

Mr. Nadel, the--energy efficiency is often called the silent fuel. It--you state in your testimony that energy efficiency should be the cornerstone of all-of-the-above energy policy. The ACEEE has created a state efficiency standard scoreboard which examines 29 variables in 6 categories. Does the ACEEE scorecard offer a statewide annual electric savings rate?

Mr. {Nadel.} No, we haven't--wait, yes, it does. We do provide that figure for each of the individual states. It is on Table 14 of our most recent one.

Mr. {Green.} Okay.

Mr. {Nadel.} If you have a question about a particular state, I would be happy to answer it.

Mr. {Green.} The ACEEE rates California as number 2, is that correct?

Mr. {Nadel.} Overall, yes.

Mr. {Green.} Okay.

Mr. {Nadel.} California was number 2.

Mr. {Green.} Do you have a sense of California's annual savings rate?

Mr. {Nadel.} California, for electricity in 2011, which is the numbers I have in front of me, saved 1.35 percent of their electricity through energy efficiency.

Mr. {Green.} Okay.

Mr. {Nadel.} They were fourth in that category.

Mr. {Green.} EPA believes that the ultimate-- ultimately, states can reasonably achieve a 1.5 percent savings rate per year. Is that generally correct?

Mr. {Nadel.} Yes, they do.

Mr. {Green.} If California ranks number 2 with approximately 1.3 annual savings, how do the bottom third of the states reasonably achieve 1.5?

Mr. {Nadel.} California's overall number too, they are not as high as in the electricity savings. In terms of

states that are already doing the 1.5, that includes Arizona, Massachusetts, Rhode Island, Vermont, are all achieving those already, and there are several other states that plan to do it in the next year or 2.

Mr. {Green.} In your testimony, you state the Federal Government can help and encourage states through guides and assistance. What types of the policy or guides are necessary to achieve that 1.5 percent?

Mr. {Nadel.} Mainly, it will have to come at the state level. They will have to work typically with the utilities to offer energy efficiency programs for consumers and businesses. Federal Government can provide technical assistance, information on best practices, those types of things I think would aid the states to do what they can do.

Mr. {Green.} The EPA's technical support documents show that engineering-based studies state that the maximum achievable energy efficiency goal is .5--0.5 percent annual savings rate. How does EPA achieve the 1.5 percent when various engineering and--based studies state that the--that level is not possible?

Mr. {Nadel.} Many of the engineering studies that I am familiar with show that 1.5 or even 2 percent or higher are possible, as witnessed by the fact that a number of states

are actually achieving that.

Mr. {Green.} Okay. Do pollution controls affect the power plants' energy efficiency?

Mr. {Nadel.} Yes, they do a little.

Mr. {Green.} Okay, do pollution controls actually lower the efficiency of the power plants?

Mr. {Nadel.} Commonly, yes. It varies from plant to plant.

Mr. {Green.} Okay. Can residents or customers achieve enough energy savings through appliances and thermostats to offset loss of the power plants?

Mr. {Nadel.} I haven't done those calculations. I would want to enter--

Mr. {Green.} Mr. Chairman, I know I only have 9 seconds left, but I would like to ask Mr. Tanton, in your statement, the--you say that production tax credit has led buildings and enormous amounts of variable and volatile electric--electrical generation, threatening state reliability to the electrical grid. How does enormous amounts of volatile production lead to problems with the state grid? It seems like if we are producing more, it would give more certainty to the grids.

Mr. {Tanton.} Well, you need to keep supply and demand

in perfect harmony. So as more volatile generation comes online, less volatile or more stable generation has to go offline, but they have to be standing-by. They have to be idling, as it were.

Mr. {Green.} Yeah.

Mr. {Tanton.} And in that operation, it threatens the grid because they can't respond fast enough. They can respond fast enough if you have a little bit of wind or solar on the system, because the typical marginal unit is a fast-responding combustion turbine or something like that. If you have a lot of variability from the wind, then you start dispatching your base-load units, which can't respond fast enough. If you can't respond fast enough, the grid suffers a shortage, i.e., a blackout or brownout.

Mr. {Green.} Well--

Mr. {Whitfield.} The gentleman's time has expired.

Mr. {Green.} Thank you, Mr. Chairman. Obviously, it is a great panel.

Mr. {Whitfield.} At this time, we recognize the gentleman from West Virginia, Mr. McKinley, 5 minutes.

Mr. {McKinley.} Thank you, Mr. Chairman.

Dr. Weinstein, with all due respect, you had said--you used the word hyperbolae about the war on coal, and I really

want to reinforce what has been mentioned by a few of the people that preceded me, that there is a war on coal, and anyone needs to come to the coal producing areas around this country and understand what is going on for this war on coal. The uncertainty that is swirling about the industry, even the gas industry is now becoming more concerned that once they--once the EPA's successful battle on coal, it is going to switch over to them next. And--because my--the--I think the general understanding is, for those of us in the energy fields, that the--this Administration believes that we can have higher utility bills. We should be able to--I have heard them refer to Europe, the European bills are higher so, therefore, we can afford it. I just want to get past that it is not hyperbolae, it is real, and it--

Mr. {Weinstein.} Well, you understand that I am a dispassionate academic, so, you know--

Mr. {McKinley.} Well--

Mr. {Weinstein.} --I have to base my comments on facts.

Mr. {McKinley.} I--and I am engineer, and I base my facts--on facts and real life, not academic. I am facing those families that are struggling, that are unemployed, that are--they are worried about what is going to happen next to them. I have--in eastern Ohio where we have an aluminum

plant with approximately 1,000 employees gone because the cost of electricity, they can't product it, they can't produce aluminum, because aluminum--about 60 percent of the cost of producing aluminum is electricity, and when that rate continues to hike because of what policies we are setting here at the Federal Government level, we are putting them out. Ravenswood, the same thing; 1,000 employees down there. It is just having a startling effect, so I just wanted to build off this, these federal policies, how federal policies are affecting states. They are affecting states. And the coal industry, for all of you to understand, my grandfather was a coalminer and so I can relate very comfortably to what this is doing. When you shut down a coalmine because of the structure that we are doing here in Washington, you are affecting not only the coalminer, but you are affecting all those related industries that are involved with--the timber industry, the concrete industry, the machinists, the building, the machinists, all the people that are involved in, let alone the jobs that are on the outside industry. So we have to be very careful of the policies that we set.

But let me return back, if I could, to the--what I understand is the headline of this meeting, is the economic impact of state energy policies. And each of you have

presented some very interesting scenarios about your research into the--what the states are doing, as laboratories of democracy with this. So if I could go down a list with each of the 6 of you, would you give us, in a short time frame, what would be the number 1 thing that we should learn from your research? One thing, and I will start with you, Mr. Tanton, what would be the number 1 action statement that we should be listening to in Washington to what you have learned, and what is your opinion? Just 1 thing.

Mr. {Tanton.} There are so many things, but if you--

Mr. {McKinley.} All right, I--

Mr. {Tanton.} If you ask for 1--

Mr. {McKinley.} Try and limit to 1.

Mr. {Tanton.} --I will give you 1. Separate the end goal from the mechanism of achieving it. Keep in mind as you do that that economic forecasts are forecasts, they are not answers, they raise questions. You have heard a lot of estimates of forecast this morning. I would argue they should be used to raise questions, and build in contingencies in your policies and automatic off-ramps.

Mr. {McKinley.} Thank you. Mr. Siegel?

Mr. {Siegel.} I would suggest that--

{Voice.} Microphone.

Mr. {McKinley.} I can't--I am sorry.

Mr. {Siegel.} --and that energy--thank you--energy is important for reducing inequality, and that the places that produce high costs of energy like California have enormous--or New York, have enormous, enormous inequality, and they are ill suited to lecture the rest of the country--

Mr. {McKinley.} All right.

Mr. {Siegel.} --on how we should proceed.

Mr. {McKinley.} Thank you. Mr. Clemmer?

Mr. {Clemmer.} The most important thing from my perspective is that we need to transition even further than we have gone to low carbon energy, whether that be using carbon caption storage with coal or natural gas, producing low-carbon energy from renewables, nuclear power, we need--the costs of climate change are just too tremendous, and we are already seeing that with the cost of extreme weather on the increase and the frequency happening, and so we need to move in that direction.

Mr. {McKinley.} Steve?

Mr. {Nadel.} Yes, I would note that energy efficiency typically provides about a 25 percent return on investment, and is very labor-intensive and is particularly good at generating jobs.

Mr. {McKinley.} Okay.

Mr. {Mr. Polzin.} The local economic impacts of energy development are real and they are significant. There are some supposedly--there are some negative aspects. For example, housing in rural areas, but the benefits, the increased wages and employment, provide resources that we can address these other effects.

Mr. {McKinley.} Okay. Dr. Weinstein?

Mr. {Weinstein.} I would argue that when it comes to energy development, if there is no evidence the states are doing a poor job, the Feds ought to stay out of the way.

Mr. {McKinley.} Thank you.

Mr. {Weinstein.} And secondly, it is time to remove all restrictions from the export of natural gas and oil.

Mr. {McKinley.} Okay.

Mr. {Weinstein.} And coal.

Mr. {McKinley.} Thank you very much.

Mr. {Whitfield.} Gentleman's time has expired.

At this time, recognize the gentlelady from California, Mrs. Capps, for 5 minutes.

Mrs. {Capps.} Thank you, Mr. Chairman, for holding this hearing and for collecting together such an interesting panel. I want to thank each of you panelists for your

testimony.

I think we would all agree that fossil fuels are a finite resource, which means that sooner or later we will have no choice but to find alternative energy sources. Knowing this, I believe we owe it to our children and grandchildren to begin moving in that direction now, rather than waiting years down the road when it may be too late. My home state, which has gotten some attention this morning, California, understands this and has been a leader in implementing clean and sustainable energy policies. Setting renewable production standards and increasing investments in energy efficiency are 2 of the more critical elements of these policies. These policies have paid significant dividends for my state and for my district, which is on California's central coast. For example, my district is home to 2 of the largest operating solar farms in the world, and more on the way. Together, the California Valley Solar Ranch and the Topaz Solar Farms in eastern San Luis Obispo County are already generating well over 550 megawatts of electricity, and powering hundreds of thousands of California homes. These projects created hundreds of local jobs as they were being built, and still do, and injected hundreds of millions of dollars into our local economy. One of these

projects used federal loan assistance, and the other was financed entirely with private capital.

It seems to me that at least in my district, California's policies were key drivers of economic growth and private investment.

And my question, Mr. Clemmer, I am hoping you would agree, I am assuming you would, but I wanted you to talk briefly about the ways that government policies can support renewable--renewables and impact private investments in renewable energy projects. How is this partnership going to work?

Mr. {Clemmer.} Thanks. Yeah, good question. So, yeah, I mean I would agree, as my testimony alluded to, that projects like that in California and other states around the country are being driven in large part by state renewable electricity standards, which have been beneficial in not only deploying the technologies, but driving down the cost. And we have seen that dramatically with wind and solar PV in particular that that is happening.

The federal policies, I think, to learn from the states, is we need long-term, stable, predictable policies to facilitate that investment, to continue to invest in manufacturing. The production tax credit has been a good

policy, but the short-term extensions of it has created a boom-bust cycle that has not been good for the industry.

Mrs. {Capps.} Yeah.

Mr. {Clemmer.} We need something that is longer term, whether that be a longer-term tax credit, whether that be a national renewable standard is something we have been advocating for for years, where UCS and EIA have done many analyses over the last 15 years showing large national benefits to adopting a national renewable standard.

Mrs. {Capps.} I agree with you. And I have a question now for you, Mr. Nadel. My district has also seen significant economic benefits from California's strong energy efficiency standards. These standards have driven researchers and entrepreneurs to innovate and develop new products to meet these standards. We have at my home institution at UC Santa Barbara, the Institute for Energy Efficiency, which is dedicated entirely to developing cutting-edge energy efficiency technologies. And we also have a private company, for example, like Transform which is a global leader in energy efficient power conversion technologies.

I believe there is a clear link between strong energy efficiency standards and innovation.

So could you elaborate on this? I have a little bit of time left. How do innovators benefit from strong energy efficiency standards? Is this the winning path for the future?

Mr. {Nadel.} Yes, we do believe there is. Lots of new technologies keep being developed all the time. You have pointed out some. Just to mention 2 technologies that were developed first in California, electronic ballasts which now power all the fluorescent lamps, as well as low emissivity coatings on windows that help keep some of the heat out. Those are examples.

Another area where California has really been leading is what we call intelligent efficiency. It is that marriage between energy efficiency and Silicon Valley, if you will. How do we use information and communication technologies to understand where the energy is being used in real time and immediately correct it, either automatically or by giving information to the operator.

So sometimes people talk about energy efficiency being the low-hanging fruit. Fortunately, the fruit keeps growing back on the trees as, through research, as you pointed out, we keep developing new ways to save energy.

Mrs. {Capps.} Thank you. Yield back.

Mr. {Whitfield.} Gentlelady yields back.

At this time, recognize the gentleman from Texas, Mr. Barton, for 5 minutes.

Mr. {Barton.} Mr. Chairman, I--Mr. Terry got here before me. I would--

Mr. {Whitfield.} Well, they tell me that you had been here earlier, so if you are going to yield--

Mr. {Barton.} No, I am--

Mr. {Whitfield.} --to Mr. Terry--

Mr. {Barton.} I am happy to let Lee go and then--

Mr. {Whitfield.} All right.

Mr. {Barton.} --I will be the cleanup--

Mr. {Whitfield.} Recognize Mr. Terry from Nebraska for 5 minutes.

Mr. {Terry.} Be the closer.

Mr. {Barton.} That is right, baby.

Mr. {Terry.} That is awesome. So a little over a year ago, our chairman led a group of us on this side of the aisle, not on tax dollars, to go to western North Dakota, and it was educational in the sense that we went from the very beginnings of a project, all the way to when it is just pumping and it is--all the construction has finished. And it was extremely interesting to see what little footprint there

is after the construction has finished and it is just pumping and pumping and pumping. But one of the things that really stood out to me, especially when we were talking to the workers there, is how highly paid they are. And I think that is a product, probably, or market, free market, you know, when someone is in demand, they can garner higher wages. But as Ed can testify to, we were being told that just a lumper that unloads and loads trucks for a warehouse in that area of North Dakota earns $60,000 to start.

Now, we talked to some of the folks that were putting together the drilling rig, and they were in the 6 figures. So it is incredible to me the high wages, and the number and volume of young people, men and women, that are there for the good wages. And I think that is one of the things that we don't think about when we talk about the gas and oil production in the United States, is it is a way of elevating lower income workers to higher wages. And, frankly, it is interesting that a machine operator is making virtually--not virtually, is making 80 percent of what a United States Congress is making. That is awesome.

So, Mr. Polzin, your area of expertise is in the economics that this brings. What is the--looking at something like Pennsylvania and North Dakota, and the

economic driver of the oil boom and gas boom, can you tell us what impacts that really has, not only on the local economy, the state economy, but the national economy, that one--that guy that was running the machinery, making $130,000, $140,000 a year, what is the multiplier effect of that? Mr. Polzin--Dr. Polzin.

Mr. {Polzin.} When you look at a local economy--

Mr. {Terry.} Microphone.

Mr. {Polzin.} When you look at a local economy, it--the actual impact will vary depending on a number of factors, but if you--the real specific question is what is the multiplier for an oil and gas job, I would have to go back and look it up, but I think it is somewhere around 2.5 or 2.8. That sounds lower than, you know, a turnover ratio of 7 or something like that, which really has no exact meaning, but that 2.5, 2.7 comes out of a number of economic models, one called implant, and I think that is a pretty solid figure. So you are looking at an additional 1.8 jobs for every oil and gas job.

Mr. {Terry.} That is interesting, and so--and the other part about this is when a pump is just there and it is on such a very small pad, less than the size of half of this room, the landowners were telling us how pleased they were.

Mr. {Polzin.} They were very pleased.

Mr. {Terry.} They were making royalties off of that. And it is interesting to me that states like New York are fighting oil and gas production in their states when I--it--Mr. Siegel, in the last 27 seconds, why would states not want to use their natural resources to elevate especially lower income people in their state?

Mr. {Siegel.} Wealthy people want a pristine environment. If you are a wealthy person living in New York City and you have a summer home upstate, you don't want economic growth. But besides that, there is something that has come out of the universities, that is the idea that progress as was traditionally understood was industrialization, but industrialization and much of academia is seen negatively. It is seen as producing the effluvients of modern economic society, and there is a desire to avoid that.

So on a local level, you ask people why don't you want fracking, they will say too many roughnecks, too many crowded roads, too many prostitutes. And then you push them a little and you ask and you say, well, but doesn't this reduce economic inequality? Won't this pass? And then pumping--you will talk about--is there. That is what they are opposed to.

They don't want industrialization. They don't want manufacturing to revive. What gentry liberals want is the status quo for themselves, and that is very difficult to deal with, and that is a function of extreme wealth. We have considerable wealth in New York concentrated in the New York metro area, coming out of the financial services, and as upstate declines and declines further, it is easier to buy properties up there and that is fine for some people.

Mr. {Whitfield.} Gentleman's time has expired.

At this time, recognize the gentleman from New York, Mr. Tonko, for 5 minutes.

Mr. {Tonko.} Thank you, Mr. Chair.

Mr.--or, Dr. Weinstein, just a clarification on the ending--the end portion of your statement about contrasting the renewables with oil and gas and subsidies. Will you--did you state that there are no subsidies on oil and gas?

Mr. {Weinstein.} No, I didn't say that.

Mr. {Tonko.} What did you say? It--

Mr. {Weinstein.} I said that in the last 5 years--5 or 6 years, according to the Obama Administration, 75,000 new jobs had been created in renewable energy, and then I added that federal subsidies for renewables have been about $50 billion over that period. I then said that the oil and gas

industry has added more than 700,000 jobs over that period with no new subsidies.

Mr. {Tonko.} What are the subsidies on oil and gas?

Mr. {Weinstein.} This can take us very far afield of the hearing today--

Mr. {Tonko.} No, but just--

Mr. {Weinstein.} --because I would argue that the oil and gas industry does not receive subsidies. What the oil and gas industry receives are tax benefits that are available to just about every manufacturing and mining--

Mr. {Tonko.} Isn't that semantics?

Mr. {Weinstein.} No, it is not--well, we could turn it into a semantic argument. We can look at all of the tax preferences that are available to all industries, but no matter how you want to define them, relative to output, the subsidies to renewables are way ahead of any--

Mr. {Tonko.} And--

Mr. {Weinstein.} --of any definition of subsidies--

Mr. {Tonko.} Okay, so are--

Mr. {Weinstein.} --through fossil fuel.

Mr. {Tonko.} --are your tax benefits permanent?

Mr. {Weinstein.} Excuse me?

Mr. {Tonko.} Are your tax benefits for oil and gas

permanent?

Mr. {Weinstein.} Well, they are--what is in the code is in the code until they are--

Mr. {Tonko.} No, no, no, that is what I am asking, is it permanent?

Mr. {Weinstein.} Well, nothing in the tax code is permanent.

Mr. {Tonko.} Well, I think it is a lot more permanent than some of the benefits given in subsidy format to renewables.

Let me just state, the renewable energy and energy efficiency programs are a win-win for the environment and the economy. They create jobs, save consumers money on their electric bills, and do cut dangerous carbon pollution, which is an important element of concern. Despite these benefits, or perhaps because of them, conservative activists organizations have been pushing Bills and state legislative bodies to weaken or repeal state clean energy and energy efficiency programs. I find it troubling that anyone would fight efforts to make our economy more energy efficient or more energy secure by diversifying our energy options by adding renewable sources.

Mr. Clemmer, can you briefly describe what has been

happening in some state house. Who is behind an effort to weaken or repeal clean energy and energy efficiency programs?

Mr. {Clemmer.} Sure, I would be happy to. Yeah, they have been under attack the last few years. The American Legislative Exchange Council, some of the groups that Mr. Tanton is associated with, the Beacon Hill Institute, the Cope Brothers have been on the attack, and actually, with respect to renewable standards, I can say that they have failed miserably, with the exception of this year there was a freeze in Ohio, but in every other case, they have not gone through. And I would like to highlight an example of Kansas, for example, which has been kind of front and center for some of these attacks, and I--my feeling is the big reason why that they are failing is because they are seeing the economic development benefits of wind development in their state, and on top of that, they know from their Public Utility Commission, the Kansas Corporation Commission, that the cost of meeting these standards have been on the order of 1 to 2 percent. But the studies that are coming out from the Beacon Hill Institute, that Mr. Tanton references in his testimony, put the cost in Kansas at 45 percent increase in electricity rates. It is just, in my opinion, disingenuous and seriously flawed. I would be happy to talk about what those problems

are if you would like me to.

Mr. {Tonko.} Thank you. In June, the Ohio governor signed a Bill freezing the state's renewable energy standard for 2 years. He did this over the objections of not only the wind industry and environmental organizations, but also numerous companies including Ingersoll-Rand, Honeywell, Honda, Owens Corning and Whirlpool.

Mr. Nadel, your organization worked with the Ohio Manufacturing Association to document the potential costs associated with delaying implementation of the state's clean energy and energy efficiency standards. What did you find?

Mr. {Nadel.} We found that these energy efficiency standards would save Ohio ratepayers, businesses and consumers, more than $5 billion by 2020. That was the mixture of lower electricity bills as well as the impact of the energy efficiency on the wholesale markets, and under supply and demand, if demand goes down, prices go down. Now that they will be saving less energy, the prices will be higher.

Mr. {Tonko.} Thank you, sir. And I note my time has expired, so--

Mr. {Whitfield.} Thank you very much.

At this time, recognize the gentleman from Texas, Mr.

Barton, for 5 minutes.

Mr. {Barton.} Thank you, Mr. Chairman.

I am--have to do a few disclosure requirements. We have an expert from Texas, Dr. Bernard Weinstein, here. He is with the Maguire Energy Institute. I know Cary Maguire very well, and it is at the Cox School of Business, I know the Cox family very well. So I am biased in that I know one of the witnesses that are here today, and I know the institution that he represents.

The title of our hearing, Mr. Chairman, is Laboratories of Democracy: The Economic Impact of State Energy Policies, and I think it is important, as the Republican side, to emphasize that we support the rights of states to have energy policies, and we--if you support that right, then you support the rights of states to have different energy policies. And that is certainly the case, if you compare my home state of Texas with the golden gate state of California, or the empire state of New York.

So I am going to ask Dr. Weinstein, in terms of environmental issues in Texas, is there any evidence that, because of our energy policy, our environment is worse than New York or California?

Mr. {Weinstein.} Well, understand that we do have a lot

of intensive manufacturing industries, including refining and petrochemcials. You don't find industries of that nature prevalent in New York state, at least not to the degree we have in Texas. So, in that sense, yes, you know, we have more challenges--

Mr. {Barton.} But we are in attainment in Texas on all air quality standards. The DFW area and the Houston area have been in nonattainment, but under current law, current standards, we are in attainment. If they tighten them up even tighter for ozone, we might go back into nonattainment, but certainly, we are nowhere near nonattainment status of, say, the Los Angeles basin, which has got the worse air quality in the country for 30 years in a row, and looks like they are going to keep that for another 10 or 15 years. So I am not aware of any outstanding environment issues that it put us, us being Texas, lower in the pecking order than the other urbanized states like California, New York, Florida, that are, you know, highly populated.

Mr. {Weinstein.} Well, no, I agree, but the point I was trying to make is that despite the fact that we do have a lot of heavy industry, you know, we have been able to maintain compliance, you know, with EPA standards across the state--

Mr. {Barton.} Yeah.

Mr. {Weinstein.} --and by just about any measure you want to use, whether we are talking about air quality, water quality, any other measure of environmental quality, it is improving in Texas even as energy production increases.

Mr. {Barton.} Well, we say in Texas that we have created more jobs in the last 10 years than the rest of the country combined. Is that a true statement?

Mr. {Weinstein.} Well, not quite.

Mr. {Barton.} Most of--

Mr. {Weinstein.} Let me--I will put it this way.

Mr. {Barton.} Well, compare us to California. Job--you know, California is the most populous state, Texas is number 2.

Mr. {Weinstein.} Yeah, I think--let me check my notes. I said earlier that in the last 18 months, Texas has added 548,000 jobs--

Mr. {Barton.} Do you know what--

Mr. {Weinstein.} --in 18 months. Okay?

Mr. {Barton.} Do you know what California has added?

Mr. {Weinstein.} California, which is half again as large as Texas, has only added 322,000 jobs over the last 6 years. So there is really no comparison in terms of job growth.

Mr. {Barton.} As a general statement, it is fair to say that Texas has created more jobs than California.

Mr. {Weinstein.} Yes, by far.

Mr. {Barton.} Unless you go back 100 years or something, or go back to 1849, I mean it is--

Mr. {Weinstein.} About 40 percent of all the jobs created in the U.S. since 2001 have been in the State of Texas.

Mr. {Barton.} Okay. What is--do you know what the average electricity price in California is compared to the average electricity price in Texas?

Mr. {Weinstein.} I don't know what specifically--

Mr. {Barton.} Well, do you know what the--

Mr. {Weinstein.} --but I know it is a lot higher in California.

Mr. {Barton.} Do you know what your electricity price is at your home in Dallas?

Mr. {Weinstein.} Well, I know that my electric bills have been falling for the last couple of years, even though the temperature has been rising, and that is because we get about 60 percent of our electricity from natural gas--

Mr. {Barton.} Well, if your--

Mr. {Weinstein.} --in the State of Texas.

Mr. {Barton.} You know, interestingly, Boone Pickens didn't know what he was paying for electricity either, but if you are as smart as I think you are, you have a wife that pays the bill, you are probably paying about 9 to 10 cents retail for electricity per kilowatt. If you--

Mr. {Weinstein.} No, actually, I think I am paying 8 1/2 cents, but remember, we have a deregulated market in Texas.

Mr. {Barton.} Well, if you are in California, you couldn't find an 8 1/2 cent rate, it would be at least 20 cents, and you are lucky if you can find that.

Mr. {Weinstein.} You are probably right.

Mr. {Barton.} Yeah, I am right. I am not probably right, I am right.

Well, Mr. Chairman, let me simply say that, again, I support the rights of states to have energy policies, but if you look at my home state of Texas, we have the highest economic growth in the country, we have as good air quality and water quality as any other state in the country, and we have a private-sector-based energy policy that has created more energy over the last 100 years than any other state in the country...

Mr. {Weinstein.} Yeah.

Mr. {Barton.} --and I think that is a pretty good record.

Mr. {Weinstein.} Yeah, but the energy boom in Texas, North Dakota, Pennsylvania, Ohio and other states is benefitting the entire country by reducing our dependence on imports, by providing cheap nature gas, it is holding down power bills and heating bills for consumers and businesses across the U.S. So it is not just us energy producers who are benefitting, the whole country is benefitting.

Mr. {Whitfield.} Thank you very much.

At this time, I would like to recognize the gentlelady from Florida, Ms. Castor, for 5 minutes.

Ms. {Castor.} Thank you very much, Mr. Chairman.

This is very timely because, in the State of Florida, our Public Service Commission is considering just this week about reducing our very modest energy efficiency goals.

So I want to focus on, Mr. Nadel, your important point that it costs less to save energy than to produce energy, but there is a tension in the way states are--have organized their utility regulation. Consumers, homeowners, businesses save money when they conserve energy, but the business model for our investor-owned electric utilities that have monopolies in their service areas, they profit off of the

kilowatt hour used and the large operating plants that are constructed.

Mr. Nadel, do you agree that many states have significant financial incentives to construct expensive power plants?

Mr. {Nadel.} Yes, I would agree with that. I would point out that a majority of states, but I don't believe this includes Florida, have revised their regulations so if sales go down, the utilities are made whole, and if they achieve energy efficiency goals, the shareholders get a little extra incentive. So those policies have worked very well, but I don't believe you have them in Florida.

Ms. {Castro.} No, in fact, we are moving backwards. We are very sensitive to this, the--and I think no matter where you are from, what your view is, you would be concerned to learn that Florida ratepayers on the west coast of Florida are on the hook for $3 billion in costs for nuclear power plants that were damaged and not constructed. So not one kilowatt hour produced, but the ratepayers are still on the hook for $3 billion because the State of Florida had the utilities advocated for an advanced recovery fee so that ratepayers would pay in advance to construct these very expensive plants, but didn't protect the consumer when it

come to the fact if the business--if the utility made a bad business decision, or, in effect, broke their nuclear power plant.

So, Mr. Nadel, what could Floridians have done with $3 billion in the energy efficiency realm if we had those monies to devote to the investments under energy efficiency?

Mr. {Nadel.} You could have made some very large and cost-effective investments in energy efficiency. I don't know the exact amount, but you could have reduced--

Ms. {Castro.} Give us some examples. Just what could you spend $3 billion on that would help--

Mr. {Nadel.} Right.

Ms. {Castro.} --those things--

Mr. {Nadel.} New, more efficient air conditioners. You have quite a demand for air conditioning.

Ms. {Castro.} So we could have purchased air conditioners for more cost-efficient air--I guess energy--more energy efficiency appliances.

Mr. {Nadel.} Right. There is a new generation of air conditioners that uses variable speed drives, advanced controls to save 30 percent or more compared to the air conditioners that--

Ms. {Castro.} And air conditioning in Florida--

Mr. {Nadel.} --were common a few years ago.

Ms. {Castro.} --is very important, so I bet we could have purchased a lot of other insulation for--

Mr. {Nadel.} Right, absolutely.

Ms. {Castro.} --weatherized homes.

Mr. {Nadel.} Yeah. You could have helped your industry. You do have quite a bit of industry, as one of the other witnesses pointed out, and helped them to be more efficient and more competitive there.

Ms. {Castro.} Well, that sounds like a huge job creator. If I could get a lot of folks working at home and construction, and weatherizing homes and installing installation and all of these appliances.

Mr. {Nadel.} Right.

Ms. {Castro.} Do you agree?

Mr. {Nadel.} Yes. No, I agree. No, energy efficiency does tend to be the low-cost resource. I would say the majority of utilities around the country have been very supportive of energy efficiency. I wouldn't count the Florida utilities among them.

Ms. {Castro.} Yeah, so why--what do we do with this outdated business model if all of the incentives are on kilowatt hours produced and building large, expensive power

plants, it would seem like, you know, especially with the challenges of the changing climate, we have to begin to look at a more modern business model for our utilities, so maybe they--maybe there is an incentive to make a little money on promoting conservation.

Mr. {Nadel.} Yeah. No, I agree. As I mentioned briefly, the majority of states now have adjustments to rates, so if sales go down, utilities can recover their fixed cost, they don't have to eat them, and also that they give the shareholders incentives if they meet their energy saving goals. So these are very modest cost adjustments, but they make it in the business interest of the utility to do what is in their interest.

Ms. {Castro.} Thank you very much.

Mr. {Whitfield.} The gentlelady yields back.

At this time, recognize the gentleman from Illinois, Mr. Kinzinger, for 5 minutes.

Mr. {Kinzinger.} Well, thank you, Mr. Chairman, and thank you all for being here and providing us with some great testimony.

We have been discussing, obviously, and I am going to ask this of Mr. Tanton, Mr. Clemmer suggested the Federal Government should establish a federal mandate that requires

electric utilities to procure at least 25 percent of their power for renewable resources by 2025.

A very similar mandate was instituted in my home state of Illinois in 2007 that demanded almost the exact same thing through a program called the Renewable Portfolio Standard. This program specifically mandated that 25 percent of the electricity sales in Illinois come from renewable resources by 2026, but it has since faltered dramatically with the Illinois legislature, which, by the way, is overwhelmingly Democrat, coming to the conclusion this past ring--this past spring that they should look at reversing this detrimental program.

In addition to this, just last month, the Beacon Hill Institute at Suffolk University released a study on the potential impacts of the RFS in Illinois, and here are just a few of the negative impacts--or RPS, I am sorry, the negative impacts that this mandate will have on Illinois families going forward. The RPS mandate will cost Illinois electricity customers an additional $4.5 billion over current prices from 2014 to 2026. Disposable income will drop by an expected $793 million. The Illinois economy already suffering very drastically by our government in Springfield, will shed some 8,000 jobs. And some industrial businesses

will see costs rise by nearly $300,000.

Mr. Tanton, I see you have done some of your own work in analysis of California's policies on the topics. What do you think the impact of a federal mandate on this issue would be to the average American, should a federal mandate such as this be put in place?

Mr. {Tanton.} It would be devastating. Anybody that argues that prices go down or stability increases as a result of renewable portfolio standards is being disingenuous. If the renewables were more cost-effective, they would be adopted by the market, period. There are not a lot of irrational business leaders. The renewable portfolio standard tries to force-fit something in where it doesn't. It recognizes the energy but not the capacity needs of a grid. I have studied California, I have studied many other states, I have worked internationally. We see, in fact, FERC's own data shows that the states with the renewable portfolio standards have seen more rampant increase in electricity prices than states without them. That is a fact.

Now, I would argue, however, looking at the forecast going forward, we need to keep in mind that those forecasts should be viewed probabilistically, not deterministically. It is not dueling banjos, it is not dueling forecasts. I am

the first to admit that forecasts are wrong, but the fact that forecasts are wrong should give us information of use. And I will use the debacle in 2000 in California as an example. The bidding protocol was predicated on having a surplus supply. We put in place, basically, reverse Dutch auction which only works, as it turns out, in surplus supply situations. Well, we found ourselves in a supply deficit situation, which was not what the forecast had said. I know because I was responsible for the forecast.

As it turned out, had we put in place a biding protocol and a market clearing protocol of bid as paid, rather than the reverse Dutch auction, during those periods of supply shortage, we would have turned a--what ended up as a $30 billion hit to the California economy, into maybe a $3 billion hit. Still bad, but nowhere near as bad.

Mr. {Kinzinger.} Right. And just the 55 seconds I have left, what can the Federal Government do or do better to help states in designing and implementing their own energy policies?

Mr. {Tanton.} I think today's hearing is a good example of what the Federal Government, broadly speaking, should do, and that is to provide more competent information, comprehensive information, and reduce the advocacy

information. Recognize that we are a country of 300 million people, and 300 million people are 300 million more brains, with all due respect, than 435 members of Congress or the various state legislatures. The more brains that are put on making choices, the better the choice ends up. We will have a more diverse situation if we have more of a free market environment within which to work.

Mr. {Kinzinger.} Well, thank you, sir.

And time flies. Mr. Chairman, I will yield back.

Mr. {Whitfield.} The gentleman's time has expired.

And at this time, recognize another gentleman from New York, Mr. Engel, for 5 minutes.

Mr. {Engel.} Thank you. Thanks very much. Thanks very much, Mr. Chairman.

You know, when it comes to this--these policies, I am about as open-minded as you can get. I am for renewables, but I understand that we cannot go from step 1 to step 10 overnight, and that fossil fuels are going to have to be used at least for a while, and so it would seem to me that we should all be working for ways to get the cost down, but at the same time, we don't want to pollute the environment, and I think that it is a very delicate balance that we have to look at.

The United States, obviously, needs to have a national energy policy. We want to reduce dependence on foreign oil, we want to keep our districts clean, and we want to lower Americans' energy bills, and we try to somehow throw everything into the mix. But in my state of New York, we do have a model for a policy that I think could be implemented at the national level. Government Cuomo announced the Reforming Energy Vision Initiative, which is a proposal to reform New York's energy grid by shifting away from centralized plants, and instead having utility companies purchase energy from a multitude of small producers. This change would allow for greater reliance on smaller, cleaner sources, and reduce our dependence on a small number of plants like Indian Point, which has its troubles, very few miles from my district.

So let me ask Mr. Clemmer, because in addition to the environmental and safety advantages of the governor's initiative, I believe his proposal would also produce economic benefits. Wind and solar power create jobs. So, Mr. Clemmer, could you discuss what kinds of benefits these initiatives like Governor Cuomo's proposal might yield, and might this be an approach that other states can use as well?

Mr. {Clemmer.} Sure. The--good question. The--we put

out a report in April that looked at the impacts of climate change on the electricity grid, and there are several different climate impacts that pose vulnerability. And we have seen an increase in frequency and severity of impacts that have caused power outages that have cost lots of money. And the initiative that New York is pursuing is probably more comprehensive than I have seen anybody else do, but there are other examples of states that are trying to implement similar types of programs in which--obviously, it is spending money to harden the electricity grid is important, but we also need to reduce carbon emissions as well so that we can reduce the cost that climate change is having on the grid. And so things like energy efficiency, distributed generation, solar PV, other renewables that are smaller, when an extreme weather event knocks out some facility like that, it has less impact on the grid than it does if it is a large nuclear plant or a large coal plant. And some of the recent extreme weather events that we have seen, both with the polar vortex, but also with actually heat waves, have caused lots of problems with large nuclear and coal plants in particular.

One of the impacts from heat and drought, which is directly related to climate change, is that those plants use a tremendous amount of water, and renewables like wind and

solar don't use any water. Efficiency, obviously, reduces the need for water as well, so it helps reduce the vulnerability of the electricity grid to those types of impacts.

Mr. {Engel.} Mr. Nadel, would you essentially agree with that?

Mr. {Nadel.} Yes, I would. New York is to be commended for really taking a lead at looking at the future of the utility industry. A lot of people in the industry are starting to think about it, but New York is really taking the lead.

The industry is changing in dramatic ways, as just about everybody in the industry will agree, and it is time to reform regulation to address the 21st century industry, not the 19th century industry.

Mr. {Engel.} Thank you.

Mr. Clemmer, the Beacon Hill study has been referenced a couple of times, and I know you have some serious concerns about it. I would like to give you a chance to elaborate on that.

Mr. {Clemmer.} Sure. I mentioned a couple of times some of the flaws in these studies, so let me just outline a few of them quickly.

One is that they, first of all, assume it is going to pretty much all be wind that meets the RPS, which, obviously, there are other choices, but for the most part wind has been a large contributor to the state RPS's, but they have assumed that wind costs are 2 to 4 times what the actual wind contract prices have been in the United States, documented actual real projects. They are also assuming transmission costs that are ridiculously high, 3 times as high as what projects have cost. There is a recent project that just went in in Texas that is facilitating wind projects there.

The assumptions that they make around the impact of integrating wind, which Mr. Tanton has referred to several times, are way overblown. Wind does not need one-to-one backup for all of its generation. It does provide mostly energy to the system as he said, but there have been studies by regional grid operators, utilities all over the country looking at 20 to 30 percent renewables from variable sources that have shown very small costs for doing that, because we-- utility grid operators have been doing this for decades. They have to manage the variability that comes from demand, from other power sources going off-line, and their systems are built to accommodate that. And so as we move towards more natural gas, that actually increases the flexibility on

the grid to accommodate more renewables. And so those are just some of the assumptions that lead to really, really high cost estimates from their studies.

Mr. {Engel.} Thank you. Thank you--

Mr. {Tanton.} Can I respond a little bit?

Mr. {Engel.} Yes.

Mr. {Tanton.} I think too often, people equate price with cost. Yes, the prices paid to wind developers are low, but that doesn't mean that the costs are low because other people are paying the cost. We refer to transmission costs, but keep in mind, when the capacity factor for wind is only 30 percent, the capacity factor for that associated transmission is also only 30 percent. That will easily triple to you per kilowatt hour transmitted cost.

Mr. {Whitfield.} The gentleman's time has expired.

And at this time, recognize the gentleman from Louisiana, Dr. Cassidy, for 5 minutes.

Dr. {Cassidy.} Thank you.

Mr. Nadel, we all agree in conservation, absolutely, and I like your graph about the cost benefit ratio of conservation versus other things.

Looking at your graph though on summary of state scores on conservation, and then looking at something on the Web as

the kind of ranking of utility costs, there is an inverse relationship, if you will. The higher the state scored, typically the higher their utility cost. So that makes sense; you are going to have more savings, therefore, more inducing--inducement, if you will, to invest in conservation if you are a high-cost utility state, but there also is, I think, somewhat of a relationship between low-cost energy and economic growth. So the states with the lower cost energy are more vibrant, and the states with the higher cost energy are either losing members of Congress, or staying flat. I say that because members of Congress reflect population. So New York has lost several members of Congress, Massachusetts has lost members of Congress, et cetera.

Now, that begs the question, in states with high utility costs, is there an inverse relationship with prosperity? I think we have made a good case in Texas, which picked up 4 members of Congress, has a pretty vibrant economy, and Massachusetts losing a member of Congress, or New York losing members of Congress, maybe not as much.

Any thoughts on that?

Mr. {Nadel.} Okay. A couple of comments. First, I would note, regardless whether you are a high-cost state or a low-cost state, there is a lot of energy efficiency that is

cost-effective as shown by Louisiana, for example, which has just decided to have their utilities do energy efficiency programs. All the major utilities have just proposed that.

Yes, if your costs are lower, that will help attract businesses, absolutely. I point out that there is a tendency for the rural states to have lower costs than some of the urban states. Transmission and distribution systems tend to be much more expensive in urban areas.

The other thing I would point out is that rates are one thing, but bills are also very important. It is that combination of rates plus the consumption. There was just this week something published by WalletHub on average energy bills, and many of the least efficient states actually had the highest average bills.

Dr. {Cassidy.} Well, the least efficient states are often, if you will, hot states, and so they are going to have a higher--Louisiana is going to have a higher utility bill than a very moderate northern California clime, so I will accept that.

Now, I am also interested, there is in these states--somebody spoke of the prosperity in California. California has a little bit of an hourglass economy, as does New York, with some really wealthy people and lots of poverty, but a

middleclass getting squeezed, Dr. Weinstein, do you have a sense of blue-collar job growth in Texas, Louisiana, et cetera, versus other states, because I think of oil and gas giving us upstream and downstream, blue-collar, middleclass job growth. Is that a fair statement?

Mr. {Weinstein.} What we are seeing is a fairly mass exodus of small and medium-sized manufacturers and other businesses from California, New York and some other states to places like Texas.

Dr. {Cassidy.} Now, that is associated with high utility costs. Can you trace it back to high utility costs?

Mr. {Weinstein.} I would say that if you are a--

Dr. {Cassidy.} Is it causal?

Mr. {Weinstein.} If you are a manufacturer that uses a lot of electricity, clearly, that is going to be a factor, and--

Dr. {Cassidy.} So if your input cost is that much higher for a major thing, a major input, which is electricity, you are going to move to a low-electricity state.

Mr. {Weinstein.} You--yeah, of course.

Dr. {Cassidy.} Of course. Makes sense.

Mr. {Weinstein.} If there are other factors that make

it worth the move, but--

Dr. {Cassidy.} Mr. Siegel--actually, no, I am just out of time. Mr. Siegel, I am going to read your book, Revolt Against the Masses. I love that title.

Mr. {Siegel.} Thank you.

Dr. {Cassidy.} But I do get a sense, in New York, you speak of the elites basically squashing the economic prospects of the middleclass, and denying property owners the highest value of their property. Would you comment a little bit more on that please?

Mr. {Siegel.} You talk about an hourglass economy, New York has--New York City in particular has an hourglass economy in the extreme. Wall Street is doing extremely well, real estate is doing extremely well, the middleclass has been heading for the exits for a long time.

What that produces politically is a framework in which things like energy costs just aren't that important. The legislature, which Mr. Tonko, I wish he had asked me a question, was once a member, the legislature--in New York State legislature, you are more likely to be removed by a federal prosecutor or a state prosecutor than you are to be defeated for reelection.

Dr. {Cassidy.} But let me--then, Mr. Siegel, it seems

to me though, if we are going to relate high utility costs with low economic growth, and migration of blue-collared jobs to states with low energy costs, these high energy costs, if you will, are a war on the middleclass. They are destroying their economic opportunity.

Mr. {Siegel.} I think what you are describing is more true of upstate. Upstate New York, which was once the center of manufacturing, well, more recently was the center of manufacturing than downstate, there is no question. When--and now I am just--anecdotally, you will talk to people who are considering to moving to New York State because of the water. There is tremendous water available to New York, and Symantec, and so the chip industry is--to have this inexpensive water is enormously useful. However, energy costs in New York are, on average, twice the national average. That simply drives people out.

In the city, this is not a problem. In the city, it is really--it is the cost of living more generally that drives the middleclass. What is fascinating to me is why it is that so many people from New York have no interest in the loss of the middleclass.

Dr. {Cassidy.} Because they are unaffected.

I will finish by saying blue-collared workers

traditionally employed in mining, manufacturing and construction, and I will say that energy obviously creates lots of mining jobs which I just learned tends to, I have already known by affirmed, it tends to create manufacture. Mining begets manufacturing, because low energy costs create that, and more manufacturing begets more construction.

It seems we have a jobs program, Mr. Whitfield, and that is more use of America's natural resources. Thank you.

Mr. {Whitfield.} Dr. Cassidy, thank you very much.

And that concludes today's hearing. I want to thank all of you who participated in our panel, and I know many of you came from long distances, and it is a very important issue and we appreciate your taking time to be with us, and giving us your views and responding to our questions.

And with that, we will conclude today's hearing. The record will remain open for 10 days for any additional materials.

And I want to thank you all once again, and we look forward to working with you as we move forward to address these issues. Thank you very much.

Today's hearing is concluded.

[Whereupon, at 12:35 p.m., the subcommittee was adjourned.]