Effective Renewable Energy Policy: Leave It to the States?

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In the October 11, 2010 issue of *New Yorker Magazine*, Ryan Lizza sheds light on recent congressional efforts to pass comprehensive energy and climate legislation. Senators John Kerry, Lindsey Graham, and Joseph Lieberman (respectively, a Democrat, a Republican, and an Independent) worked for months to craft a mutually tolerable bill.[1] However, under the draconian rules of the United States Senate, a controversial bill cannot move to a floor vote without the support of at least 60 senators. This meant that the bill's sponsors needed to focus more on the whims of a handful of senators in the minority than they did on the majority of the members, who would likely support anything acceptable to the authors.[2] Lizza describes a process under which the bill's proponents sacrificed major provisions in the legislation in the hopes of buying support from certain swing senators.[3] This process only succeeded in weakening the bill without securing additional votes.[4] Eventually, the whole effort collapsed.[5]

Given that a multi-partisan effort to move a bill failed in the last Senate, and the grid lock of the Congress that followed, the odds of passing comprehensive climate and energy legislation in the are all the more dismal. Yet, the underlying problems creating the need for energy reform persist. The United States has yet to make a firm commitment to long-term greenhouse gas reduction, and its energy policy continues to be fragmented and scattered. Meanwhile, China and various European nations appear to be taking the lead in producing and selling renewable power equipment.

In this context, perhaps it is time to reconsider the congressional approach to energy policy—to find the pieces that have worked and to abandon the ones that continue to fail. The greatest failure has been one of political will to prescribe a uniform national approach. The more promising avenue likely carves a path of cooperative federalism. Such an approach would leave to the states the primary responsibility for developing and executing a particular program, while imposing significant requirements to be followed in the discharge of that responsibility.

It is in the states that hope remains for action consistent with our environmental challenges. Congress has a critical role to play in bringing out the best that each state has to offer. This paper considers the opportunity to apply proven approaches for sharing responsibility with the states to one of the critical components of a new energy policy—

1. Ryan Lizza, *As the World Burns*, NEW YORKER, Oct. 11, 2010, http://www.newyorker.com/reporting/2010/10/11/101011fa_fact_lizza.
2. *Id.*
3. *Id.*
4. *Id.*
5. *Id.*

using renewable electric generation in lieu of power plants fired by coal, oil, or natural gas. This policy is most often expressed in the form of a "renewable portfolio standard" or a "renewable energy standard" imposed on the utilities and other entities providing electric power service.

I. WHY RENEWABLE POWER IS SO IMPORTANT

Renewable power[6] does not answer all of our climate concerns, but it is a critical component of any ambitious effort to reduce electric power-related greenhouse gas emissions. Assume an interest in reducing such emissions to 80 percent below current levels. One way to reach that number would be to cut emissions by as much as 50 percent through efficiency improvements, take half of the emissions out of the fuel mix through fuel substitution, and achieve additional reductions through behavioral change. If there is less fuel substitution, then efficiency and behavioral gains must be greater. If we remain more inefficient, there must be even more fuel substitution.

There is great potential for efficiency gains in all sectors.[7] The conversion time will be quite lengthy, and the upfront cost for even extremely cost-effective substitutions will be high.[8] In addition, while efficiency gains remain the most important option, energy demand will continue to be considerable.[9] Fuel substitution must play a significant role. The transportation sector offers the greatest challenge for fuel substitution. Current ethanol programs only displace a small fraction of liquid fossil fuel use and produce little or no net greenhouse gas reduction.[10] A dramatic shift in transportation fuel use may require substituting electricity for gasoline, which will likely increase the demand for electric power. This makes fuel substitution in the power sector all the more crucial.

Half of the power generated in the United States is derived from the use of coal—the single greatest source of stationary greenhouse gas

6. For the purposes of this discussion renewable power is generated with solar heat, photovoltaics, wind, geothermal heat, small hydroelectric facilities, biomass, biofuels, or offshore kinetic energy.

7. HANNAH CHOI GRANADE ET AL., MCKINSEY & CO., UNLOCKING ENERGY EFFICIENCY IN THE U.S. ECONOMY 9 (2009).

8. *Id.* at viii.

9. *Id.* at 48.

10. Matthew L. Wald, *A Bit More Ethanol in the Gas Tank*, N.Y. TIMES, Oct. 13, 2010, http://www.nytimes.com/2010/10/14/business/energy-environment/14ethanol.html.

emissions.[11] Burning domestic natural gas produces about half the greenhouse gas emissions resulting from burning coal.[12] Assuming that these overly-simplistic numbers apply to all electric generation, replacing all of the power generated at coal plants with power generated at natural gas plants would reduce power-related greenhouse gas emissions by 25 percent, which is simply not enough to get the job done.[13] But the large-scale conversion to electric vehicles would increase the demand for electricity. Meeting this new demand by burning natural gas would reduce greenhouse gas emissions in the transportation sector, but increase emissions from electric generation.

These results leave us with two choices to accomplish our goal of reducing greenhouse gas emissions: capture and store the carbon dioxide otherwise released through combustion, or increase our reliance on power generation that is not dependent on fossil fuel consumption—even when that fossil fuel is cleaner-burning natural gas. Carbon capture and sequestration is no panacea. It is energy-intensive and requires large supplies of water.[14] Infrastructure needs are great, and carbon sequestration will do nothing to alleviate the environmental devastation related to coal mining and processing. Many point to increased reliance on nuclear power as at least part of the answer, since greenhouse gas emissions related to nuclear fuel processing and power generation are relatively small. Yet, the promised nuclear renaissance remains more a reflection of engineering optimism than commercial reality. Proponents have always said that nuclear power could be safe, fast, and economical. Nonetheless, radioactive waste storage challenges remain unresolved; the lead-time for planning, permitting, and constructing new plants remains long; and costs remain high.[15]

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11. Dep't. of Energy, Fossil Energy: A Brief Overview of Coal, http://fossil.energy.gov/education/energylessons/coal/gen_coal.html (last visited Jan. 16, 2011).

12. Using imported natural gas results in greater greenhouse gas emissions, but that is a discussion for another time.

13. Michael Graham Richard, *Some U.S. Utilities Starting to Replace Coal with Natural Gas*, TREEHUGGER, Dec. 1, 2010, http://www.treehugger.com/files/2010/12/utilities-replacing-coal-power-plants-with-natural-gas.php.

14. Fossil Energy Office of Commc'ns, *Carbon Capture Research*, U.S. DEPARTMENT OF ENERGY, http://www.http://fossil.energy.gov/programs/sequestration/capture/index.html (last updated Feb. 9, 2011).

15. The recent nuclear power crisis at Fukushima Daichi in Japan will, at a minimum, add to the uncertainty related to additional nuclear power development in the United States as stakeholders debate the significance of the cooling system failures at those plants. In addition, the potential role in the Fukushima accident of on-site spent fuel storage will likely lead to greater scrutiny of such storage strategies at nuclear power plants throughout the world. This adds a new element of uncertainty to both new plant licensing and the relicensing of existing plants. *See* Zulima Palacio, *After Fukushima, Nations Put Nuke Plant Development On Hold*, VOICES OF AMERICA (Apr. 6, 2011) http://www.voanews.com/english/news/science-technology/After-Fukushima-Nations-Put-Nuke-Plant-Development

While many of these observations could apply to various renewable energy options as well, there have been great and consistent gains in the efficiency of wind turbines, the cost of solar photovoltaics, and financial support for the build-out of large central-station solar installations. A very significant challenge relates to the successful management of intermittent generation from solar and wind facilities when that power is introduced to the grid. In the short-term, versatile gas-fired peaking plants can contribute to system stability. In the long-term, energy storage systems of various kinds[16] must take on a major role as part of utility infrastructure.

Nonetheless, the conclusion is inevitable: no single energy option will break our reliance on coal, oil, and gas. We need to become as efficient as practicable in all aspects of energy usage and pursue all promising ways of displacing the remaining demand for fossil fuels. On the supply side, renewable sources deserve the greatest emphasis due to largely inexhaustible fuel supplies and stable operating costs, as well as opportunities to minimize conventional pollutants, enhance safety, and reduce the burden on future generations in the form of stored carbon dioxide and high-level nuclear waste.

II. WHERE RENEWABLE GENERATION USE CURRENTLY STANDS IN THE STATES

Policies supporting the use of renewable sources for electric generation are promising in some states, but uneven nationally. Twenty-nine states and the District of Columbia have adopted some type of mandate related to utility reliance on renewable generation.[17] Although precise names may differ, these can be referred to generally as Renewable Portfolio Standards. Some states' standards are much more ambitious than others. For instance, while California law calls for achieving 33 percent renewable power by the year 2020, its neighbor, Arizona, seeks 15 percent by

-On-Hold-119361329.html; Prachi Patel, *Fukushima's Impact on Nuclear Power*, IEEE SPECTRUM: TECH TALK (Mar. 22, 2011), http://www. spectrum.ieee.org/tech-talk/energy/nuclear/fukushimas-impact-on-nuclear-power.

16. Promising technologies include advanced batteries, compressed air, hydroelectric pumped storage, ice, and other forms of storing the benefits of electric generation for later use. *See* BRAD ROBERTS & JESSICA HARRISON, ELEC. ADVISORY COMM., ENERGY STORAGE ACTIVITIES IN THE UNITED STATES ELECTRICITY GRID 2-3 (2011).

17. *Renewable Power & Energy Efficiency Market: Renewable Portfolio Standard*, FED. ENERGY REGULATORY COMM., http://www.ferc.gov/market-oversight/othr-mkts/renew/othr-rnw-rps.pdf (last updated Aug. 11, 2011).

2025.[18] Minnesota requires 25 percent renewable power by 2025, while Wisconsin only requires 10 percent by 2015.[19] In addition, states define qualifying renewable generation in inconsistent ways—some states allow municipal waste incinerators to qualify, some count generation from existing large-scale hydroelectric dams, and some allow energy efficiency improvements to qualify.[20]

What is perhaps most noteworthy is that a significant number of states with either no renewable portfolio standard or with weak requirements are places with above-average reliance on coal-fired power.[21] It is in those states where the substitution of renewable power for conventional generation could have the greatest impact on greenhouse gas reductions. Consider Pennsylvania, one of the four most coal-dependent states in the nation. While its standard calls for 18 percent reliance on alternatives by 2020, only 8 percent must come from wind, solar, small hydropower, geothermal, or biomass (and this portion can include coalmine methane).[22] The remaining 10 percent could come from waste coal, demand side management, large hydropower, municipal solid waste, or coal integrated gasification combined cycle.[23] None of these options is considered "renewable" for the purposes of programs in the more ambitious states. Indiana, one of the ten most coal-dependent states, has no renewable portfolio standard requirement at all.[24] The top tier of coal-dependent states includes Georgia, who spends the most on coal imports and has no standard in place, North Carolina, who has a low 12.5% standard, Texas, and Florida, who has no statute in place as well.[25]

In sum, 21 states (including many of those that are most dependent on coal power) impose no firm requirements for their electric utilities to incorporate renewable power, while many other states impose standards that may fail to produce much renewable power.

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18. RYAN WISER ET AL., SUPPORTING SOLAR POWER IN RENEWABLES PORTFOLIO STANDARDS: EXPERIENCE FROM THE UNITED STATES 5 (2010), *available at* http://eetd.lbl.gov/ea/ems/reports/lbnl-3984e.pdf.

19. *Id.*

20. *See Renewable & Alternative Energy Portfolio Standards*, PEW CENTER ON GLOBAL CLIMATE CHANGE 1-5, 7 http://www.pewclimate.org/sites/default/modules/usmap/pdf.php?file=5907 (last updated Aug. 25, 2011).

21. *See* JEFF DEYETTE & BARBARA FREESE, BURNING COAL, BURNING CASH 2 (Union of Concerned Scientists 2010).

22. *See id.* at 3; *Renewable & Alternative Energy Portfolio Standards*, *supra* note 20, at 7.

23. *Renewable & Alternative Energy Portfolio Standards*, *supra* note 20, at 7.

24. *See* Deyette & Freese, *supra* note 21, at 8; *Renewable & Alternative Energy Portfolio Standards*, *supra* note 20, at 3.

25. Deyette & Freese, *supra* note 21, at 8; *Renewable & Alternative Energy Portfolio Standards*, *supra* note 20, at 2, 6, 8.

III. THE APPEAL OF A FEDERAL RENEWABLE ENERGY STANDARD

A federal renewable energy standard would not stand alone among federal renewable power initiatives, as there are various tax credits, loan guarantees, and research and development programs already in place. However, while existing federal programs are designed to promote market growth and technological breakthroughs, a procurement standard for the nation's utilities would ensure substantial and growing demand. In addition, with such a standard in place, all of the nation's electric utilities would be required to plan for and to incorporate a particular amount of renewable power.

A federal standard would offer some degree of consistency from state to state and create mandates where there are none. It could facilitate the sale of renewable power among the states by setting uniform rules of trade and would manifest a national commitment to developing and maintaining broader markets for renewable generation and its attendant technologies. The short-term result could be an increase in investor confidence. In the long-term, proponents hope to see a significant increase in green sector employment and the refinement of other federal policies to be consistent with the mandate. Since there is no equivalent oil or coal mandate, a long-term commitment to renewable power development should cause policy makers to question the wisdom of continuing to subsidize fossil fuels while at the same time trying to displace their use with renewable alternatives.

IV. WHY THE NATION CANNOT RELY ON CONGRESS TO CREATE A STRONG STANDARD

Since 2001, Congress has failed repeatedly in its efforts to create a national renewable energy standard.[26] Provisions to that effect have passed the House and the Senate, but never both in the same bill.[27] These provisions have failed when Republicans controlled both houses, when Democrats controlled both houses, and when each party dominated one

26. *See, e.g.*, Benjamin K. Sovacool & Christopher Cooper, *Congress Got It Wrong: The Case for a National Renewable Portfolio Standard and Implications for Policy*, 3 ENVT'L & ENERGY L. & POL'Y J. 85, 86-89, 148 (2008).

27. Bryan Walsh, *Can Congress Pass a Renewable Energy Standard?*, TIME ECOCENTRIC BLOG (Jul. 26, 2010, 7:08 PM), http://ecocentric.blogs.time.com/2010/07/26/can-congress-pass-a-renewable-energy-standard/.

chamber. They have failed when incorporated as part of comprehensive energy legislation and when they stood alone.

Equally as discouraging, the renewable energy standards proposed in recent bills have been less than inspirational, no doubt reflecting a desire on the part of the bills' authors to overcome persistent opposition. A close examination of one of the most recent examples—S.3813, a bill introduced in late 2010 but not passed—is instructive. While California aimed for 20 percent renewable electricity by 2010 and 33 percent by 2020, this bill promised 15 percent by 2020.[28] It also offered numerous ways for a utility to avoid ever needing to achieve 15 percent of its demand with renewable energy. Here are some of the ways:

The first way out comes in the answer to the question: 15 percent of what? While California serves as an example, there are similar provisions in many other states. California requires 33 percent of demand to be met with renewable sources. Period. Before calculating its 15 percent amount, S.3813 would have allowed the utility to subtract from its total demand the output of any hydroelectric plant serving its customers, the output of any new nuclear plant, the incremental output from any existing nuclear plant, the output of any coal plant employing carbon sequestration, and the output of any pumped storage facility[29] (regardless of how nonrenewable the source of power pumping that water might be).[30] The federal standard would have been further diluted by the inclusion of domestic trash as renewable fuel.[31] In most states with their own renewable standards, garbage, if it is allowed at all, must first be converted to a clean-burning gas. The federal legislation imposed no such requirement.

Another path of avoidance came from the fact that, under the bill, all renewable sources were not created equal. The way a utility would have shown compliance with the standard was by submitting credit certificates for all of the renewable power it generated or purchased and for all of the credits the utility might have bought from other renewable energy producers, even for power from sources that would never have delivered power to the utility's customers.[32] If a utility served a billion kilowatt hours of electricity in 2020 (and had not reduced its renewable energy obligations in other ways), it would have needed to submit certificates equal to 150 million kilowatt hours. But the amount of

28. S. 3813, 111th Cong. § 610 (2010).

29. A pumped storage facility relies on off-peak electric generation to pump water from a lower-elevation reservoir to one at a higher elevation. At times when electric demand is higher, the operator can release the stored water to spin a turbine and generate electricity as the water makes its way downhill.

30. *Id.*

31. *See id.*

32. *Id.*

renewable power generated might have been quite a bit less. That is because renewable power would earn double credits if it came from Indian land, triple credits if it came from generators smaller than one megawatt, and triple credits if it involved algae.[33] And some biomass generators could have produced up to 1.5 credits per kilowatt-hour if they were especially efficient.[34] It is not possible to predict how much renewable power would actually have been generated under this plan, but it might have been quite a bit less than 15 percent of the power sold to the utility's customers.

There is more, however. Utility compliance could also have come from the results of energy efficiency programs, or from the efficiency gains resulting from combined heat and power projects.[35] Those are power plants that use waste steam from some industrial or commercial project to generate electricity—a process that can save a lot of fuel; but that fuel might be natural gas, oil, or even coal.

All of the measures that would have provided extra credits, reduced demand, or promoted efficiency are good things. The problem was that they were all mixed together in the bill with the renewable energy goals. In the end, it was impossible to predict the amount of renewable power that would have resulted from the proposed federal standard. It is very safe to say that in many places, renewable power produced to comply with this federal law would have been much less than 15 percent by 2020. All this, while California and many other states aim higher in terms of renewable energy use over time and employ compliance formulae that are comparatively pure and simple.[36] It should be noted that another senator responded to S.3813 by proposing a substitute bill that would have allowed credit for power from new nuclear plants and new coal plants incorporating at least 60 percent carbon sequestration, as well as other non-renewable sources.[37] While the initial bill would have subtracted the output of such resources from the denominator in calculating the 15 percent compliance, the substitute bill would have added that output to the numerator—making it a much more effective way to avoid using more renewable power.

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33. *Id.*
34. *Id.*
35. *Id.*
36. *Supra* note 18, at 3-9.
37. S. 20, 111th Cong. (2010).

In his State of the Union Address in both 2011 and 2012, President Obama appears to have picked up where the substitute bill left off: by proposing a goal of relying on clean energy sources for 80 percent of the electric power to be generated in 2035. This proposal would include nuclear power, natural gas plants, and some coal-fired plants within the definition of clean fuel. Since it would allow only partial credit for gas and coal-fired power, the clean energy proposal would likely lead to an increase in renewable generation in at least some states.[38] However, history suggests that if Congress were ultimately to adopt a standard, it would be significantly lower than the 80 percent proposed by the President. How this proposal would affect renewable power deployment in any particular state, and whether the goals would be enforceable, are unknown. What seems evident is that states would have creative options for coming into compliance using non-renewable resources. It is also conceivable that this new proposal will silence or overwhelm efforts to develop a renewable, energy-specific national standard.

These proposals raise a fundamental question: Is any kind of federal standard better than none? There is no easy answer. At first glance, it seems that most of the federal standards proposed so far would not have preempted more ambitious state standards, which is good. Yet, it is in the crafting of rules implementing the law that we would find out whether the federal program would undercut efforts in the states. The most recent federal bill recognized a number of important options worthy of promotion, including energy efficiency and combined heat and power.[39] However, by lumping them together with renewable sources, the bill fails to recognize that each pathway is important on its own. As part of an effort to cut greenhouse gas emissions far below current levels, we need to make power use as efficient as possible *and* build out renewable generating capacity *and* rely on combined heat and power. We cannot take a little from here and there and hope to make a meaningful dent in greenhouse gas emissions. In addition, a 15 percent target is too low—especially considering all of the carve-outs the bill would allow for nuclear power, coal power, and other non-renewable sources. Even with deference to higher state standards, a weak federal program could put pressure on the states to lower their expectations.

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38. In an online town hall meeting the day after the 2011 speech, Energy Secretary Steven Chu said that the definition of clean fuels needs to be "fleshed out" with Congress. Therefore, the nature of the proposal remains unclear (http://energy.gov/ videos/sec-chu-online-town-hall). The White House claims that the nation already relies on clean energy for 40 percent of its electric power. Since the role of renewable power is currently much smaller than that, the Administration's definition of clean power must include existing resources such as large-scale hydroelectric, nuclear power, and natural gas generation.

39. S. 3813, 111th Cong. § 610 (2010).

Many environmental and renewable energy industry groups supported S.3813; although, perhaps not with great enthusiasm.[40] With the bill's passage, the United States would have had its first national renewable energy mandate to apply to non-governmental entities. It would have led to a uniform system for tracking renewable energy credits and provided some hope for later amendments, leading to a more meaningful standard. Yet, even if an adopted federal standard were later improved, efforts in the interim might have been misdirected. In addition, once an industry sector won a concession—such as coal technologies being treated as if they were renewable and others being allowed to receive multiple credits per unit of production—how easy would it be to reverse that concession?

V. WHY THE NATION AND THE WORLD CANNOT RELY ON THE STATES, ACTING ALONE

When it comes to local renewable energy resources, not all states are created equal. The Western states are blessed with a rich bouquet of renewable power options, with abundant desert sun, promising geothermal sites, and plentiful wind both on and off shore. The upper Midwest is famous for its stiff winds. Eastern states have high potential for power generated from biomass. Yet, the leaders in many states are left worrying that the lack of local renewable resources could place them at an economic disadvantage in the face of renewable power mandates. This is the concern, despite studies that suggest that every state could meet at least 20 percent, and most states could meet far in excess of a quarter of their power needs with just homegrown wind and rooftop photovoltaic resources.[41] Considering this concern and the fact that many states rely on coal power and the coal industry, it is not surprising that some states are reluctant to commit to ambitious renewable energy goals without pressure from the rest of the nation.

Even if states were uniformly motivated to develop renewable power, there are at least two aspects of renewable energy mandates that could benefit from federal involvement. Those are the renewable energy credit

40. *Clients Lobbying on S.3813*, OPENSECRETS.ORG, http://www.opensecrets.org/lobby/billsum.php?id=119256&lname=S.3813 (last visited Sept. 06, 2011).

41. *See, e.g.*, John Farrell & David Morris, *Energy Self-Reliant States Second and Expanded Edition*, NEW RULES PROJECT (Oct. 2010), http://www.newrules.org/energy/publications/energy-selfreliant-states-second-and-expanded-edition.

process and the development of rules within a given state that might interfere with interstate commerce.

Renewable Energy Credits (often referred to as "RECs") are the vehicle through which utilities demonstrate compliance with renewable power mandates. The staff of the California Public Utilities Commission defines RECs as follows:

> A REC confers to its holder a claim on the renewable attributes of one unit of energy generated from a renewable resource. RECs are "created" by a renewable generator simultaneous to the production of electricity and can subsequently be sold separately from the underlying energy. This gives rise to two scenarios: one in which a renewable generator sells [its] energy and the credit bundled together, and another, in which the energy is sold to one buyer and the renewable credit is unbundled and sold to another. In the case of the former, the buyer receives both the energy and the credit, while, in the latter, one buyer receives the energy, which has been "stripped" of its renewable attributes, while another buyer purchases the renewable credit.
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> In the context of the [Renewable Portfolio Standard], the ability to separate the energy from the renewable attributes gives [utilities and other] load-serving entities with limited access to renewable energy resources the ability to purchase RECs to be applied toward their renewable energy obligations from renewable generators, irrespective of where those generators are located or where the energy itself is ultimately delivered. This allows [those load-serving entities] to avoid the costs associated with accommodating physical delivery of the underlying energy and/or the costs associated with remarketing the energy if delivery is not an option. By removing these transaction costs, obligated entities are given greater flexibility in terms of how and what resources they rely on to achieve their [renewable power] goals, thereby reducing their costs of compliance.[42]

If regulators allow utilities to demonstrate compliance with the submission of unbundled credits, the integrity of the program depends on those credits being real (reflecting power actually generated and delivered to a grid somewhere), verifiable, and counted only once. In order to ensure that the credits have these qualities, states allowing for the use of tradable credits have established electronic certificate tracking systems. There are several such systems in operation in different parts of the country. Although there are voluntary efforts to coordinate data collection and use among the various systems, each operates under its own rules. A single, centrally-managed national credit tracking system would help to ensure that credits traded across state and regional lines were of consistently high quality.

In addition, as states develop and modify their programs in an effort to maximize renewable energy deployment and stimulate local economic

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42. ANDREW SCHWARTZ, CAL. PUB. UTIL. COMM'N, RENEWABLE ENERGY CERTIFICATES AND THE CALIFORNIA RENEWABLE PORTFOLIO STANDARD PROGRAM 7 (2006), http://docs.cpuc.ca.gov/word_pdf/REPORT/55606.doc.

development, it is likely that they will be encumbered by federal constitutional limits, stemming from the Dormant Commerce Clause, when trying to design the most successful program. The Dormant Commerce Clause doctrine derives from the negative implications of the Interstate Commerce Clause that gives Congress the power "to regulate Commerce . . . among the several States."[43] As interpreted by the U.S. Supreme Court, Congress' sole authority in this arena implies that states are forbidden from passing legislation that improperly burdens or discriminates against interstate commerce by providing differential treatment of in-state and out-of-state economic interests.[44]

Some have argued that if an individual state imposed an in-state preference or mandate for renewable energy facilities in its Renewable Portfolio Standard or established renewable energy credit rules that might create disadvantages for out-of-state generators, the state's actions would violate the Dormant Commerce Clause.[45]

Long-standing Supreme Court jurisprudence holds that Congress can authorize state regulations that, without such Congressional action, would otherwise violate Dormant Commerce Clause principles.[46] The right kind of federal action to protect states from Dormant Commerce Clause claims related to renewable energy standards could help states in their efforts to develop more effective programs and potentially encourage states that have thus far not developed renewable energy mandates to do so.

VI. WHAT WE CAN LEARN FROM THE PUBLIC UTILITY REGULATORY POLICY ACT OF 1978

In 1978, when Congress first took steps to encourage utility-based renewable energy development, it did not choose to mandate a uniform quantity of development across the nation. Instead, in the Public Utility Regulatory Policy Act ("PURPA"), Congress directed each state to establish a program under which its regulated utilities would be required

43. U.S. CONST. art. I, § 8, cl. 3.
44. *See, e.g.*, Dean Milk Co. v. Madison, 340 U.S. 349, 354 (1951).
45. Elizabeth Catlin, *Commerce Clause Challenge to Renewable Portfolio Standards*, RENEWABLE ENERGY L. BLOG (Apr. 30, 2010), http://renewableenergylaw.blogspot.com/2010/04/commerce-clause-challenge-to-renewable.html.
46. *See, e.g.*, Cooley v. Bd. of Wardens, 12 How. 299, 321 (1852); In re Rahrer, 140 U.S. 545, 561–62 (1891).

to purchase power produced at certain qualifying facilities[47] and to pay those facilities for the power they produced at the utility's avoided cost (the amount the utility would have paid to purchase the same amount of power elsewhere). Each state could administer its own program and was empowered to determine its utilities' avoided cost. At its peak, this program was credited with resulting in 12,000 megawatts of installed renewable energy capacity in the United States.[48] Some states were much more successful in attracting participants than others; California led the way, with 6,100 megawatts of installed capacity.[49] Although the program is now past its peak, the Pacific Gas & Electric Company reports that a quarter of its current power supply comes from qualifying facilities.[50] Southern California Edison (second in size only to Pacific Gas & Electric) reports that a third of its power comes from qualifying facilities.[51]

PURPA changed expectations about the sources of electric power. It opened electric markets to non-utility generators—a process that was taken to a new level with the passage of the Energy Policy Act of 1992.[52] That law created a class of providers called "merchant generators," which could include power generated with any type of fuel and would be assured non-discriminatory access to the transmission grid.[53] Together, these acts changed the electric power landscape without forcing any state to meet predetermined quotas.[54]

These two acts enjoyed broad support in Congress. PURPA passed in the Senate 76-13[55] and in the House of Representatives 231-168.[56] The Energy Policy Act of 1992 passed 381-37 in the House[57] and 93-3 in the Senate.[58] In comparison, efforts to impose specific renewable energy requirements on the states have received split votes and have never passed in both bodies of Congress.

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47. Cogenerators, as well as small renewable energy power facilities (no larger than 80 megawatts).

48. MIGUEL MENDOCA, FEED-IN TARIFFS: ACCELERATING THE DEPLOYMENT OF RENEWABLE ENERGY 61 (2007).

49. *Id.*

50. *Qualifying Facilities*, PAC. GAS & ELECTRIC, http://www.pge.com/b2b/energysupply/qualifyingfacilities/facilities/ (last visited Sept. 18, 2011).

51. *Qualifying Facilities Background*, S. CAL. EDISON, http://www.sce.com/AboutSCE/Regulatory/qualifyingfacilities/qfbackground.htm (last visited Sept. 18, 2011).

52. JOSEPH P. TOMAIN & RICHARD D. CUDAHY, ENERGY LAW IN A NUTSHELL 271–74 (2004).

53. *Id.* at 275–76.

54. *Id.* at 271–76.

55. 124. CONG. REC. 34780 (1978).

56. 124 CONG. REC. 38503 (1978).

57. 138 CONG. REC. 12725–26 (1992).

58. 138 CONG. REC. 20430 (1992).

While there are many factors at play in a complex bill, it appears that legislators from some states will strongly resist an approach that prescribes specific fuel mix obligations.[59] Programs that reflect a national standard while allowing for considerable local flexibility seem to have a better chance of success.

VII. A FORMULA FOR MAXIMIZING RENEWABLE POWER DEVELOPMENT

The nation must rely on states to promote renewable power because our system of laws leaves to the states many of the fundamental aspects of electric generation planning, construction, and procurement. If the federal government wants to speed the deployment of renewable resources, it must require or otherwise motivate the individual states to take strong action. There is little debate that to accomplish this, Congress must accept certain political realities, including the disparate impact that renewable energy development may have on the various states, the interest in many states to continue promoting the use of coal and natural gas, and Congress' proven inability to enact an effective standard. However, what Congress might be able to accomplish may also be the best approach overall. Here are the elements of one approach that draws on the most promising elements of cooperative federalism:

A. No Federal Standard

Congress could choose not to adopt a single, national, renewable energy standard. History suggests that any such standard would be weak and full of loopholes.

B. Require a State Standard

Short of establishing a national standard, Congress could insist that each state develop its own. The federal government could set a deadline for compliance and develop criteria for the state's decision. Absent timely state action, the federal government could impose a standard on the state.

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59. Robin Bravender, *Lawmakers in 17 states step up opposition to EPA's GHG rules*, PUBLIC WORKS (Mar. 30, 2010), http://www.pwmag.com/industry-news.asp?sectionID=760&articleID=1239414.

C. Encourage Ambitious State Programs

Congress could offer various incentives for states to adopt and implement more aggressive programs. For instance, Congress could direct the Department of Energy to distribute renewable energy research and development funds to the states based on the comparative goals, timetables, and successful implementation of state renewable energy standards. The law could allow the appropriate federal agency to grant a Dormant Commerce Clause exemption to states with programs surpassing certain standards. This would enable states with ambitious renewable energy programs to design them in a manner intended to stimulate local economic development and keep more energy dollars within the state.

D. Establish a National Renewable Energy Credit Program

Because of its broad authority related to interstate commerce, the federal government is in the position best suited to create a unified national system for tracking and trading renewable energy credits. With a single national system ensuring that the renewable power underlying the credits is real, delivered to the grid, and not counted more than once, it would be easier to facilitate trades among the states and to ensure accurate counting. Consistent credit definitions and trading rules are an important way to ensure that the credit transactions in one state are not diluting program effectiveness in another. For instance, if one state does not count large-scale hydroelectric power as renewable for the purposes of its program, a national credit program should ensure that a utility in a second state cannot buy credits stemming from those hydroelectric plants. Even with a national system, individual states should have the ability to determine whether renewable energy credits can be used to achieve program compliance and, if so, how.

E. Allow Feed-in Tariffs

Several states have considered the adoption of feed-in tariffs, which would require utilities to purchase power from certain renewable energy facilities at predetermined prices. Some envision that by setting those prices at levels sufficient to make renewable generation profitable, its development would soar. The Federal Energy Regulatory Commission, which regulates wholesale electric prices in interstate commerce and oversees the implementation of the qualifying facilities program under PURPA, has concluded that its authority in these areas preempts a state's

ability to invoke feed-in tariffs.[60] To free the states to use any reasonable tool to promote renewable energy development, recent failed legislation has included language to permit state-initiated feed-in tariffs. New legislation to promote renewable power could include such language as well.

F. Require Separate Energy Efficiency Goals

Energy efficiency improvements and renewable power are not either-or choices—we need to pursue both. In addition to requiring states to set a renewable energy standard, Congress could require states to set goals and establish programs to make energy use more efficient. This could include an aggressive effort aimed at rental buildings, since there is often a split incentive between a building owner hesitant to invest in efficiency improvements and a tenant forced to pay high utility bills that makes it difficult to improve energy use in these structures. Because of a utility's inherent interest in promoting greater sales, Congress could require states to consider third-party management of ratepayer-funded efficiency programs.

G. Stabilize Tax Incentives

Congress has approved various investment and production tax credits for renewable energy development and has always authorized them for only a few years at a time.[61] Critics have amply documented the resulting on-and-off nature of project development. Congress could offer greater long-term investment certainty by renewing the credits indefinitely or, alternatively, setting clear criteria for phasing them out over time.

H. Require Integrated Resource Planning

Many options for responding to forecasted demand for electricity are interchangeable. Utilities can satisfy demand by helping make energy use more efficient, adjusting rates to shift demand to a better time of day, adding transmission lines, or generating more power. To generate electricity, there are many fuel choices—renewable and otherwise.

60. Cal. Pub. Utils. Comm'n, 132 FERC ¶ 61,047 (July 15, 2010).
61. *See* Emergency Economic Stabilization Act of 2008 § 120, 12 U.S.C.A. § 5230 (2008).

Nonetheless, most regulators and utilities consider these various options in isolation from one another. This way, only the very lucky will end up choosing the options that are the most efficient or the best for the environment. Regulators can insist that the utilities take an integrated approach to planning facilities and services, but most often they do not. The Federal Energy Regulatory Commission acknowledges the importance of this state-level function but is not empowered to require it.[62] Federal law could establish planning standards and require that states implement them.

VIII. CONCLUSION

The federal system employed in the United States offers many models for cooperation between the federal government and the states in pursuit of important policy objectives. Under the Clean Air Act, the U.S. Environmental Protection Agency can establish air quality standards and delegate enforcement to the states.[63] The Coastal Zone Management Act empowers states to establish plans for management of ocean waters close to shore and to have a say related to offshore projects that are in federal jurisdictional waters.[64] The Surface Mining Control and Reclamation Act of 1977 allows coal states to set and enforce their own rules related to mountaintop mining.[65] The Public Utilities Regulatory Policy Act of 1978 sets some standards that the states must enforce or risk federal intervention.[66] It also requires states to consider, but not necessarily adopt, various energy policy options related to rate-setting and program offerings.

The political realities related to renewable energy policy suggest that Congress will continue to fail in its effort to create a top-down, prescribed set of goals for states to implement or will enact a law that is weak or potentially counterproductive. A more promising approach may be to insist that states adopt and implement programs that increase the use of renewable electric generation and then offer incentives for the states to make those programs as ambitious and effective as possible.

62. *See* 18 C.F.R. pt. 35, 37 (2007); 131 FERC ¶ 61,253 at pt. 39 (June 17, 2010).
63. 42 U.S.C. § 7409 (1977).
64. 16 U.S.C. § 1454 (1996).
65. Surface Mining Control and Reclamation Act, 30 U.S.C. §§ 1234-1328 (1977).
66. Public Utilities Regulatory Policy Act, 16 U.S.C. §§ 2601-2645 (1978).