

**VERMONT LAW SCHOOL’S FIRST ANNUAL ALUMNI IN  
ENERGY SYMPOSIUM  
SYMPOSIUM PROCEEDINGS  
NOVEMBER 6, 2014**

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*Morgan Lewis & Bockius, 1111 Pennsylvania Ave., NW,  
Washington, DC 20004*

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INTRODUCTION<sup>1</sup>

Since the late seventies Vermont Law School (“VLS”) has been putting capable, committed graduates into the work force. Numerous Alumni have reached the upper echelons of their fields and many attribute their personal and career successes to the three years they spent in South Royalton, Vermont.

Today the VLS Institute for Energy and Environment (“IEE”) provides leadership regarding the nexus between energy and environmental issues. IEE Director Michael Dworkin has stated that “[I]f you care about the environment, energy use is the most important issue. And if you care about

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1. Introduction by Dan Philips, JD/MSEL 2004, Director of Fuels at Solazyme, Inc. (an algal biotechnology company).

energy, environmental realities are the most important constraints.” VLS Alumni with an interest in energy and the environment had been informally discussing opportunities for expanding their role in fostering dialogue on key legal and policy issues with professors, practitioners, other alumni, and students. The VLS Alumni in Energy affinity group was created out of these musings. Once formed, the Alumni knew that the strength of their community would lead to the organic development of a powerful group. Today the VLS Alumni in Energy is a forum for Alumni working at businesses, law firms, government, and nonprofits in the energy field where professionals in energy can share best practices, exchange horror stories, and create business opportunities.

The First Annual Alumni in Energy Symposium is a perfect example of the VLS community of alumni, professors, and practitioners pulling together a thoughtful forum for dialogue. The official kick-off was set during VLS’s Fall 2013 Alumni Weekend. Professors Dworkin and Kevin Jones, along with many alumni, fellows, and students participated. At this first meeting, the officers of the group were named: Dan Phillips ’04, Founding Chairman; Brian Potts ’04, Consigliere; Alan Strasser ’93, Regional Representative for the District of Columbia; and Matt Stern ’11, Vermont Representative.

It was Alan Strasser who suggested to the group that we develop and facilitate a symposium in Washington, DC. The objective of the symposium would be not only to leverage VLS and alumni resources, but also to ensure that the program would offer cutting-edge dialogue from experts from industry, government, and non-governmental organizations. The program would be open to alumni, but also to a broader spectrum of environmental and energy practitioners seeking key insights from leaders in the industry. For this event, VLS teamed up with the Environmental Law Institute (“ELI”) to ensure the program would be eligible for continuing legal education (“CLE”) credits, and it did provide CLEs.

The symposium planning committee was greatly aided by Professor Jones, who had recently published a book with David Zoppo ’14 titled, *A Smarter, Greener Grid: Forging Environmental Progress Through Smart Energy Policies and Technologies* (Praeger 2014). This led the planning committee to focus on emerging issues in the electricity sector. Simultaneously, the U.S. Environmental Protection Agency (“EPA”) was proposing a new rule called the Clean Power Plan that proposed some innovative ideas for achieving compliance with clean air standards, including use of renewable energy resources. Given the importance of this rulemaking to industry, government, and NGOs in light of the challenge of regulating and addressing climate change, the group decided to include this to the agenda.

The final agenda included panels on: (1) The Smart Grid: Fantasy or Fabulous?; (2) The Legal Implications of EPA's Clean Power Plan Rulemaking; and (3) The Future of Utility Business Models to Address Renewables and Efficiency. Alan Strasser agreed to moderate the panels and help select speakers. The group agreed that while hearing from the individual speakers would be valuable, fostering an interactive dialogue among the experts and ensuring ample audience participation would be invaluable. The three panels achieved the goal.

A hearty thanks goes out to all the alumni volunteers who helped staff the program and make sure it was a success. They included Scott Clausen, Mary Clemmensen, and Ruth White. I would also like to thank all the speakers for their clear insights and willingness to engage in these critical topics. They included: (Panel 1) Phil Davis, Senior Manager, Demand Response/Smart Grid Resource Center, Schneider Electric; Keith Dennis, National Association of Rural Electric Cooperatives; Kevin Jones, Deputy Director and Professor of Energy Technology and Policy, Institute for Energy and the Environment, Vermont Law School; Julie Simon, Deputy Director, Division of Policy Development, Office of Energy Policy and Innovation, Federal Energy Regulatory Commission; and Katie Thomas, Duncan, Weinberg, Genzer & Pembroke, P.C.; (Panel 2) Michael J. Myers, New York State Attorney General's Office; Pat Parenteau, Senior Counsel to the Environmental and Natural Resources Law Clinic and Professor of Law, Vermont Law School; Holly Rachel Smith, Assistant General Counsel, National Association of Regulatory Utility Commissioners; Stephen Spina, Partner, Morgan, Lewis & Bockius, LLP; and Francisco de la Chesnaye, Technical Executive, Energy & Environmental Analysis, Electric Power Research Institute; (Panel 3) Mike Carlson, President, Siemens Smart Grid North America; Michael Dworkin, Director, Institute for Energy and the Environment, Vermont Law School; Holly Rachel Smith, Assistant General Counsel, National Association of Regulatory Utility Commissioners; and Stephen Spina, Partner, Morgan, Lewis & Bockius, LLP.

Morgan, Lewis & Bockius, LLP in Washington, DC was the forum for this gathering, and we would like to thank the firm for its generous support. Our other supporting sponsors were the firms of Foley & Lardner, LLP and Beverage & Diamond, PC. Last, but not least, we would like to thank John Cruden, formally the head of ELI, and now Assistant Attorney General ("AAG") for the Environment and Natural Resources Division, for his presentation during the evening reception.

PANEL #1: THE SMART GRID: FANTASY OR FABULOUS? (1:30–2:45 PM)

The U.S. has yet to capitalize fully on the opportunity to optimize and/or build out a smart grid due to many factors, including the need for standards, political and regulatory uncertainty and users wary of providing detailed information to power utilities. As a result, the increased use of renewable energy, distributed networks, and energy storage has been stymied. This relative stalemate comes at a time of increasing concern about carbon emissions resulting in climate change. Some questions the panelists will address are:

1. How the smart grid can help foster major benefits, including reducing GHGs driving climate change.
2. What are the technological/regulatory barriers for grid development, such as grid interoperability standards?
3. The latest demand-side innovations to change customer behavior, and the effort to overcome obstacles, such as user privacy, including the legal issues related to customer confidentiality and data security.
4. The implications of new electric storage technologies.

Moderator: Alan Strasser (VLS Alumni in Energy)

Panelists:

- Phil Davis, *Senior Manager, Demand Response/Smart Grid Resource Center, Schneider Electric*
- Keith Dennis, *National Association of Rural Electric Cooperatives*
- Kevin Jones, *Deputy Director and Professor of Energy Technology and Policy, Institute for Energy and the Environment, Vermont Law School*
- Julie Simon, *Deputy Director, Division of Policy Development, Office of Energy Policy and Innovation, Federal Energy Regulatory Commission*
- Katie Thomas, *Duncan, Weinberg, Genzer & Pembroke, P.C.*

**Kevin Jones:** Alan asked me to set the stage for our discussion today by explaining what the smart grid is. The slide I am showing you defines the smart grid.<sup>2</sup> It adds smart technology from the generator to the customer end user, and is integrated with information technology for enhanced grid operations and customer service.<sup>3</sup> Of the many dynamics of the smart grid, the biggest part of the smart grid that we focus on at Vermont Law School

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2. Kevin B. Jones, Ph.D, A SMARTER, GREENER GRID, VLS ALUMNI IN ENERGY SYMPOSIUM 2 (Nov. 6, 2014), [perma.cc/GS7T-BUGS](https://perma.cc/GS7T-BUGS) (follow “A Smarter, Greener Grid” hyperlink under “Panel 1 Presentations”).

3. *Id.*

are technologies brought to the customer side. Historically, one of the challenges of bringing demand response and any kind of smart technology to residential customers and small users was that there was no technology in place. If a small customer wanted to participate in demand response programs, you would have to add an expensive meter and telephone line to communicate data from the customer. So one of the benefits to the recent DOE [Department of Energy] funding was to bring that technology out to the masses in a cost effective manner.<sup>4</sup> Once the technology is in place, you can have universal access to demand response and some of the information that supports energy efficiency. Half of the DOE funding and related utility funding for smart grid technology was for communication technology, including some sort of infrastructure.<sup>5</sup> Different utilities have used different technologies. Some of the coops in Vermont have used power line control technology that involves wireless smart meters. A lot of other utilities have used wireless 4G communications. Rolling out the smart grid is about technology policy as much as energy policy.

There are a number of benefits from smart grid technology.<sup>6</sup> Utilities being regulated by entities at the state level, and a lot of this investment was on the distribution side, so it had to be approved by state utility commissions. Consequently, utilities had to put together a business case for this technology. But the costs are largely paid for by the many operational benefits of the smart grid. The big one is automated, remote meter reading, which means once in place you did not have to put an employee in the truck to drive out to read the meter and bring the information back to utility headquarters, which provides operational savings.<sup>7</sup> There were also environmental benefits in terms of truck fuel savings that would have been consumed to go to and read the meter.<sup>8</sup>

Some of the remote connect or disconnect features have brought lots of efficiencies.<sup>9</sup> Whether you are a college student or new home owner, traditionally you have to make service active or to disconnect by sending out a utility representative. One of the policy issues that has been controversial is the use of remote disconnect, especially with low income customers.

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4. *Id.* at 4, 7, 9.

5. *See* U.S. DEP'T OF ENERGY, OFFICE OF ELEC. DELIVERY & ENERGY RELIABILITY, THE AMERICAN RECOVERY AND REINVESTMENT ACT SMART GRID HIGHLIGHTS (2014) (showing how communications infrastructure and advanced metering infrastructure accounted for sixty-nine percent of funding).

6. JONES, *supra* note 2, at 4, 7.

7. *Id.* at 3, 5.

8. *Id.* at 5.

9. *Id.* at 4.

Other operational savings come from outage management.<sup>10</sup> Utilities using electromagnetic meters do not know when your power is out, nor when it is back on, until you confirm it or have not called to harass them. Companies like Siemens have been providing technology for outage data management to help utilities have better reliability. Some of these utilities using this technology boast that power has gone off and then on again while the customer was away from home and customers do not even know it. There are lots of operational benefits to the smart grid.<sup>11</sup>

Once the smart meters are in place, what changes?<sup>12</sup> Obviously, you do not have the meter reader coming to your house anymore. But the more exciting features are the new services they can provide to people. For example, there is web access to your electric usage data almost immediately. Smart appliances are being made by GE and Honeywell, and as we have more of them in home with internal communication systems we can have more automation of demand response and energy efficiency technologies.<sup>13</sup> Some new technologies bypass the traditional utility side, like NEST, and others use wifi to get information back to the utility.<sup>14</sup>

This next slide is classic carbon cost abatement curve [slide 6] from the United Kingdom (U.K.) Department of Climate and the Environment.<sup>15</sup> The low hanging fruit for abating carbon costs are energy efficiency savings. While there are declining costs for solar, some renewable energy technologies have been more cost effective. I like this slide, since from the U.K.'s perspective, they are conveying that smart meters are the most cost effective for carbon abatement technology largely because the technology is paid for [by] operational benefits, so the benefits for the climate are incremental benefits that we can take advantage of without significant new investment.

In our work at Vermont Law School, we focus on how the smart grid can benefit the climate. And we talk about the five pathways for the smart grid to provide environmental improvement.<sup>16</sup> And those are supercharging energy efficiency by providing more vibrant data on customer feedback; democratizing demand response and bringing it out to all customers, not just for the biggest customers; integrating more electric vehicles into the economy by incentivizing off peak charging by the use of time-of-use rates;

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10. *Id.*

11. *Id.*

12. *Id.* at 5.

13. News Release, *Honeywell and Constellation Deliver Value and Comfort with Smart Wi-Fi Thermostats*, HONEYWELL (Oct. 14, 2014), [perma.cc/P8WN-W26Y](http://perma.cc/P8WN-W26Y).

14. *Id.*

15. JONES, *supra* note 2, at 6.

16. *Id.* at 7.

distributed technologies, such as storage to solar PV and microgrids for climate mitigation; and distribution optimization, where having additional information about the voltage deep in the utilities' distribution system helps them save significant amounts of energy by better optimizing the system.

The next slide is a chart based on work done by Pacific National Laboratory ("PNL") shows [that] what we can do with energy technology that we have today by 2030 to impact the climate.<sup>17</sup> By fully utilizing only existing technology and solutions on the shelf today, we could save twelve percent in carbon emissions and have a twelve percent reduction in energy use.<sup>18</sup> A lot of the savings come from the energy efficiency area by enabling better customer feedback and allowing customers to better manage their energy use. Significant reductions of two to three percent come from conservation voltage reduction, which is better optimization of the electric grid.<sup>19</sup> And a few percent could be saved by better integration of electric vehicles into the grid, and such integration has a significant positive benefit to the carbon emissions. But the smart grid allows up to seventy percent rollout of integration with existing distribution infrastructure system and no significant investment, as long as we charge those vehicles off peak, which we can easily do.<sup>20</sup> What this chart does not show is the savings from distributed technology or demand response,<sup>21</sup> and let me explain that. This is not saying that there is no carbon reduction benefit from distributed technologies. We can put a lot of solar PV and distributed generation on the system today with existing infrastructure. Not until we get beyond 2030 and beyond the Renewable Portfolio Standard ("RPS") requirements do we need smart grid technology to go further.<sup>22</sup> But beyond 2030, the smart grid technologies will be very important to help us integrate larger amounts of renewable energy on the grid. Intermittency of renewables is an issue, but we can simply burn a lot of natural gas as backup that is on the system. In terms of demand response, there is not a lot of carbon benefit there largely because while it shaves the utility peak and takes a lot of dirty generation off the system it is really for a limited number of hours of the year.<sup>23</sup> There might be

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17. *Id.* at 8.

18. *Id.*

19. *Id.*

20. *See, e.g.* T. Markel et al., *Improving Petroleum Displacement Potential of PHEVs Using Enhanced Charging Scenarios*, NAT'L RENEWABLE ENERGY LAB. 1 (2009), [perma.cc/4ELS-QPA9](http://perma.cc/4ELS-QPA9) (Synthesizing data showing plug-in hybrid electric vehicles (PHEVs) have the potential to displace a significant amount of petroleum relative to conventional vehicles and reduce fuel consumption by 71%).

21. DEPT OF ENERGY, *THE FUTURE OF THE GRID, EVOLVING TO MEET AMERICA'S NEEDS* (May 13, 2014) [perma.cc/F59W-WXFF](http://perma.cc/F59W-WXFF).

22. *Id.* at 1.

23. HONEYWELL, *STRUCTURING A RESIDENTIAL DEMAND RESPONSE PROGRAM FOR THE*

ten summer days where it is super important. But where demand response is critically important in getting carbon reduction benefit, and where [it] ties in to the section 111(d)<sup>24</sup> discussion later today, is that it is a big cost saver. The PNL analysis shows as we take more advantage of demand response, we can save enough money to invest in more renewables and efficiency and get another six percent indirect benefit in carbon reduction.<sup>25</sup> Therefore, demand response is hugely important by providing savings and allowing us to more fully roll out more clean technologies at a more cost-effective price.

The Electric Power Research Institute (“EPRI”) estimates we could spend another \$300–400 billion on the smart grid technology and that would result in a 2.8–6% benefit to cost ratio.<sup>26</sup> This would result in better reliability, environmental improvement, and improved service quality. While DOE’s recent investment of \$4.5 billion to modernize the grid under federal stimulus spending was a good start, a lot more exciting things are going to happen in this arena.<sup>27</sup>

**Alan Strasser:** Thanks Kevin. Here are some interesting facts from Kevin’s Book: *A Smarter, Greener Grid*. The grid is the largest machine in the country and governed by a complex regulatory scheme. It has \$600 billion in physical assets, annual sales of \$260 billion, 9,000 power plants, and 300,000 miles of transmission line.<sup>28</sup>

THERE WAS NO RECORDING PAST THIS POINT FOR PANEL #1.

Break (2:45–3:00 PM)

PANEL #2: THE LEGAL IMPLICATIONS OF EPA’S CLEAN POWER PLANT  
RULEMAKING (3:00–4:00 PM)

EPA’s rulemaking for Clean Power Plants under section 111(d) of the Clean Air Act is considered one of the most significant regulatory actions to date to address GHG emissions.<sup>29</sup> Given that the rule would apply to states, the implementation of the rule will be vital to its effectiveness. Key questions include the following:

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FUTURE (June 2011), [perma.cc/22HH-U24M](http://perma.cc/22HH-U24M).

24. TODD S. AAGAARD & JOEL B. EISEN, TACKLING CLIMATE CHANGE: DON’T FORGET ENERGY EFFICIENCY, N.Y. L.J. (July 10, 2014), [perma.cc/7ZMF-ERGP](http://perma.cc/7ZMF-ERGP).

25. JONES, *supra* note 2, at 8.

26. *Id.* at 9.

27. *Id.*

28. KEVIN B. JONES & DAVID ZOPPO, A SMARTER, GREENER GRID: FORGING ENVIRONMENTAL PROGRESS THROUGH SMART ENERGY POLICIES AND TECHNOLOGIES (2014).

29. Clean Air Act § 111(d), 42 U.S.C. § 7411(d) (2012).

1. What are the key provisions of the rule?
2. What are the important legal issues that EPA and states must confront during implementation?
3. How will the renewables and efficiency be addressed by the various states?
4. How will this rule impact industry?

Moderator: Alan Strasser (VLS Alumni in Energy)

Panelists:

- Michael J. Myers, *New York State Attorney General's Office*
- Pat Parenteau, *Senior Counsel to the Environmental and Natural Resources Law Clinic and Professor of Law, Vermont Law School*
- Holly Rachel Smith, *Assistant General Counsel, National Association of Regulatory Utility Commissioners*
- Stephen Spina, *Partner, Morgan Lewis*
- Francisco de la Chesnaye, *Technical Executive, Energy & Environmental Analysis, Electric Power Research Institute*

**Alan W. Strasser, Moderator:** This is a rule of significant proportions. The word significant in the lexicon of the Office of Management of Budget is truly personified here. But the classification here goes beyond the 500 pages plus Notice of Proposed Rulemaking (“NPRM”) that was issued by EPA and the huge technical, economic analysis accompanying it.<sup>30</sup> And whether you are concerned about climate change and see this rule as a game changer or whether you take the other view—that the rule could be very disruptive to the economy and impact states’ rights, these are significant questions. And the 2014 Congressional elections have not solved the problem for us. We do not see a wonderful new statutory scheme on the way. We are likely to have some or a lot of gridlock in the foreseeable future. But meanwhile, EPA has authority to write this rule under the Administrative Procedure Act<sup>31</sup> and section 111(d) of the Clean Air Act. This proposed rule is unique since it does not regulate the stationary sources, (e.g., power plants) but instead regulates the states. So this is a different dynamic than some people have grown accustomed to in these Clean Air Act battles. We will look at the provisions of the rule, the important legal issues, how renewables and efficiency provisions will be addressed by states, and the overall impact on

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30. U.S. Env'tl. Prot. Agency, Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units (Jan. 8, 2014), [perma.cc/TTJ5-WJEJ](http://perma.cc/TTJ5-WJEJ).

31. 5 U.S.C. § 701.

states and industry. The rule may also have a regional approach that states can utilize.

**Patrick Parenteau, Vermont Law School:** I am not a scientist. But scientists are saying some scary things. The fifth National Climate Assessment.<sup>32</sup> If you think what EPA is doing is too aggressive read the National Assessment. The real question is what are people going to say in five, ten, or twenty years. This is part of President Obama's legacy, he has made that clear. Dealing with climate disruption is one of the few things left on the agenda that he can try to do something about. Climate is, I think, the main ballgame for the remainder for the rest of the Obama term. There is the directive the President gave to EPA to use their authority under the Clean Air Act.<sup>33</sup> And like the famous Secretary of Defense said, we do not always fight the war with the army we would like, we fight with the army we have.<sup>34</sup> A lot of us would much prefer a rising revenue-neutral carbon tax and a lot of us would like a cap and dividend approach. But it is not going to happen. For better or worse, and maybe both, this is the national climate strategy. This is a pretty bold plan that EPA has come up with under section 111(d) to deal with existing power plants. To some, it is incredibly creative. To some, it is the very model of federalism—a partnership between federal and state governments. To some, it is one of the most flexible, albeit grandiose, pollution control strategies we have ever developed under environmental law in the United States. To some, it is smart policy and cost effective policy taking advantage of every asset and every resource in every state and every region across the length and breadth of our great country. To others, it is a disaster; it is overreach; and it might even be, dare I say, illegal. And if a legal argument breaks out, all bets are off as far as good behavior is concerned [laughter]. You will hear a lot of this going forward as this plan goes through the rulemaking process and is adopted in June 2015 if the schedule is kept, and Gina McCarthy, EPA Administrator, wants it to be kept, and the President wants it to be kept.<sup>35</sup> The big question is what is EPA doing here? Is it doing something radically different than anything it has done in its entire history, or is it a pollution control strategy? Is it staying in its lane, or is it way outside the lane and off the highway?

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32. JERRY M. MELILLO ET AL., CLIMATE CHANGE IMPACTS IN THE UNITED STATES: THE THIRD NATIONAL CLIMATE ASSESSMENT (2014), [perma.cc/J4YL-T5FU](http://perma.cc/J4YL-T5FU).

33. Presidential Memorandum—Power Sector Carbon Pollution Standards, Office of Press Secretary (June 25, 2013), [perma.cc/T7XD-MPC3](http://perma.cc/T7XD-MPC3).

34. Wolf Blitzer, *Troops Put Rumsfeld in the Hot Seat*, CNN.COM (Dec. 8 2004), [perma.cc/DK8C-7LKH](http://perma.cc/DK8C-7LKH).

35. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34829 (proposed June 18, 2014).

If you want to deal with carbon, this is the place to find the carbon, in the existing power plant rule. Almost forty percent of carbon in the greenhouse gas inventory,<sup>36</sup> twenty-eight to thirty percent coal.<sup>37</sup> But it is also a health rule. In fact, some of the major economic benefits claimed by EPA in its regulatory impact analysis are public health co-benefits of reducing asthma attacks, respiratory problems.<sup>38</sup> One thing to keep in mind, this is part of a global strategy. The President made a commitment in Copenhagen to reduce greenhouse gases emissions in the United States seventeen percent by 2020.<sup>39</sup> So it is no accident that these goals and commitments are coming through. We know it is a global problem that has to be addressed on a global scale or nothing we do here will accomplish what scientists say is necessary. Scientists are telling us we have burned through half of the carbon budget that is needed to keep temperatures below what they say is the threshold for dangerous interference with the climate, which is two degrees Celsius.<sup>40</sup> We know there are more fossil fuels on the books of corporations of the world to go way beyond two degrees Celsius. We know from the World Bank and the International Energy Agency that three quarters of the known fossil fuel reserves have to stay in the ground to have a decent shot (sixty-six percent) at staying below two degrees Celsius.<sup>41</sup> How many people believe we are going to stay below two degrees Celsius? We are playing for higher stakes than two percent for sure.

This plan is part of a strategy leading up to Paris in 2015 where the parties to the United Nations Framework Convention will once again attempt to try to craft an agreement. And the credibility of the United States in negotiations with China and India, some of the emerging, fast developing nations, rides on whether the President can deliver on the commitments he has been making through his climate ambassador, Senator Kerry and others.

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36. PATRICK PARENTEAU, ALUMNI IN ENERGY SYMPOSIUM 3 (Nov. 6, 2014), [perma.cc/P52C-6B4F](http://perma.cc/P52C-6B4F).

37. VLS ELI FACTS AND STATISTICS, VLS ALUMNI IN ENERGY SYMPOSIUM (Nov. 6, 2014), [perma.cc/2MZ2-VTQN](http://perma.cc/2MZ2-VTQN).

38. See U.S. ENVTL PROT. AGENCY, REGULATORY IMPACT ANALYSIS FOR THE PROPOSED CARBON POLLUTION GUIDELINES FOR EXISTING POWER PLANTS AND EMISSION STANDARDS FOR MODIFIED AND RECONSTRUCTED POWER PLANTS (2014) (showing a chart that lists the economic co-benefits for human health where many of the listed benefits include asthma or respiratory benefits) [hereinafter REGULATORY IMPACT ANALYSIS].

39. PARENTEAU, *supra* note 36, 9; see also THOMAS DAMASSA ET AL., GHG MITIGATION IN THE UNITED STATES: AN OVERVIEW OF THE CURRENT POLICY LANDSCAPE 4 (2012), [perma.cc/T6FN-8DER](http://perma.cc/T6FN-8DER).

40. Matthew Collins et al., *Long-Term Climate Change: Projections, Commitments and Irreversibility*, in CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS, WORKING GROUP I CONTRIBUTION TO THE FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 1029, 1033.

41. INT'L ENERGY AGENCY, WORLD ENERGY OUTLOOK EXECUTIVE SUMMARY 2 (2012), [perma.cc/K2US-WUDK](http://perma.cc/K2US-WUDK).

And there you can see different scenarios if you were serious about achieving a two degrees Celsius target and where this EPA plan falls within future emission rates [referring to slides]. This is to give you a broader context within which this rule is unfolding.<sup>42</sup> This is the share of the greenhouse gas emissions in the U.S. inventory, the coal share, and the electric power sector share. This is where the emissions are coming from around the country. The chart shows as you redder in color you get larger shares of carbon dioxide, the largest in the greenhouse gas inventory.<sup>43</sup> There are six greenhouse gases regulated as a suite of pollutants.<sup>44</sup> And EPA and International Framework Convention uses an equivalency factor for potency to harmonize the various gases based on their greenhouse gas warming potential, but carbon dioxide is the most important one.<sup>45</sup> This next image shows you where fuel mixes are around the country.<sup>46</sup> This rule is all about the existing fuel mix and how the mix will change, and how the rule will move states and regions toward a different mix of fuels that is lower carbon to help achieve what EPA hopes is a thirty-percent reduction in carbon emissions by 2030.<sup>47</sup> That is the landscape of today. And I think you can see why this is a geopolitical issue, not necessarily a partisan political issue.

This is what section 111(d) says [referring to slide].<sup>48</sup> This is a little used provision of the Clean Air Act. And it has never been tasked with quite the challenge of what it is being asked to do. The key phrase that is going to be much debated, discussed, and litigated is “best system of emission reduction” adequately demonstrated according to the administrator.<sup>49</sup> The issue is what does the word “system” mean. This word has particularly large implications.

These are the infamous building blocks or factors upon which the rule is built. They were probably constructed as a tactic.<sup>50</sup> Which ones are solidly within the bullseye of the language of the statute and which ones are further out? Some survive and some do not. And there is much speculation about that. The first one is improving efficiency at the plants. EPA had a range of efficiencies that they thought was possible at coal-fired plants and this has to

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42. PARENTEAU, *supra* note 36, at 9.

43. *Id.* at 4.

44. Endangerment Findings for Greenhouse Gases, 74 Fed. Reg. 66,496, 66,496 (Dec. 15, 2009) (to be codified 40 C.F.R. ch. 1).

45. Zeke Hausfather, *Understanding Carbon Dioxide Equivalence*, YALE CLIMATE CONNECTIONS (Jan. 1, 2009), <http://www.yaleclimateconnections.org/2009/01/common-climate-misconceptions-co-equivalence/>.

46. PARENTEAU, *supra* note 36, at 6.

47. *Fact Sheet: Overview of the Clean Power Plan*, ENVTL. PROT. AGENCY, [perma.cc/7ZUS-R2JQ](http://perma.cc/7ZUS-R2JQ), (last visited Dec. 18, 2015).

48. PARENTEAU, *supra* note 36, at 11.

49. Clean Air Act § 111(a), 42 U.S.C. § 7411(a).

50. PARENTEAU, *supra* note 36, at 12.

do with heat rates and engineering. And they think that block will get about six percent improvement of efficiency that will lead to twelve percent reduction of emissions.<sup>51</sup> Not a huge amount of controversy, not legally. But maybe there is some disagreement on whether that figure is universal and how much differential there is from plant to plant. Block two is the redispatch block, which includes bringing on more gas and backing out coal through the integrated grid.<sup>52</sup> EPA is relying heavily on the fact that the grid is an integrated system. The pace at which you might be able to back out coal and redistribute it to gas is in play. This block provides a big advantage to natural gas, both fracked and conventional. Block three brings on renewable energy and low carbon technologies, including nuclear energy.<sup>53</sup> EPA's rule contains lots of language about at risk nuclear plants. There is a lot of debate regarding how far EPA should and could go to ensure continuing functioning of existing nuclear power fleet, which is zero power at the generation and related emissions phase, not lifecycle phase. That is a key ingredient to maintaining the low carbon fuel mix and portfolio. How fast can renewables ramp up? Block four, the most debated, is demand-side management and end-use efficiency.<sup>54</sup>

EPA has gone to great lengths to present this as a dim sum cart of goodies for the states. They are not mandating anything. You pick and choose. You like wanton? You got it. You like spring rolls? That is good. You like cap-and-trade? That is wonderful. Like carbon tax? Go for it. Like nuclear power? Ok. Like coal? Work on it! They have told they states "here are your targets," which are rate-based targets. There are questions regarding whether they should be mass-based targets. I would not be surprised to see some changes in how targets are measured. There are lots of commentary about whether mass-based would not facilitate averaging and cap-and-trade schemes. States were told "if you have a better idea to these targets let us hear it." If you want you can get together in groups like the fantastically successful Regional Greenhouse Gas Initiative ("RGGI") program with two billion dollars raised and returning four dollars for every one dollar saved, and added efficiency and weatherization improvements.<sup>55</sup> The cap-and-trade system in California has Quebec in their program and is now looking to capture other parts of Canada in their program.<sup>56</sup>

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51. *Id.*

52. *Id.*

53. *Id.*

54. *Id.*

55. REG'L GREENHOUSE GAS INITIATIVE, *RGGI Benefit*, [perma.cc/VU43-2LTG](http://perma.cc/VU43-2LTG) (last visited Dec. 18, 2015).

56. *California Cap and Trade*, CTR. FOR CLIMATE AND ENERGY SOLUTIONS, [perma.cc/YAY6-EYTF](http://perma.cc/YAY6-EYTF) (last visited Dec. 18, 2015).

EPA is [] 3-0 at the Supreme Court in the following cases: *Mass. v. EPA*, *AEP v. Connecticut*, and *Utility Air Research Group v. EPA*.<sup>57</sup> But these decisions are not without some blinking yellow lights and warning shots from Justice Scalia about how far EPA might be able to go with its 111(d) authority. EPA has some wind at their back. But EPA has to be careful not to overreach and badly lawyer this matter. The composition of the justices of the Supreme Court and how they will line up on the buildings blocks, we can talk about that later.

**Steve Spina, Partner, Morgan, Lewis & Bocikus, LLP:** I am going to provide a brief overview of the utility perspective. The difficult part of that is that there is no single utility perspective. Every utility has a different view on this issue and the best way to deal with it. Some love it, some do not like it at all, some are fine with it and think it is inevitable, but would like the rules to be clear, and clear as soon as possible so they can make decision[s] regarding what units to retire and when to retire those units. This rule will encourage more retirement of coal and greater reliance on natural gas.<sup>58</sup> What is driving the retirement of coal plants, as much as and perhaps more than these proposed EPA rules, is the cheap price of natural gas. The fact that the price of gas is cheap is one of the key factors in a lot of utilities deciding that it is time to retire these older plants. It is just not efficient to run them anymore. They plan to retire a lot of coal-fired generation, but a lot more than some initial estimates. Initial estimates were from two to twelve percent, but current estimates are at least thirteen percent.<sup>59</sup> EIA projects retirement 2012-2020 of fifty megawatts or sixteen percent of generating capacity.<sup>60</sup> That is lot of coal-fired generation.

If that will be replaced, what will it be replaced with? A lot of it will be replaced with gas. Obviously, solar and wind will be a big part of the equation, but gas will be a very big part of that. There are issues associated with that, which utilities, ratepayers and everyone will have to address as well. Gas pipeline capacity is tight in this country; we do not have enough capacity. So there will have to be more thought given to more pipeline and storage capacity.<sup>61</sup> We are seeing this play out in New England. Gas supplies

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57. *Mass. v. Envtl. Prot. Agency*, 549 U.S. 497 (2007); *Am. Electric Power v. Conn.*, 131 S. Ct. 2527 (2011); *Util. Air Reg. Grp. v. Envtl. Prot. Agency*, 134 S. Ct. 2427 (2014).

58. *AEO2014 Projects More Coal-Fired Power Plant Retirements by 2016 than have been Scheduled*, U.S. ENERGY INFO. ADMIN., [perma.cc/8DQ5-G3KS](http://perma.cc/8DQ5-G3KS) (last visited Nov. 8, 2015) [hereinafter U.S. ENERGY INFO. ADMIN.].

59. *See id.*

60. *Id.*

61. Peter Behr, *Gas Closes in on Coal in Power Plant Generation* ENERGYWIRE (May 13, 2015), [perma.cc/DJ65-8LEB](http://perma.cc/DJ65-8LEB)

get tight in New England, and it is an issue they are struggling with right now.

In terms of retirements, there are studies showing what types of power generating units are being retired. It does not surprise anyone to find out they are older units, most built from the 1960s and 1970s and 1980s.<sup>62</sup> The coal plants from the 1960s will probably almost entirely be gone. It is also the smaller units less than 300, megawatts, which makes up about sixty-three percent of the capacity slated for retirement,<sup>63</sup> and the other category of retirements of the units that pollute the most. It makes sense that old, small, and polluting plants would be targeted first. But, there is a catch to some of that. In some case[s], some of these units are not used extensively, but are necessary for reliability regions. They may be in a key location, may provide reactive power, voltage support, and some reliability benefit that makes it difficult to replace that unit. Does that mean they can never be replaced? No. Sometimes there may be transmission or generation solution[s] that might work. But that is one issue that utilities, regional transmission organizations, and FERC will have to grapple with—the reliability aspect of retirement of some of those units. And there will be increases in electricity costs in some regions.

One of the things that people are talking about a lot, and there is a lot of press on, is agency coordination. It seems the Senate is holding hearings on a regular basis where they bring in the FERC commissioners to discuss whether they are coordinating and looking at the reliability aspects for how all of this is playing out. FERC says it is coordinating with EPA [and] DOE.<sup>64</sup> FERC testified that they are concerned about the reliability impacts but are looking at it.<sup>65</sup> I was just at the Energy Bar Meeting, which was earlier this week, where a bunch of FERC attorneys [got] together and talked about FERC. It is exciting [laughter]. FERC Commissioner Clark says if they are coordinating with EPA, he is not seeing a lot of it. That is probably true. I am sure the agencies are talking, but not at the level of discussion it needs to be as the units approach retirement. It is an important issue and they need to be talking on a regular basis. Commissioner Clark testified that he wants FERC to certify EPA compliance plans.<sup>66</sup> Other commissioners did not go that far,

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62. See U.S. ENERGY INFO. ADMIN., *supra* note 58.

63. *Id.*

64. FED. ENERGY REG. COMM'N, EPA-DOE-FERC COORDINATION ON IMPLEMENTATION OF THE CLEAN POWER PLAN (2015).

65. *Id.*

66. *Id.*; FED. ENERGY REG. COMM'N, WRITTEN TESTIMONY OF COMMISSIONER TONY CLARK FEDERAL ENERGY REGULATORY COMMISSION BEFORE THE COMMITTEE ON ENERGY AND COMMERCE SUBCOMMITTEE ON ENERGY AND POWER UNITED STATES HOUSE OF REPRESENTATIVES

they just want some sort of safety valve. In other words, if pursuant to EPA rules you have a number of units that are going to be retired, then an analysis is to be done on what this means for reliability. FERC would be able to review that analysis and make a determination that maybe there is certain plant that should not be retired this year. Maybe it is next year or two years from now, but put it in a plan so that reliability is protected.

The last point I want to make is related to capacity markets.<sup>67</sup> It is an issue a lot of utilities are thinking about, obviously those that are involved in organized energy markets. Energy markets are focused on the price you pay for energy. Capacity markets are there to ensure [each of the] generators receive[s] its fixed costs. The price you are paying for capacity is the price you are paying to make sure that you have enough generating capacity and a certain margin to make sure the lights stay on. And the way those markets are set up is that you bid three years in advance. You say I have this generation and you bid into that market three years into the future. [] [T]hings the EPA rules are impacting, and will continue to have an impact on, are decisions about what generation is going to be in the mix three years into the future. One of the things all utilities are concerned about is reliability, but also certainty. Because they have to make decisions now about units that are going to be there or might not be there in three years. So the sooner this can get resolved and rules can be put in place that provide certainty, that helps utilities make those decisions as they are bidding into those markets.

**Holly Rachel Smith, NARUC:** [Ms. Smith began her remarks by highlighting the disclaimer on her power point presentation indicating that the views expressed are her own and not those of the National Association of Regulatory Utility Commissioners.] Good afternoon. Raise your hand if you have heard this before. I have a dog and her name is Velvet. Velvet does not behave very well. When I call her, she only comes a quarter of the time, however, when I say “111(d),” one hundred percent of the time Velvet flops over and plays dead. Velvet knows I am going to be talking a long time and it may be quite boring. Velvet is supposed to have puppies on December 1, the date the comments on the Clean Power Plan proposal are due to the EPA! I cannot stop thinking of baby names: “BSER,” “Baseline,” “Coal,” “Carbon,” “Nuke,” “2005,” “2012,” “2020,” and “2030.” If the EPA fixes the credit for early action problem we will not need the “2012” puppy—we

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HEARING ON FERC PERSPECTIVE: QUESTIONS CONCERNING EPA’S PROPOSED CLEAN POWER PLAN AND OTHER GRID RELIABILITY CHALLENGES (July 29, 2014).

67. ROD KUCKRO, *FERC’s LaFleur Wants ‘Reliability Mechanism’ in EPA Clean Power Plan*, ENERGYWIRE (Nov. 10, 2014).

can name her “Joe,” “Janet”, or “Gina!”<sup>68</sup> To gauge your familiarity with the Clean Power Plan, how many of you recognized all of the puppy names?

I work for the National Association of Regulatory Utility Commissioners (“NARUC”).<sup>69</sup> I represent the State energy regulators that have jurisdiction over the fuel mix of the United States. They hold proceedings to look at resource portfolios, and they set the amount of solar, gas, and coal based energy consumed in their State. They approve new plants and new transmission lines. State regulators are pretty important to the fuel mix. They also ensure safe, affordable, and reliable electric service. That is their job.

I am here today because section 111(d) is a unique section of the Clean Air Act. It actually says that the EPA is to establish procedures for States to set standards of performance for regulating emissions from an existing source, in this case, carbon from existing power plants. Section 111(d) falls in later in the Clean Air Act after 111(b), which is used to regulate new sources. The sources to be regulated under Section 111(d) have to have already been regulated under Section 111(b). Professor Parenteau mentioned on his chart the timeline for new source performance standards, which set the ton-per-megawatt-hour limits for new coal and gas plants—meaning the completion of that rulemaking enables rules for carbon from existing power plants under Section 111(d).

Unlike Velvet, the States are not playing dead around 111(d). We have been in a dialogue with the EPA since the start of this. The EPA conducted a listening period and NARUC has been very actively engaged. Individual NARUC members met with the EPA. NARUC has held a series of meetings where we dialogued with the EPA Administrator speak and this dialogue with the EPA is ongoing. In 2013, NARUC adopted a resolution about 111(d).<sup>70</sup> The state regulators asked for EPA: to acknowledge their jurisdiction over the fuel mix; and to allow for flexibility so there are opportunities for cost effective implementation of the new rules. NARUC also asked that states receive credit for early action for reducing carbon from existing power plants and that EPA not adopt standards that are infeasible to implement.

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68. *Fact Sheet Clean Power Plan Key Changes and Improvements*, ENVTL. PROT. AGENCY, [perma.cc/XHW7-S4AZ](http://perma.cc/XHW7-S4AZ) (last visited Nov. 7, 2015).

69. See NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS, NARUC.ORG (last visited Dec. 18, 2015) [hereinafter NARUC] (representing State Public Service Commissioners in regulating essential State utility services, whose members responsible for assuring reliable utility service at fair, just, and reasonable rates).

70. NAT'L ASS'N OF REGULATORY UTIL. COMMISSIONERS, RESOLUTION ON INCREASED FLEXIBILITY WITH REGARD TO THE EPA'S REGULATION OF GREENHOUSE GAS EMISSIONS FROM EXISTING POWER PLANTS, (Nov. 20, 2013), [perma.cc/G9WT-XZMM](http://perma.cc/G9WT-XZMM).

I was asked to talk about a recent EPA publication that came out last week called the Notice of Data Availability (“NODA”).<sup>71</sup> The document is living proof that the dialogue between our state members and EPA is working. I carry with me a list of concerns I have heard from NARUC’s members. Four or five issues from my list of State energy regulator concerns over the proposal are also the subject of the NODA, creating opportunities for further input. One concern is that the interim timeframe for achieving the emission reduction is too short. New generation would have to be built, as well as new pipelines, and new State laws perhaps would be needed to effectuate EPA’s requirements. On average, the interim goal for each State is eighty-two percent of the final goal. With regard to Building Block Two, dispatch changes to reduce reliance on coal plants and increase reliance on combined cycle gas plants, the EPA is seeking comment on a stakeholder suggestion of a phased-in compliance approach over a longer period of time.<sup>72</sup> Of interest to State regulators, is the EPA’s reference to affordability and the need to allow for enough time to enable cost effective adjustments. The EPA also mentions extreme weather and the possible need for a longer glide-path to ensure reliability.<sup>73</sup>

**Michael Myers, New York State Attorney General’s Office:** First, I have to issue the disclaimer that these are not official views of the New York State Attorney General’s Office. These just happen to be what Mike Myers, Vermont Law class of 1993, thinks at the moment, but those views continue to evolve in and of themselves. This is a very important rulemaking. I have been working on climate change litigation for over ten years now. With apologies to Martin Luther King and, I guess, Theodore Parker was the original person who said this, the arc of mandatory greenhouse gas reductions for power plants is long, but it does appear to be “bend[ing] toward justice.”<sup>74</sup> Where exactly we are on that arc I am not really sure, but I am hoping we are in the middle.

For background purposes, New York has been involved in cases to get to this very point for a long time now. Professor Parenteau mentioned a couple of them, such as *Mass. v. EPA*, and *New York v. EPA*, which was a companion to *Mass. v. EPA*, but concerned power plant emissions under section 111, which resulted in a settlement agreement whereby EPA agreed

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71. ENVTL. PROT. AGENCY, *Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units*, perma.cc/B826-GJSS [hereinafter NOTICE OF DATA AVAILABILITY].

72. *Id.*

73. *Id.*

74. Theodore Parker, *Of Justice and the Conscience*, in TEN SERMONS OF RELIGION 66, 84–85 (1853).

to go forward with the current rulemaking.<sup>75</sup> That settlement was superseded by the President's Climate Action Plan and his related Power Plant Memorandum, which established the deadlines that EPA is now following.<sup>76</sup> Certainly, we would like to think we had a lot to do with pushing EPA to go forward to where they are going today. Also relevant was the Supreme Court case *Connecticut v. AEP*, which concerned emissions from these very same power plants.<sup>77</sup> One thing to keep in mind, since climate change litigation has been playing out over the last ten years there have been a lot of fingers pointed toward an empty chair, which is now being occupied by section 111(d), first by industry; also, the federal government in cases like *Connecticut v. AEP*, which concerned whether there was a common law remedy to get at these reductions.<sup>78</sup> We are now actually at the point where this is the remedy that, as Professor Parenteau was saying, for better or worse, we appear to have settled on. That is one of the really important reasons that a lot of smart folks are spending a lot of time on this.

In terms of some of the legal issues that states, and state attorney general offices in particular, are focusing on as we prepare our rulemaking comments, I thought it was going to be a little easier to talk about this because under EPA's original deadline the comments would have been submitted already but, with the extension the agency gave, the comments are not due until December 1, 2014.<sup>79</sup> So, I have to be somewhat careful about what I say because the comments are still under review.

But before I highlight a few of these issues, I think something important to emphasize, because it really will color how a court will look at some of these issues, has to do with the high stakes that are involved here and the urgent need to address greenhouse gases now. 2014 is on pace to be yet again the hottest year on record.<sup>80</sup> We have not seen these levels of CO<sub>2</sub>, methane, and nitrous oxides in the atmosphere in 800,000 years.<sup>81</sup> And states like New York are already feeling some of the impacts of climate change-related events, such as Hurricane Sandy. And this is the only game in town. As Alan Strasser was alluding to, we do not expect much is going to happen in the

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75. Settlement Agreement, *New York v. EPA*, No. 06-1322 (D.C. Cir. 2010); 75 Fed. Reg. 82,392 (Dec. 30, 2010).

76. President's Memorandum, *supra* note 33.

77. *Am. Electric Power*, 131 S. Ct. at 2529.

78. *Id.*

79. See generally NOTICE OF DATA AVAILABILITY, *supra* note 71 (providing additional information on several topics raised by stakeholders and soliciting comment on three topic areas: the emission reduction compliance trajectories created by the interim goal for 2020 to 2029; certain aspects of the building block methodology; and the way state-specific carbon dioxide ("CO<sub>2</sub>") goals are calculated).

80. *Global Analysis – Annual 2014*, NAT'L OCEANIC AND ATMOSPHERIC ASS'N, [perma.cc/833P-2DQG](http://perma.cc/833P-2DQG) (last visited Oct. 31, 2015).

81. *Atmospheric Concentrations of Greenhouse Gases*, ENVTL. PROT. AGENCY, [perma.cc/SGJ5-JAY8](http://perma.cc/SGJ5-JAY8) (last updated June 2015).

next couple of years in Congress. So in terms of future climate change policies, this is where the game really is. And I think that is important because while we are lawyers and will be arguing about what system means, I think when it comes down to it, a court or courts will be looking at this with a practical view point of, “if I throw this rule out what else is there?” And I do not think there is a lot that a court can hang its hat on right now regarding readily available alternatives.

Quickly, in terms of a couple of the issues and we can get to some of these in the discussion, one Professor Parenteau mentioned earlier, what is the best system of emission reduction? I do have a definition of “system” here. And this is from 1970 when the Clean Air Act was passed. A “system” is defined as, “a complex unity formed of many often diverse parts subject to a common plan or serving a common purpose.”<sup>82</sup> So said Webster in 1968. It is obviously a term where EPA will get some deference in terms of what it means. It is not specifically focused on an individual plant. I think what EPA has done here is said lets think about how the power system and the electric grid works and what have states been doing to reduce emissions. And by using that building blocks methodology, I think they have combined different ideas of what a system can be.<sup>83</sup> And I think they have done it in a very smart way, especially by looking at states like New York, and California, others have been able to do in practice to get at these emission reductions.<sup>84</sup> It is not just doing things at the power plants but looking at renewable portfolio standards and energy efficiency standards to drive down reductions. This issue of beyond the fenceline is going to be debated quite a bit going forward. But I do think EPA has done a good job on this and a court will give them deference on this.

One of the other things to mention is section 111(d) has not had a lot of use in the past, but the Clean Air Act was created as a document that could react to different problems as they come up. Just because it has not been used in the past, does not mean it, 111(d), cannot do the job in this situation. And if you look at the language in section 111(d) it refers back to section 110, which is the section that states used to create their state implementation plans to achieve the National Ambient Air Quality Standards (“NAAQS”).<sup>85</sup> And the NAAQS is a standard that EPA sets based on its expertise as to what is necessary to protect public health and welfare. Well, if you look at the emission targets that EPA has set for each of the states under 111(d), it is similar in that respect, so it is therefore consistent with that reference to section 110, because it has used its expertise to come up with a set of targets

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82. *System*, WEBSTER’S THIRD NEW INTERNATIONAL DICTIONARY (1967).

83. NOTICE OF DATA AVAILABILITY, *supra* note 71.

84. RGGI, *supra* note 55.

85. Clean Air Act § 110, 42 U.S.C. § 7410 (2012).

that now, like in the state implementation plan realm, it is now up to the states to figure out how to get there. That is how the Clean Power Rule is consistent with the Clean Air Act.

**Alan Strasser:** Francisco is a non-attorney, an economist, and has some very wise insights on the practical implementation issues of the proposed rule.

**Francisco de la Chesnaye, Technical Executive, EPRI:** Thanks Alan, for the invitation to be on the panel. EPRI is an independent not for profit research think tank.<sup>86</sup> We are primarily funded by utilities but also federal and state government and international sources as well. In keeping with the theme that I am not an attorney, but an economist, my comments are based on comments EPRI submitted to the EPA docket.<sup>87</sup> EPRI took an engineering, systems dynamics, and economic perspective in our comments, so did not address any legal or regulatory issues. And hopefully that adds a different take on these issues.

The building blocks, and a determination of how EPA applied them to the states to get the rates, is the fundamental component to the proposed rule. One of EPRI's overlying comments, and we do not get into how you define a "system;" was that there was not much of a systems dynamic perspective in the use of this formula, because a lot of the building blocks interact;<sup>88</sup> and that was really not taken into account. I will give you a couple of examples. What is really important is that it creates a simple arithmetic formula, but pretty important to understand. Under the numerator on the top in the equation you have the reduced amount of fossil fuels by application of heat rate improvements and dispatching more gas to retire coal essentially, and that gives you emissions in pounds per megawatt hours.<sup>89</sup> And in the denominator you have megawatt hours, but then you can add on renewables and nuclear, the non-emitting sources, and you have efficiency and you do the math and get your rate for the state.<sup>90</sup>

A couple of places where these things interact, but were not taken into account, are your coal units—if they are now operating at a lower level because you have more gas. And you now have more renewables in your system that are variable so now your coal units have to cycle and load follow.

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86. See ELECTRIC POWER RESEARCH INSTITUTE, [perma.cc/H9ET-WSGW](http://perma.cc/H9ET-WSGW) (last visited Nov. 7, 2015).

87. Electrical Power Res. Inst., Comment Letter on Proposed Rule Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Unity (Oct. 20, 2014) [hereinafter Comment Letter].

88. *Id.* at 3.

89. *Id.*

90. *Id.* at 4–5.

You are going to have more issues achieving a six percent heat rate improvement from an engineering plant perspective; it is going to be more challenging to do that.<sup>91</sup> And the same thing with more renewables on the power system: you will have more of an impact on your gas units; and will be harder to maintain those really high capacity factors; and EPA calls for an increase to seventy percent.<sup>92</sup> So the approach EPA took was with the individual building blocks and added them sequentially. But, in fact, the power system does not work that way. The power system is an integrated system.<sup>93</sup> There are dynamics between the building blocks and you need to take these things into account.

To give you another example regarding the dynamics of the Best System of Emissions Reduction (“BSER”), what is in the denominator, particularly energy efficiency and renewables, really determines how much fossil fuel generation you can run.<sup>94</sup> Because remember it is a formula using fractions and your rate is fixed by EPA and you cannot change that. And if for some reason you do not get those renewable generation because it is not as windy as you thought it was going to be, too much cloudiness in a season or year, or if a large nuclear plant happens to be out of service for some reason again, that is in your denominator. If you do not have those non-emitting sources to help you with your rate—the only way to stay in compliance with your rate, is to reduce your fossil generation, such as coal and gas. This has both short- and long-term consequences. In the short-term, to stay within the fixed rates, you may have to retire existing gas units and build new gas units that are below the rate. And that is a bit uneconomical and may be a challenge for the states, possibly. And in the short-term you may have a state that has to maintain reliability but go beyond the rate because they do not have renewables or energy efficiency that was in the formula.

We looked at Arizona in 2020 where its target rate is 778 lbs/MWh.<sup>95</sup> An existing natural gas combined cycle unit is above that rate. And potentially that rate would force out existing combined cycle units, and they would have to build new ones. We came up with a “fossil leverage factor.” What that means that for every non-emitting megawatts of generation would make you reduce fossil generation. For Arizona, every MWh missed, would require

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91. *Id.* at 9.

92. *Id.* at 4.

93. ELEC. POWER RES. INST., *THE INTEGRATED GRID, REALIZING THE FULL VALUE OF CENTRAL AND DISTRIBUTED ENERGY RESOURCES*, [http://connect.vermontlaw.edu/file/vlsc-documents/vls-alumni-in-energy-symposium/SuppInfo\\_EPRI-Integrated-Grid021014.pdf](http://connect.vermontlaw.edu/file/vlsc-documents/vls-alumni-in-energy-symposium/SuppInfo_EPRI-Integrated-Grid021014.pdf) (last visited Nov. 7, 2014).

94. Comment Letter, *supra* note 87.

95. VICTOR NIEMEYER ET AL., *ASSESSING CHALLENGES OF EPA’S CLEAN POWER PLAN* (Oct. 9, 2014), [perma.cc/4N3Q-8EV4](http://perma.cc/4N3Q-8EV4).

Arizona to reduce fossil generation by 6.4 megawatt hours. You would have compliance but not CO<sub>2</sub> reduction.<sup>96</sup> This potential compliance problem only deals with a state that uses a rate methodology for compliance. But, if a state converts to a mass-based methodology, it is a whole different ball game. My final comment is on rate to mass conversions, most of you have studied the proposed rule so that you get three different numbers for a state. You can do a modeling projection to get to a compliance target. EPA may do another NODA to show us how to do a rate conversion from rate to mass. Hopefully we will see that before December 1.

**Alan Strasser:** Thanks, Paco. Would you say the mass versus rate is a pretty major assumption that could skew the way this is implemented?

**Francisco de la Chesnaye:** It is a pretty important assumption and states and utilities will want to get clarity on that. Once that is set, whether a state will go with mass versus rate, the challenges to compliance will be more related to [and] are going to be more regarding what if you do not get renewables or efficiency that you expect. And, what if the price of natural gas goes up. That could be a significant hardship for compliance.

**Alan Strasser:** Can you explain the NODA and whether there are different provisions of the proposed rule that are high, medium, or low on legal justification?

**Holly Rachel Smith:** First, please allow me to touch on the mass versus rate-based question. The EPA set individual state targets in tons per megawatt hour via a rate for each state. With a rate-based approach, growth in megawatt hours of energy consumed (from industrial demand or population expansion) increases the permitted levels of carbon emissions. The alternative is to use a mass-based standard, which is typically used in linked cap-and-trade programs like RGGI or Western Climate Initiative, where there is a total cap or ceiling on the amount of carbon that can be emitted.<sup>97</sup> With a mass-based approach, certain accounting issues go away, such as how to quantify carbon reductions when energy efficiency is used as a compliance measure.<sup>98</sup>

EPA's NODA offered opportunities to comment on additional stakeholder proposals in a number of areas. One really important issue for which the EPA has allowed expended comment is the treatment of energy generated in one state but used in another.

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96. Comment Letter, *supra* note 87, at 31.

97. COMPARING MASS- AND RATE-BASED APPROACHES TO 111(D) IMPLEMENTATION, GREAT PLAINS INST. (May 2015), [perma.cc/M673-NPNL](http://perma.cc/M673-NPNL).

98. Comment Letter, *supra* note 87, at 6.

**Question from audience:** Is there any consideration of the use of biofuels to supplement coal to reduce carbon emissions from coal plants?

**Francisco de la Chesnaye:** EPA has not yet determined or issued guidance on how to account for greenhouse gas emissions from the combustion of biomass, bioenergy, or biofuels. Because of that they were a bit schizophrenic in their proposal. In the use of the building blocks in the renewable portion they did not say anything in blocks 3a and 3b and essentially kept what states had in their renewable portfolio standards, and did not address it at all. However, in their regulatory impact analysis and the economic model that EPA used, for the first time used in that model, they assigned a positive emissions coefficient to any kind of biomass that was combusted. Therefore, biomass is not being treated carbon neutral.<sup>99</sup> We will have to wait until EPA comes up with its biogenic accounting framework, and then we will go from there.

**Alan Strasser:** Is this framework part of the current rulemaking process?

**Francisco de la Chesnaye:** It is separate but related to this rulemaking process.

**Question from audience:** With the shift from coal to natural gas, will new plants be built, existing coal plants retrofitted to burn gas, or both?

**Steven Spina:** The answer is “or both.” New plants could be built or retrofitted. Utilities will be considering both options.

**Michael Myers:** Similar to what Holly was saying, RGGI states submitted joint comments yesterday. One suggested change for building block two is that, “EPA should consider revisions to this building block that represent the potential for redispach from existing coal EGUs to new NGCC plants likely to be constructed between now and 2030.”<sup>100</sup>

**Steven Spina:** When utilities are evaluating these options, one of the attractive things about retrofit is that you already own the site. So I believe retrofitting will be given a lot of consideration.

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99. REGULATORY IMPACT ANALYSIS, *supra* note 38.

100. Press Release, Reg’l Greenhouse Gas Initiative, Comments on EPA’s Proposed Clean Power Plan (Dec. 1, 2014), [perma.cc/VLH9-H4B2](http://perma.cc/VLH9-H4B2).

**Alan Strasser:** I have a question for Mike Myers. EPA asked for comments to address enforceability requirements, which, “rely on compliance by third parties, and if those state programs fail to achieve the expected emission reductions, the state could be subject to challenges.”<sup>101</sup> Question: Is there a legal basis for suits against states by non-power plant third parties (e.g., wind generator) who due to weather patterns out of their control, fail to meet their generating obligations?

**Michael Myers:** The question touches on one of the trickier things EPA is grappling with here, which is how to give the states flexibility to consider each states’ circumstances in the most effective way to get these significant emissions reductions while having accountability and enforceability under the Clean Air Act. Getting back to the discussion regarding the merits of a rate-based versus mass-based program, if you have a program like RGGI compliance is really fairly easy because each generator has to have sufficient number of allowances to cover their emissions. That avoids some of these issues when you have a renewable portfolio standard that is part of your federally enforceable plan, and your plan administrator fails to do their job, can they be sued? RGGI avoids these issues by factoring in emission reductions (by factoring in renewable portfolio standards), not making them part of the legal mechanism that gets enforced. RGGI from that perspective is a way to deal with these tricky enforcement issues.

**Alan Strasser:** So there are sufficient incentives for RGGI consortium states to utilize RGGI to address the proposed rule requirements, as opposed to creating a more creative means of compliance?

**Michael Myers:** Yes, but not only RGGI states, but other states as well.

**Alan Strasser:** Other states by joining into new consortia?

**Michael Myers:** Yes.

**Holly Rachel Smith:** Some State regulators are concerned that if their State implementation plan relies on an existing State renewable portfolio standard or energy efficiency standard that the State program would become subject to federal enforcement.

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101. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,830, 34,902 (June 18, 2014).

**Michael Myers:** That is something EPA is taking specific comment on. You could have a plan that is submitted that has as its federally enforceable component the requirements that generators have to meet and explain how your state will facilitate those reductions through renewable portfolio standards and energy efficiency standards, but not make that federally enforceable. But the question then is: Who is on the hook? Should generators [be] on the hook at the end of the day? Should states be on the hook? Or should there be some type of shared responsibility there?

**Alan Strasser:** Here is a question from Jessica Lavetsky: How do you see the current proposal handling carbon reducing actions by distributed energy resources? How will these actions be identified and credited back to the states goals?

**Jessica Lavetsky (the author of the question):** If you have a manufacturer who wants to be their own power generator and stop accessing grid power because it is cleaner and more efficient, how does the state get credited for it in their overall plan? Who identifies these projects? Because it is not necessarily regulated like a regular generator would be.

**Holly Rachel Smith:** If mass-based, it would not matter because the total State carbon emissions would decrease.

**Michael Dworkin (from the audience):** If I understand the question, it shows up as a drop of the otherwise expected emissions from otherwise operating plants. Instead of calling on the preexisting plants, you are calling on the new one, and just shows up as a drop in emissions.

**Francisco de la Chesnaye:** That is right. It will reduce the numerator of emissions from now covered facilities. And EPRI has identified this in their comments, not so much related to distributed generation from rooftop solar or facilities, but if commercial manufacturers [are] using their own generators, what does that do to local air quality in terms of criteria pollutants regulated under the Clean Air Act, not CO<sub>2</sub>, we can work that one out. There are some micro air-shed issues we are looking into.

**Alan Strasser:** Final question to the panel and you each have fifteen seconds each to answer. What would you do if you are on the elevator with someone from EPA that can definitely put in the one provision you want? Which provision would you put in, or strike out? You do not have to tell us where you would put it in, but conceptually. Is there a piece of this you would like

change? And you can make the pitch. Let us start with Paco. That is a hammer Paco.

**Francisco de la Chesnaye:** Energy efficiency seems like in some ways to be an Achilles' heal. I would put a lot of emphasis on it to either make sure it is real or take it out.

**Michael Myers:** I would encourage the agency to help facilitate states in entering into these multi-state arrangements because, as Professor Parenteau pointed out, the RGGI system is working very well.

**Holly Rachel Smith:** Restating my disclaimer at the beginning of the session that this is simply my opinion, ratepayers should receive credit for a State's early actions towards reducing carbon emissions. The ratepayers paid those investments to reduce emissions and the State should receive credit for these investments.

**Steven Spina:** Whatever they do, I would urge them [to do it] quickly and coordinate with FERC while they are doing it.

**Professor Parenteau:** I think they should go with a cap-no-trade system.

**Alan Strasser:** Let us thank the panel for their great insights [applause].

PANEL #3- THE FUTURE OF UTILITY BUSINESS MODELS TO ADDRESS  
RENEWABLES AND EFFICIENCY (4:05–5:05 PM)

If the smart grid enables more efficiency and renewables, how will utilities of the future fare? Regulated utilities traditionally received a guaranteed return on their investment and the power sold. But with merchant power generating more energy and efforts to decouple profits from sales, from regulated utilities, some utilities are concerned about their future financial viability. As renewable power generation has increased, some utilities feel solar users are getting a free ride by relying on utility infrastructure to transmit power and therefore unfairly competing. Instead, utilities should charge solar users for the use of infrastructure. Some questions the panelists will address are:

1. Should renewable generators using utility power lines pay for their use?
2. What new, broad utility business models are developing to address these challenges?

3. What legal and regulatory issues have surfaced?
4. What is the impact of this uncertainty on the vendor community who supply utilities and other users of efficiency products?

Moderator: Alan Strasser (VLS Alumni in Energy)- THIS PANEL WAS NOT RECORDED

Panelists:

- Mike Carlson, *President, Siemens Smart Grid North America*
- Michael Dworkin, *Director, Institute for Energy and the Environment, Vermont Law School*
- Holly Rachel Smith, *Assistant General Counsel, National Association of Regulatory Utility Commissioners*
- Stephen Spina, *Partner, Morgan, Lewis & Bockius, LLP.*