ALTERNATIVE ENERGY IN A SPAGHETTI WESTERN: CLINT EASTWOOD CONFRONTS STATE RENEWABLE ENERGY POLICY

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I. WHAT WOULD CLINT SAY?

The legal structure in a given country affects the mechanisms through which that country can promote renewable power technologies. Federalist forms of government denote a system in which political sovereignty is constitutionally divided between a central federal authority and constituent states or provinces. Such federalist forms of government describe several large and established countries, such as the United States, Germany, India, Australia, Brazil, Canada, Malaysia, Mexico, Nigeria, and Switzerland. Renewable energy policy at the state level, in countries with a federalist form of government, can be complex and varied.

The importance of the electric sector in the modern industrial economy is reflected in its changing role and unique societal impacts. First, energy is a unique force in the universe. Energy is the signature technology of the modern era, which comprises the last 300 years of the several million years of human life on the planet.[1] Second, electricity, unlike all other forms of energy, cannot be efficiently stored in bulk for more than a second before it is lost as waste heat.[2] Therefore, the supply of electricity must match the demand for electricity over the centralized utility grid of a nation on an instantaneous basis, or else the electric system shuts down or expensive equipment is damaged.[3]

This unique role and character have legal facets that states have not always comprehended clearly. Renewable initiatives implemented recently at the state

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[1] STEVEN FERREY, ENVIRONMENTAL LAW: EXAMPLES & EXPLANATION 537, 539–40 (5th ed. 2010).

[2] *Id.* at 542.

[3] STEVEN FERREY, UNLOCKING THE GLOBAL WARMING TOOLBOX 149–50 (2010).

level in the United States are confronting Constitutional challenges.[4] The implementation of renewable energy policy in the U.S. has been a bit like a Sergio Leone spaghetti western, "The Good, the Bad, and the Ugly."[5] It is still not determined how precisely the legal plot will end. The U.S. Constitution and federalism play a significant role in determining the outcome.

A. The "Good"

The "good" is the significant benefit of renewable energy itself: lower emissions, less climate impact, and an abundance of available renewable power sources. Even some leaders of the oil industry suggest that 50% of total energy demand in the world could be met by solar, wind, and other renewable resources by 2050.[6] These benefits have been well documented.[7] A renewable energy economy creates national security benefits by reducing importation of fuels, and minimizing the vulnerability of the electricity grid to terrorist attack.[8]

And there is good news about the "good": it is technologically available.[9] The issues of the "bad" and the "ugly" involve legal issues of United States federalism and the United States' constitutional system of governance. This Article will focus on the legal issues that complicate that scenario for implementation.

B. The "Bad"

There exists a previously unanticipated wrinkle for delivering renewable power in the United States electric system. There are two basic parts of the electric system: generation and transmission. The wrinkle of renewable power affects both parts of the system.

Solar and wind power, which comprise the bulk of renewable development, are intermittent renewable resources in terms of generation.[10] These technologies exhibit a wholly different reliability dimension. Solar and wind power are intermittent on a somewhat unpredictable daily basis. Backup generation capacity was previously only required for occasional routine generation failures, with more intermittent renewable power in the mix. Now, it will require not only more backup power resources, but resources of a different nature.[11] There will be a need for more backup power resources, and because the availability of wind and solar resources can change quickly with changes in the weather, the response of backup

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[4] See *infra* Parts IV, V.

[5] THE GOOD, THE BAD, AND THE UGLY (Produzioni Europee Associati 1966).

[6] *See* JEREMY RIFKIN, THE HYDROGEN ECONOMY: THE CREATION OF THE WORLDWIDE ENERGY WEB AND THE REDISTRIBUTION OF POWER ON EARTH 189 (2002).

[7] *See* STEVEN FERREY, RENEWABLE POWER IN DEVELOPING COUNTRIES 35 *et seq.* (2006).

[8] *See* ROSS GELBSPAN, BOILING POINT 176 (2002)

[9] FERREY, *supra* note 7.

[10] *See infra* Part II.B.

[11] *Id.*

generation will need to be much more quickly accessible. This will require more quick-start backup resources.[12]

In terms of transmission, many of the most productive wind resources in the United States are not geographically situated in proximity to population densities, nor served by existing transmission infrastructure.[13] Transmission infrastructure is not only expensive, but poses its own state-controlled legal aspect to siting new transmission infrastructure.[14] Therefore, just because the federal government wishes to integrate remote wind power resources into the utility grid does not mean that it has the legal ability to do so. Recent cases have curtailed such integrated federal authority over transmission.[15]

C. The "Ugly"

Chief NASA climatologist James Hansen notes that waiting a decade until 2018 to stop the "growth of greenhouse gas emissions" will reduce the chances of avoiding catastrophic effects of warming to nearly none.[16] According to Dr. John Holdren, science adviser to President Obama, if United States greenhouse emissions plateau in 2015, we will reduce our chances of facing a climate catastrophe by 50%.[17] In 2009, the United Nations Environment Program also forecasted urgency of coming "tipping points . . . that will alter regional and global environmental balances . . . irreversible within the time span of our current civilization."[18] Biologic carbon sinks, such as forest and ocean carbon uptake, are showing signs of increased stress under rising temperatures.[19]

Limiting global warming to 4° Fahrenheit will require stabilizing CO_2 concentrations at no more than 450 parts per million (ppm).[20] A top official with the Intergovernmental Panel on Climate Change (IPCC) has indicated that developed nations will need to slash CO_2 emissions by 80–95% by 2050 to hold Greenhouse Gases (GHGs) to 450 ppm in the atmosphere.[21] CO_2 concentrations in

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[12] *Id.*

[13] *See infra* Part II.A.

[14] *Id.*

[15] *See* Piedmont Envtl. Council v. FERC, 558 F.3d 304 (4th Cir. 2009).

[16] James Hansen et al., *Global Temperature Change*, 103 PROC. NAT'L ACAD. SCI., 14,288, (2006); Robin Chase, *Get Real on Global Warming Goals*, BOSTON GLOBE, April 22, 2008, at A15; James Hansen, *The Threat to the Planet*, N.Y. REV. BOOKS, July 13, 2006, at 12.

[17] Chase, *supra* note 16.

[18] UNITED NATIONS ENV'T PROGRAMME, UNEP YEAR BOOK 2009: NEW SCIENCES AND DEVELOPMENTS IN OUR CHANGING ENVIRONMENT (Catherine McMullen & Thomas Hayden eds., 2009).

[19] *Id.*

[20] FERREY, *supra* note 1, at 236.

[21] Rick Mitchell, *IPCC Official Says Industrialized Nations Must Cut Emissions up to 95 Percent*, 39 ENV'T REP. (BNA) 1917, 1917 (2008).

the atmosphere remain for decades, or even centuries.[22] Over the past century the global temperature increased an average of 1.3°F.[23] However, the rate at which the world is warming is also accelerating, with nine of the ten warmest years on record occurring since 2001.[24] Within a century, if all nations of the world do not limit greenhouse gas emissions, the average global temperature will climb anywhere from 1.4° to 5.8° Celsius (or 2.5° to 10° Fahrenheit).[25]

Fossil fuel generation results in 64% of total human-made atmospheric CO_2, and this amount has increased significantly since 1990.[26] Power derived from burning gaseous, liquid, and solid fossil fuels to create electric power releases copious quantities of CO_2 into the environment.[27] Further, electric power demand continues to grow dramatically.[28] At current rates of energy development, energy-related CO_2 emissions in 2050 would be 250% of their current levels under the existing pattern.[29]

As the Earth warms, polar ice sheets, ice caps, and glaciers melt, and ocean waters expand, all causing sea levels to rise.[30] Over the last century, worldwide sea levels have risen approximately 4.8 to 8.8 inches.[31] However, the rate of increase

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[22] NAT'L ACAD. OF SCIENCES ET AL., UNDERSTANDING AND RESPONDING TO CLIMATE CHANGE 16 (2008 ed. 2006)

[23] *Id.* at 4.

[24] Doyle Rice, *2010 Tied for Earth's Warmest Year on Record*, USA TODAY (Jan. 13, 2011), www.usatoday.com/tech/science/environment/2011-01-12-2010-warmest-year-climate-change_N.htm.

[25] M.L. PARRY ET AL., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: CLIMATE CHANGE IMPACTS, ADAPTATION AND VULNERABILITY (2007), *available at* http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_wg2_report_impacts_adaptation_and_vulnerability.htm. The IPCC 4th Assessment Report talks of temperature increases of 2.4–6.4°C. This would yield a seven- to twenty-three-inch rise in sea levels during the twenty-first century—a wide range.

[26] ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, EMISSIONS OF GREENHOUSE GASES IN THE UNITED STATES 2005, EXECUTIVE SUMMARY 2–3 (2007), *available at* http://www.eia.doe.gov/oiaf/1605/ggrpt/summary/pdf/0573(2005)es.pdf; *Frequently Asked Global Change Questions*, CDAIC, http://cdiac.ornl.gov/faq.html (last visited Aug. 12, 2012).

[27] The amount of carbon released per unit of usable energy decreased each time as human populations moved from wood to coal as the dominant CO_2-releasing fuel in the late nineteenth century, moved again from coal to oil in the mid-twentieth century, and will move toward natural gas in the future. *See* STEVEN FERREY, THE LAW OF INDEPENDENT POWER § 2.1 (29th ed. 2012).

[28] *See e.g.*, INT'L ENERGY AGENCY, WORLD ENERGY OUTLOOK 2004 (2004).

[29] INT'L ENERGY AGENCY, ENERGY-TECHNOLOGY PERSPECTIVES: SCENARIOS AND STRATEGIES TO 2050 (2006).

[30] *Climate Change Indicators in the U.S. Sea Level*, EPA, http://www.epa.gov/climatechange/science/indicators/oceans/sea-level.html (last visited Aug. 30, 2012).

[31] *Id.*

in sea levels during the ten-year period between 1993 and 2003 was greater than the rate during the forty-two-year period between 1961 and 2003.[32]

Now, we shift from the "bad" of climate change to an introduction of the following sections of this Article. In the wake of Congress's failure to enact new energy legislation in the past three years, the states have become the major agents for encouraging renewable power options; the new energy infrastructure is all about renewable energy. To date, the federal initiatives primarily focus on tax incentives and credits.[33] State incentives comprise most of the other renewable energy incentives. Chief among these are renewable portfolio standards (RPS),[34] feed-in tariffs,[35] net metering,[36] and system benefit charges/trust funds (SBC):[37]

- Eighty-five percent of the states have enacted net metering at the state level;
- Sixty-five percent of the states have implemented renewable portfolio standards; and
- Thirty-three percent of the states have adopted renewable system benefit charges and trust funds.

Each of these mechanisms, if adopted by a state with attention to legal requirements and detail, can be legal and effective. However, some states have adopted one or more of these renewable energy mechanisms in ways that could violate fundamental elements of American constitutional governance—the Supremacy and/or Commerce clauses of the United States Constitution. None of these clauses are new or complex and have remained unchanged for 225 years.

There is a long and rich palette of judicial decisions interpreting these clauses.[38] Therefore, there remains little mystery as to what states may and may not do, and how they may do it under our system of government. Nonetheless, some states have enacted energy regulations that seem to ignore these legal requirements.[39] They then must spend taxpayer money to have state lawyers make largely unsuccessful arguments to attempt to defend their disregard of the Constitution. States have lost almost all battles to date.[40]

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[32] *Id.*

[33] *See* STEVEN FERREY, LAW OF INDEPENDENT POWER, at 3:50–3:54 (2012) and accompanying tables.

[34] *See infra* Part III.A.

[35] *See* Steven Ferrey et al., *Fire and Ice: World Renewable Energy and Carbon Control Mechanisms Confront Constitutional Barriers*, 20 DUKE ENVTL. L. & POL'Y F. 125 (2010). See *infra* Part III.C, for a discussion of feed-in tariffs.

[36] *See* Steven Ferrey, *Nothing But Net: Renewable Energy and the Environment, MidAmerican Legal Fictions, and Supremacy Doctrine*, 14 DUKE ENVTL. L. & POL'Y F. 1 (2003). See *infra* Part III.D, for a discussion of net metering.

[37] *See infra* Part III.B.

[38] *See infra* Parts IV.A, V.A.

[39] *See infra* Parts IV.B, V.B.

[40] *See infra* Parts IV.B, V.B.

II. THE "BAD" LOGISTICS OF MOVEMENT OF POWER

A. To Reach Sustainable Resources

While renewable resources are distributed across the United States and the world, they are not distributed evenly. Nine states east of the Mississippi River do not have any sub-regions with very high wind resources.[41] Six states from Virginia to Massachusetts have no sub-regions with at least one-quarter billion metric tons of currently available biomass annually.[42] These northeastern regions of the United States have relatively dense populations and significant electricity demand.[43] While they have access to renewable resources, those renewable resources are not as concentrated as in other areas of the United States[44] The new sources of renewable power are not going to be located where the traditional sources of centralized power have been found.[45] Transmission infrastructure must be constructed to bring renewable power from the generation source to the load center.

The high-voltage transmission network was recognized as the most important engineering feat of the twentieth century.[46] While transmission infrastructure siting can cause extended controversy, these are political and legal disputes, not technical.

The Joint Coordinated System Plan, representing several independent system operators and reliability councils in the United States, found that achieving 5% wind generation by 2024 would require approximately 10,000 miles of additional high-voltage transmission lines at an estimated cost of $50 billion; achieving 20% wind generation would require 15,000 miles of transmission lines, costing approximately $80 billion.[47] Southern California Edison anticipates spending approximately $5.5 billion on transmission projects between 2008 and 2013 in order to add about 7,000 megawatts of renewable generation to its system.[48] Texas

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[41] AM. SOLAR ENERGY SOC'Y, TACKLING CLIMATE CHANGE IN THE U.S. 22 n.4 (Charles F. Kutscher ed., 2007).

[42] *Id.* at 22. These resources count agricultural residues, crops, animal manure, wood residues, municipal discarded materials, and methane from landfill, as well as dedicated crop biomass. With the exception of Florida, the eastern half of the United States is devoid of sub-regions capable of producing 6.0 kwh/m^2/day with solar photovoltaic resources on south-facing structures and surfaces.

[43] *Id.*

[44] *Id.*

[45] *See* Ferrey, *supra* note 27, § 2:11. Many renewable power resources, such as wind power, are located far from the load for power.

[46] MASON WILLRICH, ELECTRICITY TRANSMISSION POLICY FOR AMERICA: ENABLING A SMART GRID, END TO END 5 (Mass. Inst. of Tech., Working Paper No. 09-003, 2009).

[47] William F. Henze II, *Electricity: If We Want It Clean, Firm, and Cheap, We're Going to Have to Pick Two*, 22 ELECTRICITY J. 81, 84 (Nov. 2009).

[48] Tom Tiernan, *Transmission Boom Calls for Reconsidering Cost Allocation Methods, Some Officials Say*, POWER MARKETS WKLY., Jul. 28, 2008.

utilities spent a similar amount to bring their competitive renewable energy resources to market.[49]

As for who should pay for such new corridors, transmission-cost allocation depends on whether policymakers view energy transmission as a private or public good,[50] and whether the cost to be allocated is large.[51] Transmission involving multiple states and interstate activities is regarded as subject to federal, rather than state, jurisdiction: "Federal regulation of intrastate power transmission may be proper because of the interstate nature of the generation and supply of electric power."[52] In two California decisions, the Federal Energy Regulatory Commission (FERC) refused California's request to specify that facilities interconnected at the distribution level, rather than the transmission level, are beyond FERC's authority.[53] Instead, FERC reaffirmed that it has "exclusive jurisdiction."[54] FERC stated that only the nature of the sale is legally relevant, while location—geographically or on the transmission system—is not.[55] Federal jurisdiction controls interconnection to the transmission and the distribution system.[56]

A federal appeals court blocked FERC from acting to "backstop" and grant a federal permit for a new transmission line, where the state had failed for twelve months to act on the permit.[57] As long as the state took some action, including a denial of the permit, FERC had no ability to intercede.

B. Accommodating Intermittency

The electric power system must constantly—about every four seconds—balance supply with demand to keep the grid operational.[58] Renewable power introduces an unparalleled degree of intermittency of power supply to the modern grid. This growth of renewable resources puts pressure on reliability because of the intermittent nature of some renewable generation. If power supply does not respond and is deficient to meet instantaneous demand, the grid can shut down and black out large areas. On February 26, 2008, the ERCOT grid operator in Texas, which is a leader in wind power deployment, was unable to compensate with sufficient backup power resources when there was an unexpected drop in wind

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[49] *Id.*

[50] Adrienne M. Ohler & Kristi Radusewicz, *Indirect Impacts in Illinois from a Renewable Portfolio Standard*, 23 ELECTRICITY J. 65, 72 (Aug.–Sept. 2010).

[51] *See* Henze II, *supra* note 47, at 81, 85.

[52] FERC v. Mississippi, 456 U.S. 742, 749–50, 753–57 (1982).

[53] Cal. Pub. Utilities Comm'n, 132 FERC ¶ 61,047, para. 72 (2010); Cal. Pub. Utilities Comm'n, 133 FERC ¶ 61,059 (2010).

[54] 132 FERC ¶ 61,047, para. 72 n.99 (citing Fed. Power Comm'n v. S. Cal. Edison Co., 376 U.S. 205 (1964)).

[55] *Id*. at para. 72.

[56] S. Cal. Edison Co. v. Pub. Utilities Comm'n, 101 Cal. App. 4th 384, 389–90. (Cal. Ct. App. 2002).

[57] Piedmont Envtl. Council v. FERC, 558 F.3d 304 (4th Cir. 2009).

[58] Ferrey, *supra* note 1, at 530.

power production by more than 80%.[59] Texas officials ordered an investigation of rolling blackouts that affected the state's electric grid in 2010 and 2011.[60]

A study released in 2008 by Cambridge Energy Research Associates found that the production patterns of wind farms "do not correlate well with peak summer demand," and "capacity provided by wind projects is typically valued at ten to twenty percent of their maximum rated capacity."[61] Further, the United States Department of Energy calculated that approximately 20% wind power can be accommodated on the grid—about the amount of backup reserve margin in regional power systems—without requiring additional storage or other mechanisms to accommodate intermittency.[62]

According to the North American Electric Reliability Corporation (NERC), which is responsible for overseeing the United States electricity-transmission grid, in the future carbon regulation will also compromise grid reliability.[63] NERC concluded that the RPSs in the United States and Canada could cause early substitution from traditional coal-fired power to renewable power and simultaneously decrease grid reliability.[64]

To keep the grid in balance and operational with this new reality, there must be a proper mix of new resources, not only for primary production of power, but for additional new resources to respond to the constant intermittency of a system more dependent on renewable resources. A slight mismatch in the supply and demand of electric power in California caused brownouts, billions of dollars of extra expense to consumers, and the recall of the governor.[65] According to some commenters, wind requires inefficient gas turbines to operate at part-load to be available if the wind dies.[66] Additional wind generation will require baseload fossil-fired units to cycle more, adding significantly to operating cost and shortening the life of the fossil units.[67] Coal-fired plants cannot quickly vary to follow changing amounts of wind or photovoltaic (PV) generation.

Natural gas combined-cycle turbine facilities can cycle up and down more often than coal plants, and can be modified to increase their start-up times by up to

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[59] HOW RENEWABLES CAN BE UNDERMINED BY INTERMITTENCY, 21 ELECTRICITY J. 5 (2008).

[60] Rebecca Smith, *Texas to Probe Rolling Blackouts*, WALL ST. J., Feb. 7, 2011.

[61] Jeffrey Ryser, *With Wind Power at Their Back, 13,000 at Conference Weigh Pros, Cons*, ELECTRIC UTIL. WEEK., June 9, 2008, at 1, 32.

[62] *Id.*

[63] *Public Utilities Fear That GHG Cuts Might Threaten Electricity Supply, Reliability*, CARBON CONTROL NEWS, July 28, 2008.

[64] *See* N. AM. ELECTRIC RELIABILITY CORP., 2010 LONG-TERM RELIABILITY ASSESSMENT 41 (2010), *available at* http://www.nerc.com/files/2010%20LTRA.pdf.

[65] Steven Ferrey, *Soft Paths, Hard Choices: Environmental Lessons in the Aftermath of California's Electric Deregulation Debacle*, 23 VA. ENVTL. L.J. 251 (2004).

[66] *Id.*

[67] J. Nicolas Puga, *The Importance of Combined Cycle Generation Plants in Integrating Large Levels of Wind Power Generation*, 23 ELECTRICITY J. 33 (Aug.–Sept. 2010).

50% to accommodate pressure and temperature transients of their steam turbines and readiness of their heat recovery steam generators.[68] However, the flexibility of these facilities still may not be able to follow the intermittency of greater renewable power in the grid.[69] Even if these facilities can be adapted to do so, the gas combined cycle units will experience higher heat rates, less efficient operation, greater maintenance, and unavailability.[70] European data illustrates that there has been a shift from traditional coal unit operation to more operation of gas combined cycle units, since the regulation of CO_2 emissions began.[71] This has resulted in an increase in operation and maintenance costs and outages, and a decrease in availability.[72] Modeling power generation experts have recommended that utilities acquire more quick-start and quick-ramp peaking power generation resources.[73]

Power can perform as either baseload power or backup/peaking power.[74] However, intermittent renewable resources cannot supply reliable baseload power, as they demonstrate a relatively low availability factor in the 20–40% range of hours during a day or month.[75] Correspondingly, intermittent renewable resources cannot serve as reliable backup/peaking power resources, because they are often unavailable to supplement peak power demand.

Most of the existing backup/peaking capacity now installed in the grid is not the newer aero-derivative quick-start technology.[76] Conventional non aero-derivative generators take an extended period of hours to bring their temperatures up gradually from a cold start, and similarly, must ramp down their temperatures slowly.[77] An analysis of coal plants cycling up and down to match intermittent wind or other renewable power hourly variations found that emissions increased by 8% more SO_2 and 10% more NO_x than at constant operation.[78] Moreover, while

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[68] *Id.*

[69] *Id.*

[70] *Id.*

[71] W. Edward Platt & Richard B. Jones, *The Impact of Carbon Trading on Performance: What Europe's Experience Can Teach North American Generators*, POWER, Jan. 1, 2010.

[72] *Id.*

[73] *Id.*

[74] *See* James F. Wilson, *Restructuring the Electric Power Industry: Past Problems, Future Directions*, 16 NAT. RES. & ENV'T 232, 235 (2002) (distinguishing baseload and peaking power).

[75] *See* FERREY, *supra* note 27, § 2:11 (noting inability of intermittent sources to served as baseload resource).

[76] The bulk of fossil-fueled power generation was built prior to 1990 when aero-derivative quick-start technology began to be used for power generation.

[77] U.S. DEP'T OF ENERGY, SUPPLEMENT TO THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE GILBERTON COAL-TO-CLEAN-FUELS AND POWER 3–4 (2006) (citing CO_2 CAPTURE AND STORAGE WORKING GRP., U.S. DEP'T OF ENERGY, CO_2 CAPTURE AND STORAGE IN GEOLOGIC FORMATIONS (2002), *available at* http://www.netl.doe.gov/technologies/carbon_seq/refshelf/CS-NCCTIwhitepaper.pdf).

[78] Puga, *supra* note 67 at 38.

spinning to increase their temperatures to their design values,[79] the power that these units could produce may or may not be used by the grid and incurr power "uplift" costs to the grid.

Let's turn to the Constitution and legal issues presented.

III. THE FOUR STATE INCENTIVES NOW UNDER LEGAL SCRUTINY

The four most used renewable regulatory incentives implemented by various states to encourage renewable power development, in order of popularity, are:

- Net metering: 85%
- Renewable portfolio standards: 65%
- Renewable system benefit charges: 33%
- Renewable feed-in tariffs: < 10%

First, this section will describe how each operates and where. Thereafter, this section will examine constitutional issues affecting some of the methods states have used to attempt to implement these incentives.

A. RPS

1. Virtual Credits

RPSs require electric utilities and other retail electric providers to include a specified percentage of electricity supply from renewable energy sources.[80] Twenty-nine states and the District of Columbia have some form of RPSs.[81] These mandatory RPS programs cover about half of all nationwide retail electricity sales.[82]

In order to comply with RPS requirements, electric utilities can own a renewable energy facility and the generated output, purchase renewable energy certificates (RECs), or can purchase bundled electricity inclusive of all additional attributes.[83] These RECs can then be traded, sold, and transferred between users to

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[79] *Id.*

[80] *See Renewable Portfolio Standards Fact Sheet*, U.S. ENVTL. PROTECTION AGENCY, http://www.epa.gov/chp/state-policy/renewable_fs.html (last updated Apr. 2009) [hereinafter *Renewable Portfolio Standards*].

[81] *See Solar Set-Asides in Renewables Portfolio Standards*, DSIRESOLAR, U.S. DEP'T OF ENERGY, http://www.dsireusa.org/solar/solarpolicyguide/?id=21 (last visited Aug. 13, 2012).

[82] *Id.*

[83] Robin J. Lunt, *Recharging U.S. Energy Policy: Advocating for a National Renewable Portfolio Standard*, 25 UCLA J. ENVTL. L. & POL'Y 371 (2006–2007) (explaining the importance of electricity as well as the pollution it generates).

meet particular RPS requirements imposed on all power retailers. The RECs exist as a separate commodity to be traded and transferred, if so allowed by the state.[84]

The RPS programs differ in terms of what technologies qualify. Most states allow solar, wind, biomass, and landfill gas resources to qualify in RPS programs.[85] Some states count fossil fuel gasification and non-renewable distributed generation, while Pennsylvania and Massachusetts include co-generation combined heat and power (CHP).[86] Resource eligibility in state RPS programs has expanded beyond traditional renewables, with three states now allowing demand-side energy efficiency to meet at least a portion of their RPS requirement.[87]

Massachusetts has developed one of the most assertive RPS systems in the country. It has a tiered system of Class I, Class II, and Solar Carve-Out RPSs that require all retail electricity suppliers to produce a percentage of their electricity from renewable sources in facilities installed after 1997.[88] Noncompliance penalties vary by state.[89] Average RPS compliance in 2006 was 94%, resulting in alternative compliance payments of more than $18 million.[90]

Solar-specific RPS designs in eleven states and Washington D.C. include solar or distributed generation set-asides for a required percentage.[91] These set-aside policies have already supported more than 100 megawatts (MW) of solar "photovoltaic projects and 65 MW of solar-thermal electric capacity."[92] "Roughly 6,700 MW of solar capacity would be needed by 2025 to fully meet existing set-aside requirements."[93]

In 2010, Massachusetts created the RPS Solar Carve-Out Program to encourage the development of in-state solar photovoltaic projects, with the intent of increasing the amount of photovoltaic systems in the commonwealth to 400 MW.[94] Retail electric suppliers are required to meet their RPS obligation with a

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[84] *See Renewable Energy Certificates*, U.S. ENVTL. PROTECTION AGENCY, http://www.epa.gov/greenpower/gpmarket/rec.htm (last updated Aug. 13, 2011).

[85] *Renewable Portfolio Standards*, *supra* note 80, at Figure 3.

[86] *Id.*

[87] *See* K.S. CORY & B.G. SWEZEY, NAT'L RENEWABLE ENERGY LAB., U.S. DEP'T OF ENERGY, RENEWABLE PORTFOLIO STANDARDS IN THE STATES: BALANCING GOALS AND IMPLEMENTATION STRATEGIES 7–9 (2007), *available at* http://www.nrel.gov/docs/fy08osti/41409.pdf.

[88] *RPS and APS Program Summaries*, MASS. EXEC. OFFICE ENERGY AND ENVTL. AFFAIRS, http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/rps-aps/rps-and-aps-program-summaries.html (last visited Aug. 12, 2012).

[89] CORY & SWEZEY, *supra* note 87.

[90] RYAN WISER ET AL., ERNEST ORLANDO LAWRENCE BERKLEY NAT'L LAB., SUPPORTING SOLAR POWER IN RENEWABLE PORTFOLIO STANDARDS 1 (2010), *available at* http://eetd.lbl.gov/ea/ems/reports/lbnl-3984e.pdf.

[91] *Id.*

[92] *Id.*

[93] *Id.*

[94] The solar REC system is statutorily provided by MASS. GEN. LAWS ch. 25A, § 11F (2008), which gives the commissioner of energy power to create renewable portfolio

certain amount of solar renewable energy credits (SRECs), limited to those generated in-state.[95]

The commonwealth has also created an innovative clearinghouse for SRECs; in the event that the holder of a SREC does not sell them to a utility, it can instead sell them to the commonwealth, which thereafter makes them available to buyers through an auction.[96] For 2011, the solar credit clearinghouse rate was $300 per MWh, at which SRECs can be traded through this state mechanism, rather than electing to trade them bilaterally.[97] The noncompliance penalty was set at $550 per MWh[98].

2. State Geographic Restrictions

Many states specify that a renewable power purchase will only be satisfied if the energy credits are generated by in-state producers, that energy credits are sold to end-use consumers in the enacting state, or that an incentive will be provided to retailers who comply with the standard by purchasing energy from in-state generators.[99] There are several dimensions in which such geographic preferences can be implemented. First, geographic preferences may be based on the location of the generator or on the destination of the electricity produced. Additionally, a negative restriction (no RECs based on location) or a positive restriction (additional or tradable RECs if at a particular location). Both are geographic distinctions, but they operate on different sides of the issue.

A majority of the 29 states with RPSs that have incorporated credit multipliers have restrictions or preferences to promote in-state and in-region generation of power. They constitute about three-quarters of those states with RPS programs.[100]

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standards and is promulgated into a detailed plan by the Code of Massachusetts Regulations. Renewable Energy Portfolio Standards – Class I 225 MASS. CODE REGS. 14.00 (2011); *About the RPS Solar Carve-Out Program*, MASS. EXEC. OFFICE ENERGY AND ENVTL. AFFAIRS, http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/solar/rps-solar-carve-out/about-the-rps-solar-carve-out-program.html (last visited Aug. 13, 2012) [hereinafter *RPS Solar Carve-Out*].

[95] *See* 225 MASS. CODE REGS. 14.07(2)(a) (2011); *see also RPS Solar Carve-Out*, *supra* note 94 (describing the RPS program and stating that eligibility for the carve-out requires the unit to be located within Massachuesetts).

[96] *See Massachusetts: Solar Renewable Energy Credits (SRECs)*, DSIRE, U.S. DEP'T OF ENERGY (Jan. 5, 2012), http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=MA98F [hereinafter *Massachusetts SRECs*].

[97] *Id.*

[98] See MASS GEN LAWS ch. 25A, § 11F (2010). See also, *Massachusetts SRECs*, *supra* note 96.

[99] See Kirsten H. Engel, *The Dormant Commerce Clause Threat to Market-Based Environmental Regulation: The Case of Electricity Deregulation*, 26 ECOLOGY L.Q. 243, 271 (1999) (noting various methods for states to require in-state purchase of renewable energy).

[100] Twenty-three of twenty-nine RPS states have one or another form of geographic discrimination.

There are a handful of distinct direct and indirect means by which preferences are structured. These geographic preferences fall into the following categories: (1) larger REC multipliers for geographic preferences, (2) in-state REC preferences, (3) in-region geographic preferences, (4) absolute requirements for geographic discrimination, and (5) geographic preferences for use of in-state businesses, products, or both.

Summarized, this geographic discrimination for RPS programs is as follows:

- Eight of the 29 RPS states, or 27%, have REC multipliers for in-state generation: Arizona,[101] Colorado,[102] Delaware,[103] Maine,[104] Michigan,[105] Missouri,[106] Nevada,[107] and Washington.[108]
- Five states and the District of Columbia employ multipliers not based on geographic location, but rather based on timing of the project or type of renewable technology: District of Columbia,[109] Kansas,[110] Maryland,[111] Ohio,[112] Oregon,[113] and Texas.[114]
- Four of the RPS states, or 14%, including two that also provide for a geographically discriminatory REC multiplier, have either a requirement or preference for in-state generation: California,[115] Colorado,[116] North Carolina,[117] and Ohio.[118]
- Eleven of the 29 RPS states, or 38%, have a requirement for in-region, rather than in-state, geographic location of generation to create RECs, including one of the states that also has in-state multipliers and one with an

[101] ARIZ. ADMIN. CODE § 14-2-1806 (2009).
[102] COLO. REV. STAT. § 40-2-124 (2010).
[103] DEL. CODE ANN. tit. 26, § 356 (West 2011).
[104] ME. REV. STAT. tit. 35-A, § 3605 (2010).
[105] MICH. COMP. LAWS ANN. § 460.1001 *et seq*. (West 2011).
[106] MO. ANN. STAT. § 393.1030(1)(4) (West 2011).
[107] NEV. REV. STAT. ANN. § 704.7822 (West 2011).
[108] WASH. ADMIN. CODE § 194-37-110 (2008).
[109] D.C. CODE §§ 34-1431, 34-1433 (2010).
[110] KAN. STAT. ANN. § 66-1258(c) (West 2011).
[111] MD. CODE ANN., PUB. UTIL. COS. § 7-704 (West 2011).
[112] OHIO ADMIN. CODE 4901:1-40-01 et seq. (2009).
[113] OR. REV. STAT. ANN. § 469A.065 (West 2011).
[114] TEX. UTIL. CODE ANN. § 39.904(o) (West 2011) (explaining that the commission can establish an alternative compliance payment to reach the non-wind energy goal by 2015); 16 TEX. ADMIN. CODE § 25.173(c)(2) (2010) (explaining that one compliance premium is the equivalent of one REC).
[115] *See* California's Renewable Porfolio Standard, DSIRE, U.S. DEP'T OF ENERGY (Apr. 12, 2011), http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=CA25R&re=1&ee=1 (explaining that a maximum of 25% of RPS compliance can be achieved through the use of tradable renewable energy credits; therefore, the remainder of the RPS compliance must be attained through in-state power sales).
[116] COLO. REV. STAT. ANN. § 40-2-124(e)(II–III) (West 2011).
[117] N.C. GEN. STAT. ANN. § 62-133.8(b)(2)(e) (West 2011).
[118] OHIO REV. CODE ANN. § 4928.64(B)(3) (West 2011).

in-state preference: Connecticut,[119] Illinois,[120] Maine,[121] Maryland,[122] Massachusetts,[123] New Hampshire,[124] North Carolina, Ohio,[125] Oregon,[126] Pennsylvania,[127] and Rhode Island.[128]

- Five states, or 17% of the total, including two that provide in-state REC multipliers and one requiring in-state REC generation, also define eligible resources or qualifications as in-region or in-state geographic location: California,[129] Delaware,[130] Montana,[131] New Jersey,[132] and Washington.[133]
- Four states use preferences or multipliers for RECs created at power generation units that employ an in-state work force or in-state-manufactured components; each of these states also provides other in-state multipliers or define eligible resources as in-state resources: Arizona,[134] Delaware,[135] Michigan,[136] and Montana.[137]

A significant number of states populate different categories of geographic preference in their RPS programs. In all, twenty-two of the twenty-nine RPS states, or 75%, have one or more of the geographic preferences. REC and subsidy multipliers are not legally suspect per se; it is the geographic preference, implemented through a multiplier, rather than the concept of a multiplier itself, that raises such an inquiry. The dormant commerce clause prevents any geographic discrimination against interstate commerce.[138]

Geographic requirements may also affect the price of electricity. The price impact of RPS-mandated renewable energy projects has been estimated to range between a 0.1% increase in retail rates (in Maine, Maryland, New Jersey, and New York) and up to a 1.1% increase in Massachusetts.[139]

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[119] CONN. GEN. STAT. ANN. § 16-245a(b) (West 2011).
[120] 20 ILL. COMP. STAT. ANN. § 3855/1-56(b) (West 2011).
[121] 65-407-311 ME. CODE R. § 6 (LexisNexis 2011).
[122] MD. CODE REGS. 20.61.03 (2011).
[123] MASS. GEN. LAWS ANN. ch. 25A, § 11F (West 2011).
[124] N.H. REV. STAT. ANN. § 362-F:6 (2011).
[125] OHIO REV. CODE ANN. § 4928.64 (West 2011).
[126] OR. REV. STAT. ANN. § 469A.135(1)(b) (West 2011).
[127] 73 PA. STAT. ANN. § 1648.4 (West 2011).
[128] R.I. GEN. LAWS ANN. § 39-26-4(d) (West 2011).
[129] CAL. PUB. UTIL. CODE § 399.12(c) (West 2011).
[130] DEL. CODE ANN. tit. 26, § 352(6) (2011).
[131] MONT. CODE ANN. § 69-3-2003(10) (2011).
[132] N.J. ADMIN. CODE § 14:8-2.7(b) (2009).
[133] WASH. ADMIN. CODE 194-37-040(13)(a) (2011).
[134] ARIZ. ADMIN. CODE § R14-2-1806 (2007).
[135] DEL. CODE ANN. tit. 26, § 356(d)(e).
[136] MICH. COMP. LAWS ANN. § 460.1039(d)(e) (West 2011).
[137] MONT. CODE ANN. § 69-3-2005(3)(a) (2009).
[138] *See infra* Part IV.A–B.
[139] WISER ET AL., *supra* note 90, at 20.

B. System Benefits Charges

A system benefits charge (SBC) is a per-kWh power charge imposed on all electricity consumers within a state. Approximately one-third of the states in the United States have enacted SBCs and "public benefit funds" as a direct subsidy mechanism to support the development of renewable energy resources.[140] Eighteen states, plus the District of Columbia, have established renewable trust funds in the United States.[141]

States raise revenues for these renewable trust funds through a small surcharge on electricity bills.[142] These state-renewable trust funds distribute money to subsidize various renewable energy resource projects and technologies pursuant to state legislation.[143] The support can come in the form of renewable power rebate programs, loan programs, research and development assistance, and energy education programs.[144]

States generally use SBCs to fund clean energy programs, and they are primarily administered by the state's public utility commission or a separate administrative agency.[145] The funds created range in size from less than $1 million to greater than $300 million per year.[146] In most states, utilities, non-profit organizations, or quasi-public agencies are in charge of administering the expenditure of these funds.[147]

The desire to retain subsidy funds for in-state benefit raises the Dormant Commerce Clause constitutional issue of discriminating against out-of-state electricity.[148] The charge is based on total electricity usage and some of that electricity originated from out of state; however, the benefit of the charge is dispensed only to in-state renewable generators and projects. State programs vary greatly in their geographic impact.

A few state programs may be highlighted to illustrate the range. The language of current legislation for the Renewable Energy Trust Fund of Massachusetts contains no express geographic limitations expressed in the intent and purpose

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[140] ELIZABETH DORIS ET AL., STATE OF THE STATES 2009: RENEWABLE ENERGY DEVELOPMENT AND THE ROLE OF POLICY 65–66 (2009), *available at* http://www.nrel.gov/docs/fy10osti/46667.pdf.

[141] DSIRE, U.S. DEP'T OF ENERGY, PUBLIC BENEFITS FUNDS FOR RENEWABLES 1 (2011), *available at* http://www.dsireusa.org/documents/summarymaps/PBF_Map.pptx (choose PowerPoint "Public Benefits Funds for Renewables").

[142] *Id. at* 2.

[143] *See generally id.* at 3–12.

[144] Glossary, DSIRE, U.S. DEP'T OF ENERGY, http://www.dsireusa.org/glossary/ (choose "Public Benefit Funds") (last visited Aug. 14, 2012).

[145] *Id.* at 137.

[146] *State Clean Energy Funds Fact Sheet*, U.S. ENVTL. PROTECTION AGENCY, http://www.epa.gov/chp/state-policy/funds_fs.html (last updated Apr. 2012).

[147] Ferrey et al., *supra* note 35, at 137.

[148] See *infra* Part IV.A–B.

section of the statute.[149] In chapter 23J, § 9(c), the non-geographic limiting language goes even further in stating that the public interests to be advanced by the fund, through the center's actions, shall include support of renewable energy resources, institutions, projects, etc., not only in Massachusetts but also within the New England region.[150] There are also no geographic limitations on where the Massachusetts Clean Energy Center can expend these funds.[151] Nothing here is facially discriminatory in favoring geographic interests. However, Massachusetts

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[149] MASS. GEN. LAWS ANN. ch. 23J. § 9(b) (West 2009). The Massachusetts Clean Energy Center (the quasi-public agency administering the fund) can

> make expenditures from the trust fund for public purpose of generating the maximum economic and environmental benefits over time for renewable energy to the ratepayers of the commonwealth through a series of initiatives which exploit the advantages of renewable energy in a more competitive energy marketplace by: (i) promoting the increased availability, use, and affordability of renewable energy; (ii) by making operational improvements to existing renewable energy projects and which, in the determination of the center, would yield more significant results in the development of renewable energy if such funds were made available for the creation of new renewable energy facilities; and by fostering the formation, growth, expansion and retention within the commonwealth of preeminent clusters of renewable energy and related enterprises, institutions and projects which serve the citizens of the commonwealth consistent with a strategic plan or annual operational plan.

Id.

[150] *See id.* § 9(c).

> Public interests to be advanced through the center's actions shall include, but shall not be limited to, the following: (i) the development and increased use and affordability of renewable energy resources in the commonwealth and the New England region . . . ; (v) the stimulation of increased public and private sector investment in, and competitive advantage for, renewable energy and related enterprises, institutions and projects in the commonwealth and the New England region; and (vi) the stimulation of entrepreneurial activities in these and related enterprises, institutions and projects.

Id.

[151] *Id.* § 9(d). Chapter 23J, § 9(d) provides that the center may expend monies to

> make grants, contracts, loans, equity investments, energy production credits, bill credits or rebates to customers; provide financial or debt service obligation assistance; or take any other action, in such forms, under such terms and conditions and under such selection procedures as the center deems appropriate . . . to advance the public purpose and public interests set forth in this section . . . .

Id.

almost exclusively spends its trust fund on in-state programs and projects, and in only two specific instances did Massachusetts fund an out-of-state project.[152]

The Illinois Renewable Energy Resources Trust Fund (RERTF), in the findings and intent section of the law,[153] states that the General Assembly

> finds and declares that it is desirable to obtain the environmental quality, public health, and fuel diversity benefits of developing new renewable energy resources and clean coal technologies for use in Illinois, and to lower the cost of renewable energy resources and clean coal resources provided to utility customers . . . . The General Assembly finds and declares that encouraging energy efficiency will improve the environmental quality and public health in the State of Illinois.[154]

The Illinois administrative code regarding administration of this fund takes the Illinois-centric focus one step further, where it specifies that, "[r]enewable energy project means any of the following projects *implemented and located in Illinois* . . . ." (emphasis added).[155] The Illinois Institute of Rural Affairs website states that "[f]unds are to be used only on projects within Illinois that demonstrate a benefit to the state's environment or economy."[156]

In New Jersey, under the statutory language of § 48:3-60 utilities are entitled to recover some of the costs through a societal benefits charge which is imposed on all electric and gas public utility customers.[157] The statute goes on to state that "[s]uch programs shall include a program to provide financial incentives for the installation of Class I renewable energy projects in the State . . . ."[158] While the renewable resources can come from out-of-state producers, the subsidy benefits the state.

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[152] One was in 2003 when the Massachusetts Renewable Energy Trust helped fund a new biomass system through the Massachusetts Green Power Partnership to help the Public Service of New Hampshire, a utility, develop the Northern Wood Power Project at the Schiller generating facility in Portsmouth, New Hampshire. *Newly Operational Biomass Facility Will Mean More Renewable Energy for Mass. Ratepayers*, WATTS NEWS: RENEWABLE ENERGY TRUST NEWSLETTER (Mass. Tech. Collaborative), Winter 2007, *available at* http://www.masstech.org/wattsnews/winter2007.html. The other out of state project was in September 2010 when the Massachusetts Clean Energy Center gave a grant of $400,000 to Templeton Municipal Light and Water for the design and construction, through Massachusetts Clean Energy Center's Community Scale Wind Initiative, of the Templeton Wind Turbine which was built on land owned by the Narragansett Regional School District. *Templeton Wind Turbine*, MASS. CLEAN ENERGY CTR., http://www.masscec.com/index.cfm/pid/11312/cdid/12075 (last visited Aug. 14, 2012).

[153] 20 ILL. COMP. STAT. 687/6-2 (1997).

[154] *Id.*

[155] ILL. ADMIN. CODE tit. 35, § 225.560(b) (2007).

[156] *Illinois Wind*, ILL. INST. FOR RURAL AFFAIRS, http://www.illinoiswind.org/resources/small/faq05.asp#3 (last visited Aug. 15, 2012).

[157] N.J. STAT. ANN. § 48:3-60 (West 1999).

[158] *Id.*

Ohio utilizes penalties imposed under its RPS program to fund only in-state REC-generating new renewable generation: "At least one-half of the renewable energy resources implemented by the utility or company shall be met through facilities located in [Ohio] . . . ."[159] Similarly, Pennsylvania's RPS penalty payments are paid into Pennsylvania's Sustainable Energy Funds and devoted only to Pennsylvania projects.[160]

C. The State Feed-in Tariff

Feed-in tariffs are the most widely employed renewable energy policy in Europe and, increasingly, the rest of the world.[161] Approximately sixty countries, including seventeen European Union countries, Brazil, Indonesia, Israel, Korea, Nicaragua, Norway, Sri Lanka, Switzerland, and Turkey, use feed-in tariffs to promote and support renewable energy.[162] Feed-in tariffs successfully encourage significant renewable energy development in nearly all of the countries in which they have been deployed, but can impose significant costs on captive utility rate payers.[163]

These feed-in tariffs typically exceed substantially utility-avoided costs, and therefore are justified only by their achieved objectives and results, and are not typically accepted ratemaking methodologies under United States law to minimize prudent generating costs.[164] Costs of a feed-in tariff are passed on to consumers by purchasing energy suppliers and often reflect a public policy regulatory decision to increase the percentage of renewable electricity sources in use.[165]

Some European Union governments, such as Germany, have slashed their initial feed-in tariffs to approximately half their value from seven years ago.[166] However, recent government decisions in Spain to renege on previously pledged subsidies for renewable technologies further underscore the fragility of alternative

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[159] OHIO REV. CODE ANN. § 4928.64(B)(3) (West 2011).

[160] 73 PA. CONS. STAT. § 1648.3(g)(1) (2007).

[161] *See* WILSON RICKERSON & ROBERT C. GRACE, HEINRICH BÖLL FOUND., THE DEBATE OVER FIXED PRICE INCENTIVES FOR RENEWABLE ELECTRICITY IN EUROPE AND THE UNITED STATES: FALLOUT AND FUTURE DIRECTIONS (2007).

[162] *Id.*

[163] ANNE HELD ET AL., FRAUNHOFER INSTITUT FÜR SYSTEMTECHNIK UND INNOVATIONSFORSCHUNG, FEED-IN SYSTEMS IN GERMANY, SPAIN AND SLOVENIA: A COMPARISON (2007).

[164] STEVEN FERREY, THE LAW OF INDEPENDENT POWER § 5:9 (29th ed. 2012).

[165] *See* KARLYNN CORY, TOBY COUTURE & CLAIRE KREYCIK, NAT'L RENEWABLE ENERGY LAB., FEED-IN TARIFF POLICY: DESIGN, IMPLEMENTATION AND RPS POLICY INTERACTIONS 13 (2009), *available at* http://www.nrel.gov/docs/fy09osti/45549.pdf.

[166] *See generally* David Hopwood & Paula Mints, *EPIA: Market Installed 7.2 GW of Solar PV in 2009*, RENEWABLE ENERGY FOCUS (Sept. 7, 2010), http://www.renewableenergyfocus.com/view/12286/epia-market-installed-72-gw-of-solar-pv-in-2009.

energy projects amid regulatory change.[167] In fact, major subsidization of renewable power has come under increasing criticism.[168]

Several states in the United States have begun to propose legislation and a few have adopted policies similar to European feed-in tariffs.[169] In 2011, Oregon lowered the price paid under its solar feed-in tariff for the third time in its one year of existence, reducing it from its original 65 cents per Kwh to 37.4 cents per Kwh.[170] Each of the prior iterations at higher prices was oversubscribed within less than ten minutes of availability, even though each time the tariff was lowered 10-20% from the prior availability.[171] While state officials claimed they were looking for the "sweet spot," the costs of each of the former tariff iterations are forced into the bills of rate-paying customers of the utilities for fifteen years.[172]

D. Net Metering

As of 2011, forty-three states and the District of Columbia had some form of net metering, which operates the retail utility meter backward when a renewable energy generator puts power back to the grid.[173] Net metering can pay the eligible renewable energy source approximately four times more, when it rolls the retail rate backward, than paid to any other independent power generators for wholesale power, and much more than the time-dependent value of this power to the purchasing utility.[174]

Some states that allow net metering put a limit on the percentage of total supply that can be net metered, to avoid the problem of net metering power back to the utility when the utility does not need the power. Certain states limit the amount of power that can be net metered, to restrict it to incidental sale of incremental power rather than a surplus payment to a commercial production of power. In Maryland, a controversy occurred in 2010 over limitations of solar output to be net metering to 125% of total monthly usage through the meter.[175]

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[167] Robert Glennon & Andrew Reeves, *Solar Energy's Cloudy Future*, 1 ARIZ. J. ENVTL. L. & POL'Y 91, 111 (2010).

[168] *Id.* at 124 n.232.

[169] *Id.* at 74

[170] Pam Russel, *Oregon Reduces Solar Feed-In Tariff for Third Time, Looking for "Sweet Spot" Price*, ELECTRIC UTIL. WEEK, Aug. 8, 2011, at 7.

[171] *Id.*

[172] *See*, *e.g.*, *id.*; Lee van der Voo, *Oregon's Solar Feed-In Tariff Program Gets An Update*, SUSTAINABLE BUS. OR. (Feb. 22, 2012, 4:17 PM), http://www.sustainablebusinessoregon.com/articles/2012/02/oregons-solar-feed-in-tariff-program.html?page=all.

[173] *See generally Financial Incentives*, DSIRE, U.S. DEP'T OF ENERGY, http://www.dsireusa.org/incentives/ (regarding net metering by the states) (last visited Aug. 14, 2012).

[174] Ferrey, *supra note* 36, at 2.

[175] Mary Powers, *Maryland Regulatory Staff Takes Side of Solar Producers on Net Metering Issues*, ELECTRIC UTIL. WEEK, Aug. 16, 2010, at 24.

Massachusetts has gone the furthest of all, adopting a community net metering amendment that looks a lot like the telecommunications "friends and family" program.[176] One can designate anyone in the same utility service territory as someone whose metered retail electricity consumption also can be rolled in reverse due to sales from an unrelated net metered renewable power project.[177] In other words, if one's solar collector or wind turbine produces more power than one consumes, one can roll one's own retail meter back to zero to reflect no net consumption, and simultaneously roll back the net consumption on other meter(s) in the community. By creating a legal hypothetical premise of shared on-site power consumption from one source at unrelated locations, this ensures that the entire net wholesale distributed net generation quantity will be credited at retail rates by rolling back some retail meters.

In Massachusetts, this allows one's surplus and unused distributed renewable power to be treated as if it were produced and used on site at another location in the same utility geographic service territory—although that power is not produced there and the other customer produces no distributed power at all, nor does the power physically ever reach that other customer. As a legal concept, one rolls back multiple retail meters where the retail (including transmission & distribution charges, taxes, and regulatory costs), not wholesale, price of power is credited at a recent twelve to seventeen cents per Kwh, or approximately 300% of the actual market value of wholesale power through this legal convention. Although there are six states (California, Oregon, Pennsylvania, Rhode Island, Washington, West Virginia) that allow an owner who has multiple meters on its property to apply the net metered sale to all of its meters.[178] To date, Massachusetts is the only state to allow such a regulatory multi-meter accounting, and this new program has not been challenged in court.

IV. THE DORMANT COMMERCE CLAUSE AND STATE POWER

A. The Basic Provisions

The Commerce Clause of the United States Constitution provides that, "[t]he Congress shall have Power . . . [t]o regulate Commerce . . . among the several States . . . ."[179] The Supreme Court has imbued this clause with "an implicit 'negative' or 'dormant' aspect in limiting the authority of the States to regulate in the same way," resulting in the application of the Dormant Commerce Clause.[180]

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[176] *See* 220 MASS. CODE REGS. 11.04(7)(c) (2011).

[177] *Id.*

[178] Ethan Howland, *Arizona Eyes Aggregated Net Metering Plan Similar to Programs in Six States*, ELECTRIC UTIL. WEEK, Dec. 6, 2010, at 19–20.

[179] U.S. CONST. art. I, § 8, cl. 3.

[180] Nathan E. Endrud, *State Renewable Energy Portfolio Standards: Their Continued Validity and Relevance in Light of the Dormant Commerce Clause, the Supremacy Clause, and Possible Federal Legislation*, 45 HARV. J. ON LEGIS. 259, 265 (2008).

When analyzing Dormant Commerce Clause issues, a court will first determine whether the regulation or legislation is facially discriminatory against interstate commerce, and will only uphold that law if a legitimate local purpose can be found.[181] Except for the necessity to quarantine certain products, this legitimate local purpose is rarely found. Discriminatory statutes are subject to "strict scrutiny," and for such a statute or regulation to be valid, the state must establish that there is a compelling state interest for which the statute is the least intrusive means to achieve that interest.[182] If the statute is found to discriminate against out-of-state interests based on geographic limitations or favoring local interests to the detriment of interstate commerce, the court will find the statute to be per se invalid.[183] If the statute is geographically even-handed, the courts will apply the Pike balancing test to determine whether the state's interest justifies the discriminatory effect of the regulatory mechanism as applied.[184]

State and local laws have been deemed unconstitutional under the Dormant Commerce Clause if they facially discriminate against, or unduly burden, interstate commerce.[185] This is most obvious when a law differentiates between in-state and out-of-state economic interests in a manner that benefits the former and burdens the latter.[186] The scope of commerce among the states for purposes of a Dormant Commerce Clause analysis is broadly defined,[187] and all objects of interstate trade merit Commerce Clause protection, which includes the transmission of electric energy in interstate commerce.[188]

Geographic program restrictions in energy regulation raise Commerce Clause concerns under the United States Constitution.[189] For example, the use of indigenous fuel supplies for electricity was stricken in *Wyoming v. Oklahoma*.[190]

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[181] *See* Dep't of Revenue of Ky. v. Davis, 553 U.S. 328, 338 (2008) (quoting Or. Waste Sys., Inc. v. Dep't of Envtl. Quality of Or., 511 U.S. 93, 100 (1994)).

[182] Trevor D. Stiles, *Renewable Resources and the Dormant Commerce Clause*, 4 ENVTL. & ENERGY L. & POL'Y J. 33, 59 (2009) (outlining a history of the Dormant Commerce Clause), *available at* http://www.law.uh.edu/eelpj/publications/4-1/Stiles.pdf.

[183] *See* City of Phila. v. New Jersey, 437 U.S. 617, 624 (1978) (noting that if a statute is facially discriminatory, it is virtually per se invalid); Patrick R. Jacobi, *Renewable Portfolio Standard Generator Applicability Requirements: How States Can Stop Worrying and Learn to Love the Dormant Commerce Clause*, 30 VT. L. REV. 1079, 1101 (2006) (proposing that a court will likely strike down as unconstitutional any regulation that discriminates geographically or through point-of-origin); Stiles, *supra* note 182, at 60–61.

[184] *See* Pike v. Bruce Church, Inc., 397 U.S. 137, 142 (1970) (explaining the balancing test for when a statute "regulates evenhandedly to effectuate a legitimate local public interest, and its effects on interstate commerce are only incidental").

[185] *See* Gen. Motors Corp. v. Tracy, 519 U.S. 278, 287 (1997).

[186] *See* Or. Waste Sys., Inc. v. Dep't of Envtl. Quality of Or., 511 U.S. 93, 99 (1994).

[187] *See City of Phila.*, 437 U.S. at 621–22.

[188] *See id.*; *see also* New York v. Fed. Energy Regulatory Comm'n, 535 U.S. 1, 16 (2002) (transmissions on the interconnected national grids constitute transmissions in interstate commerce).

[189] FERREY, *supra* note 1, at 150–55.

[190] 502 United States 437 (1992).

Also, income tax credits cannot be given by a state only to in-state producers of fuel additives.[191] Further, in-state coal cannot be required by a state in order to satisfy federal Clean Air Act requirements.[192] In *Dean Milk Co. v. Madison*,[193] the Supreme Court noted that an agency of local government cannot discriminate against interstate commerce "if reasonable nondiscriminatory alternatives, adequate to conserve legitimate local interests, are available."

In *City of Philadelphia v. New Jersey*,[194] the state's argument that it was protecting a primarily environmental interest did not survive strict scrutiny. If the statute is found to discriminate against out-of-state interests based on geographic limitations or by favoring local interests to the detriment of interstate commerce, the court will find the statute to be per se invalid.[195] The courts have determined that electricity cannot be traced in interstate commerce.[196] In *West Lynn Creamery v. Healy*, 512 U.S. 186 (1994) the Supreme Court found that "even if environmental preservation were the central purpose" of the regulation, it "would not be sufficient to uphold a discriminatory regulation."[197] The specific implications of this case are discussed more below, as they might apply to renewable incentive programs of the states.[198]

B. Constitutional Litigation on Renewable State Incentives

The Dormant Commerce Clause affects potential state regulations or laws where the state imposes differentiated regulation on private entities based on the geographic origin of the commerce. Of the four basic state techniques discussed above, this could most affect geographic discrimination regarding RECs under RPS programs, based on where the interstate electric production that creates the RECs is located. It could also affect system benefit charges based on where and how expenditures are dispensed, if such expenditures are raised by taxing the interstate movement of power.

Courts require state actions that facially discriminate against interstate commerce must not be served by nondiscriminatory regulatory alternatives,[199] and

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[191] New Energy Co. of Ind. v. Limbach, 486 U.S. 269, 271, 278–80 (1988).

[192] Alliance for Clean Coal v. Miller, 44 F.3d 591, 596–97 (7th Cir. 1995).

[193] Dean Milk Co. v. City of Madison, 340 U.S. 349, 354 (1951).

[194] *City of Phila.*, 437 U.S. 617 (New Jersey had enacted a statute prohibiting the importation and disposal of most solid waste originating outside New Jersey, until the state determined that it would not endanger the public health, safety, and welfare of its citizens).

[195] *See* Minnesota v. Clover Leaf Creamery Co., 449 U.S. 456, 471(1981) (noting that if a statute is facially discriminatory, it is virtually per se invalid).

[196] *See, e.g.*, New York v. Fed. Energy Regulatory Comm'n, 535 U.S. 1, 7 n.5 (2002); Fed. Power Comm'n v. Fla. Power & Light Co., 404 U.S. 453, 460 (1972).

[197] W. Lynn Creamery, Inc. v. Healy, 512 U.S. 186, 204 (citing *City of Phila.*, 437 U.S. at 626–27).

[198] *See infra* Part IV.B.

[199] Dep't of Revenue of Ky. v. Davis, 553 U.S. 328, 338 (2008) (quoting *Or. Waste Sys., Inc.*, 511 U.S. at 100.).

geographically discriminatory state statutes are almost always stricken. As discussed above, a number of states prohibit the REC credit for out-of-state or out-of-region generation facilities.[200] The United States Supreme Court held in *FERC v. Mississippi*, that "it is difficult to conceive of a more basic element of interstate commerce than electric energy, a product used in virtually every home and every commercial or manufacturing facility. No State relies solely on its own resources in this respect."[201]

The solar RECs program in Massachusetts, discussed above,[202] allowed only in-state solar PV RECs to be earned and traded. In addition, utilities were required by state law to have at least 3% of their annual demand met through ten- or fifteen-year wholesale power purchase agreements with renewable power developers with in-state projects.[203] This renewable energy program was successfully challenged by TransCanada Corporation, the owner of a Maine wind project.[204] Massachusetts immediately settled the litigation,[205] likely to avoid a court decision.

Fifteen years before, Massachusetts was the site of an often-overlooked U.S. Supreme Court case that laid the foundation for Dormant Commerce Clause analysis with parallels to imposition of burdens and benefits of some renewable energy programs in the states, specifically those arising out of state renewable trust funds.[206] Based on the total program, the Court reasoned the tax was effectively only imposed on out-of-state products because out-of-state products were the only ones affected, on net, by the tax.[207] The Court stated that the combination of the regulations "simultaneously burdens interstate commerce and discriminates in favor of local producers."[208]

There is litigation in federal court in New Jersey and Colorado cases, as well as a Missouri state court decision, contesting Dormant Commerce Clause violations for those states' energy regulation.[209] The American Tradition Institute has also filed a suit in Colorado. The complaint argues that because the state

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[200] WISER ET AL., *supra* note 90.

[201] FERC v. Mississippi, 456 U.S. 742, 757 (1982).

[202] *See* discussion *infra* Part III.A.

[203] *See generally* 225 MASS. CODE REGS. 14 (2011); 220 MASS. CODE. REGS. 17 (2011).

[204] Partial Settlement Agreement at 1, Transcanada Power Marketing Ltd. v. Ian A. Bowles, No. 4-10-cv-40070-FDS (D. Mass. 2010), *available at* http://www.mass.gov/eea/docs/doer/renewables/solar/settlement-agreement.pdf.

[205] *See id.*

[206] *W. Lynn Creamery, Inc.*, 512 U.S. at 199.

[207] *Id.* at 194.

[208] *Id.* at 201 ("It is undisputed that an overwhelming majority of the milk sold in Massachusetts is produced elsewhere. Thus, even though the tax is applied evenhandedly to milk produced in State and out of State, most of the tax collected comes from taxes on milk from other States.").

[209] Complaint for Injunctive and Declaratory Relief at 2, Am. Tradition Inst. v. Colorado, No. 11-cv-00859-WJM-KLM (D. Colo. Apr. 22, 2011), *available at* http://www.atinstitute.org/wp-content/uploads/2011/04/ATI-RPS-Lawsuit-Amended-Complaint.pdf.

mandate provides economic benefits to Colorado's renewable electricity generators that are not available to out-of-state power generators, and because the state imposes burdens on interstate electricity generators that are not balanced by the benefits to Colorado and its citizens, the program violates the Dormant Commerce Clause.[210] The complaint states that "the Colorado RES discriminates on its face against legal, safer, less costly, less polluting, and more reliable in-state and out-of-state generators of electricity sold in interstate commerce. This discrimination is forbidden by the Commerce Clause."[211]

In 2011, New Jersey enacted legislation to encourage the acquisition by utilities of the output of 2,000 MW of new in-state power projects.[212] A pending lawsuit by several existing independent power generators asserts that the state law is in violation of the Constitution's Commerce Clause, because it is predicated on in-state "favoritism," and the New Jersey act is a "blatant and explicit effort to promote the construction of new generation facilities in New Jersey."[213]

Power generators in the Atlantic region also filed a complaint at FERC alleging discrimination against New Jersey's statute ordering utilities to sign long-term contracts only with in-state generation facilities that bid to receive regional, multi-state PJM ISO capacity payments.[214] In response, in 2011, FERC amended the PJM ISO rules to prevent New Jersey state law from attempting to encourage construction of in-state power generation by, in part, causing them to bid power into the PJM system at suppressed prices in order to win capacity right auctions.[215]

A Missouri state court in 2011 ruled that the state's RPS program was illegal because it required RECs to be generated by in-state projects or projects that delivered the power to in-state customers.[216] As one more recent example of litigation, in 2009, Indeck Energy, the owner of a New York cogeneration power facility, sued the state of New York regarding the constitutionality of its carbon regulation program, part of the ten-state Regional Greenhouse Gas Initiative (RGGI), which imposes additional costs to purchase carbon emission allowances on wholesale power sellers.[217] New York quickly settled the suit, granting

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[210] *Id.*

[211] *Id.* at 2.

[212] S. 2381, 214th Leg. (N.J. 2011).

[213] Hanna Northey, *Utilities Challenge N.J. Law While Preparing to Reap Its Benefits*, N.Y. TIMES (Mar. 2, 2011), http://www.eenews.net/public/Greenwire/2011/03/02/4.

[214] *See* PJM Interconnection, L.L.C., 135 FERC ¶ 61,022 (2011).

[215] Mary Powers, *Rebuffed by FERC Ruling, New Jersey BPU Plans to Look Again at How to Attract New Generation*, ELECTRIC UTIL. WEEK, May 23, 2011, at 4, 6, *available at* http://www.electricdrive.org/sites/testing/index.php?ht=a/GetDocumentAction/i/22845. FERC, on April 12, 2011, eliminated a PJM rule that allowed a prior exemption for projects to make minimum offer prices when tempered by state energy programs. PJM Interconnection, L.L.C., *supra* note 214.

[216] Findings of Fact, Conclusions of Law and Judgment, Mo. Energy Dev. Ass'n. v. Mo. Pub. Serv. Comm'n, No. 10AC-CC00512 (Mo. Cir. Ct. Cole Cnty. June 29, 2011).

[217] Press Release, Indeck Energy, Indeck Energy Sues State Questioning Legality of Regional Greenhouse Gas Program (Jan. 29, 2009), *available at* http://www.indeckenergy.com/pdfnews/RGGI%20Lawsuit%20012909%20.pdf; *Notice of Lodging of Consent*

plaintiffs complete relief and not imposing any of these approximately $3 million annual additional costs on the specific wholesale market plaintiffs, rather than let the court address the legality of its state program.[218] New York's participation in RGGI was challenged a second time in 2011 as being without proper legislative approval and only implemented by regulation.[219]

In some ways, such litigation is not unexpected. Several states were instructed to act with care regarding the Commerce Clause in constructing RPS and SBC renewable energy programs. A technical report conducted for the North Carolina Utilities Commission in 2006 by La Capra Associates noted the possible detriments: "an explicit exclusion of out-of-state resources may raise questions under the Commerce Clause of the U.S. Constitution."[220] As early as 2005, commenters to the RPS program in Arizona noted in official comments to the state that its proposed in-state credit multiplier "violates the Commerce Clause."[221] Arizona went ahead with its multiplier for in-state power generating RECs. As mentioned above, a current lawsuit against the Colorado RPS program claims that several comments from interested parties, prior to the promulgation of the program, noted concerns over possible constitutional violations of the Commerce Clause.[222]

Discriminatory state statutes cannot escape Commerce Clause scrutiny merely by avoiding explicit facial references to in-state interests.[223] In *Kentucky Power Co. v. Huelsman*,[224] the court ruled that the Kentucky state statute was discriminatory, even though it did not use the phrase "Kentucky customers" to describe the class of customers favored.[225] Regulations that treat all out-of-state

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Decree Pertaining to New York's Regional Greenhouse Gas Initiative Regulations, STATE OF N.Y. (Jan. 21, 2011), http://www.nyserda.ny.gov/en/About/Newsroom/2011-Announcements/2011-01-21-Notice-of-Lodging-of-Consent-Decree.aspx.

[218] *Statement on the Settlement of the Regional Greenhouse Gas Initiative Lawsuit*, DEP'T OF ENVTL. CONSERVATION, STATE OF N.Y., http://www.dec.ny.gov/environmentdec/61956.html (last visited Aug. 15, 2012).

[219] Thrun v. Cuomo, No. 4358/11 (N.Y. Sup. Ct. 2011); G. Craig & G. Roberts, *Lawsuit Disputes Legality of New York Participation in RGGI, Citing State's Lack of Legislative Approval*, ELECTRIC UTIL. WEEK, Jul. 4, 2011, at 10.

[220] *See* LA CAPRA ASSOCS. ET AL., ANALYSIS OF A RENEWABLE PORTFOLIO STANDARD FOR THE STATE OF NORTH CAROLINA 87 (2006), *available at* http://www.ncuc.commerce.state.nc.us/reps/NCRPSReport12-06.pdf.

[221] *In re* Proposed Rulemaking for the Renewable Energy Standard and Tariff Rules, No. RE-00000C-05-0030 at 22 (Ariz. Corp. Comm'n. Nov. 24, 2006), *available at* http://images.edocket.azcc.gov/docketpdf/0000063561.pdf.

[222] Complaint, *supra* note 209, at 2.

[223] Ky. Power Co. v. Huelsmann, 352 F.Supp. 2d. 777, 785 (E.D. Ky. 2005).

[224] *Id.*

[225] *Id.* The Court reasoned it was undisputed that only Kentucky customers could benefit from the curtailment priority set forth in the statute and that the protected class only included retail customers inside the utility's certified territory; and Kentucky member distribution cooperatives were purchasing power at wholesale to serve their own retail customers. *Id.*

interests in a disparate manner will be regarded as discriminatory even though some in-state interests are also adversely affected by the regulation.[226] As long as a state taxes only in-state services, a state can use the tax or surcharge revenues to benefit its own citizens: It is important that states link their SBC charges to the in-state distribution of power over in-state power lines in structuring the charge instead of linking it to the retail sale of the power which also may be moving in interstate commerce.[227]

When a state participates directly in the market as a purchaser, seller, or producer of articles of commerce, its activities will not be subject to the usual Commerce Clause restrictions, even if discriminatory effects flow from the state's actions.[228] The Court stated, "nothing in the purposes animating the commerce clause prohibits a State, in the absence of congressional action, from participating in the market and exercising the right to favor its own citizens over others."[229] The statute did not violate the Commerce Clause.[230] In *Oneida-Herkimer*, where the government was participating in the market by owning the commercial entity, the plurality opinion written by Chief Justice Roberts applied the Pike balancing test.[231]

The Dean Milk constitutional test[232] under the Dormant Commerce Clause requires a state, when enacting a regulation which burdens interstate commerce, to demonstrate that there were no viable, less burdensome regulatory alternatives.[233] A state cannot discriminate against articles of commerce originating in other states unless there is a "reason apart from their origin[] to treat them differently."[234] In 2012, in a much-watched federal court case in Vermont, state attempts to discriminatorily regulate in-state power moving in interstate commerce were held unconstitutional as a violation of the Dormant Commerce Clause.[235]

Another important recent decision was rendered by a federal judge in California at the start of this year, holding that California violated the Dormant

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[226] *Id.* at 786 ("It is immaterial that Wisconsin milk from outside the Madison area is subject to the same proscription as that moving in interstate commerce." (quoting *Dean Milk Co*., 340 U.S. at 354 n. 4)).

[227] Regarding those RPS programs that facially discriminate based on geographic origin of the renewable power generation, the costs of funding RPS are passed on in higher fees to customers by the utility that purchases the RECs to retail consumers via higher rates, typically applied to distribution services. Distribution services bill for the amount of Mwh purchased at retail. Technically, there is no imposition of a charge on interstate wholesale sellers.

[228] Hughes v. Alexandria Scrap Corp., 426 U.S. 794, 810 (1976).

[229] *Id.*

[230] *Id.* at 814.

[231] United Haulers Ass'n v. Oneida-Herkimer Solid Waste Mgmt. Auth., 550 U.S. 330, 346 (2007) (citing Pike v. Bruce Church, 397 U.S. 137, 142 (1970)).

[232] *Dean Milk Co.*, 340 U.S. at 354.

[233] *Id.*

[234] *City of Phila.*, 437 U.S. at 626–27.

[235] Order on the Merits of Plaintiff's Complaint, Entergy Nuclear Vt. Yankee, LLC, v. Shumlin, No. 1:11-cv-99 (D. Vt. Jan. 19, 2012).

Commerce Clause by discriminating against out-of-state energy products (in this case, renewable biomass-based ethanol) based on the distance they must travel from out-of-state and the greater carbon-intensity of electricity used at the source of the production to produce the renewable fuel.[236] The court reiterated that only the federal government can regulate commerce between the states, and California, by attempting to regulate commerce outside its borders, violated exclusive federal authority to regulate interstate commerce.[237]

California gave less value to ethanol produced in the Midwest, because of the latter region's use of coal-fired power to produce ethanol and other products, and the longer transportation distance for trucks to transport ethanol from there to California.[238] While such discrimination did reflect the total embedded energy emissions and transportation costs of different means to produce the energy products and to move them to market from geographically distant production sources, the court held that states cannot elect to discriminate against more-distant out-of-state products.[239]

State laws to control GHGs or to promote energy efficient production, do not satisfy the Dormant Commerce Clause.[240] If a state could do this, a state could, and should, if it applied this principle consistently, discriminate against the importation of out-of-state grown food, international food (with very long transport routes), imported vehicles and clothing, and computers that are manufactured abroad. The court held, "[a]lthough [the state's] goal to combat global warming may be legitimate, it cannot be achieved by the illegitimate means of isolating the state from the national economy."[241]

Both recent decisions have significant implications for state regulation of renewable energy and the regulation of greenhouse gases. More carefully drafting broader RPS and SBC incentive programs at the state level, exclusive of geographic restrictions and treating external locations equally, are an obvious means to this end to avoid strict scrutiny and constitutional challenge. If geographic discrimination is not facially incorporated in the statute or regulations, the Pike balancing test could be applied instead to any challenge, in which case there is an opportunity to demonstrate that the benefits to the state outweigh the burdens on interstate commerce.[242] States can avoid some of the challenges similar to those that have arisen in litigation in the past year by carefully structuring their RPS and SBC programs.

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[236] Order on NPRA Plaintiffs' Summery Adjudication Motion, Rocky Mountain Farmers Union v. Goldstene, No. CV-F-09-2234 LJO DLB (D. Cal. Dec. 29, 2011).

[237] *Id.*

[238] *Id.*

[239] *Id.* In terms of energy use, it was conceded that more distant sources of production do have more GHG-emission impacts for transport than more local sources. *Id.*

[240] *Id.*

[241] *Id.*

[242] *See Pike*, 397 U.S. at 142.

V. SUPREMACY CLAUSE SEPARATION OF STATE AND FEDERAL AUTHORITY OVER ENERGY REGULATION

A. The Bright Legal Line

While state RPS programs to promote renewable power, as discussed above,[243] must carefully navigate around the limitations of the Commerce Clause, feed-in tariffs must be aware of legal limitations imposed by the Supremacy Clause of the Constitution. Until either the U.S. Constitution or the Federal Power Act are altered, state feed-in tariffs are prohibited if prices are mandated to be above the utility's avoided cost of purchasing or producing power for any investor-owned utilities which are regulated.[244] And all state feed-in tariffs are designed to do precisely that.

The Federal Power Act, sections 205 and 206,[245] empowers FERC alone to regulate rates for the interstate and wholesale sale and transmission of electricity.[246] The U.S. Supreme Court, in *Federal Power Commission v. Southern California Edison Co.*, held that Congress meant to draw a "bright line," easily ascertained and not requiring case-by-case analysis, between state and federal jurisdiction.[247]

When a transaction is subject to exclusive federal FERC jurisdiction and regulation, state regulation is preempted by federal law and the U.S. Constitution's Supremacy Clause, according to a long-standing and consistent line of rulings by the U.S. Supreme Court.[248]

The U.S. Supreme Court held in *FERC v. Mississippi*, "it is difficult to conceive of a more basic element of interstate commerce than electric energy, a product used in virtually every home and every commercial or manufacturing

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[243] *See supra* Part III.A.

[244] 16 U.S.C. § 824a-2 (2012); 18 C.F.R. § 292.400; *see* Am. Paper Inst. v. Am. Elec. Power Serv. Corp., 461 U.S. 402 (1983).

[245] 16 U.S.C. §§ 824d, 824e (2012).

[246] Morgan Stanley Capital Grp., Inc. v. Pub. Util. Dist. No. 1, 554 U.S. 527, 531 (2008); Pub. Util. Dist. No. 1 of Snohomish Cnty. Wash. v. FERC, 471 F.3d 1053, 1058 (9th Cir. 2006), *vacated*, 547 F.3d 1081 (9th Cir. 2008).

[247] Fed. Power Comm'n v. S. Cal. Edison Co., 376 U.S. 205, 215–16 (1964).

[248] Entergy La., Inc. v. La. Pub. Serv. Comm'n, 539 U.S. 39, 47 (2003); Miss. Power & Light Co. v. Miss. *ex rel.* Moore, 487 U.S. 354, 370 (1988); Nantahala Power & Light Co. v. Thornburg, 476 U.S. 953, 967 (1986); New England Power Co. v. New Hampshire, 455 U.S. 331, 339 (1982); Montana-Dakota Co. v. Pub. Serv. Comm'n, 341 U.S. 246, 251 (1951). In *New England Power Co.* the Supreme Court overturned an order of the New Hampshire Public Utilities Commission that restrained within the state, for the financial advantage of in-state ratepayers, low-cost hydroelectric energy produced within the state. It held this to be an impermissible violation of the Dormant Commerce Clause of U.S. CONST. art. 1, § 8, cl. 3 and the FPA: "Our cases consistently have held that the commerce clause of the Constitution precludes a state from mandating that its residents be given a preferred right of access, over out-of-state consumers, to natural resources located within its borders or to the products derived therefrom." 455 U.S. at 338.

facility. No State relies solely on its own resources in this respect."[249] State energy market regulatory reforms elected by certain states, which caused utilities to divest their power generation assets and instead purchase power in wholesale markets rather than generate it themselves, have contributed to "a massive shift in regulatory jurisdiction from the states to the FERC."[250]

Federal law creates a "'bright line' between state and federal jurisdiction with wholesale power sales . . . falling on the federal side of the line."[251] If a utility or independent power producer is subject to FERC jurisdiction and regulation over its wholesale power sales, state regulation of the same operational aspects is preempted as a matter of federal law.[252] This so-called "filed-rate doctrine," enacted in 1986, and again in 1988, 2003, and 2008, was upheld emphatically by the Supreme Court.[253]

B. Recent Precedent

If states impose a rate in excess of avoided cost by either "law or policy," the "contracts will be considered to be void ab initio."[254] Wholesale rates for sales in interstate commerce were wholly beyond any state authority.[255] This longstanding precedent was reaffirmed and clarified in a FERC declaratory order in 2010, when California argued that its environmental purposes should make it exempt from preemption in setting above-market wholesale feed-in renewable tariff rates for cogeneration facilities of less than 20 MW and that environmental costs could be considered avoided costs.[256] FERC rejected all of California's arguments regarding generic environmental rationales for wholesale rates in excess of limits under federal law or set by FERC.[257]

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[249] FERC v. Mississippi, 456 U.S. 742, 757 (1982).

[250] *Pub. Util. Dist. No. 1 of Snohomish Cnty. Wash.*, 471 F.3d at 1066.

[251] *Id.* (citing *Miss. Power & Light Co.*, 487 U.S. at 371; *Nantahala Power & Light*, 476 U.S. at 966; *S. Cal. Edison*, 376 U.S. at 215).

[252] *E.g.*, Ark. Power & Light v. Fed. Power Comm'n, 368 F.2d 376, 381 (8th Cir. 1966); *Nantahala Power & Light Co.*, 476 U.S. at 968; Appeal of New England Power Co., 424 A.2d 807, 812–815 (N.H. 1980).

[253] *Entergy La., Inc.*, 539 U.S. at 47 (no residual prudency power of the states to alter federal rate or term); *Miss. Power & Light Co.*, 487 U.S. at 372 (filed rate doctrine applies without exception to state regulation of interstate holding companies); *Nantahala Power & Light Co.*, 476 U.S. at 963 ("This Court has held that the filed rate doctrine applies not only to the federal-court review at issue in Montana-Dakota, but also to decisions of state courts.").

[254] Conn. Light & Power, 70 FERC ¶¶ 61,012, 61,030 (Jan. 11, 1995).

[255] *Id.* ¶ 61,030; Indep. Energy Producers Ass'n v. Cal. Pub. Utils. Comm'n, 36 F.3d 848, 850 (9th Cir. 1994); S. Cal. Edison Co., 70 FERC ¶¶ 61,215, 61,677 (Feb. 23, 1995).

[256] Cal. Pub. Util. Comm'n, 132 FERC ¶¶ 61,047, 61,326 (July 15, 2010).

[257] *Id.* ¶¶ 61,337–38.

The Federal Power Act precludes all state regulation of interstate wholesale power transactions.[258] "Even in the context of market-based rates, FERC actively regulates and oversees the setting of rates" and market-based rates are "within FERC's exclusive jurisdiction over wholesale rates."[259] This renders the European-used option of above-market feed-in tariffs legally unavailable to American states under current law, except in the context of Public Utility Regulatory Policies Act (PURPA) rates limited to purchasing utility avoided cost.[260]

Despite this, some U.S. states are ignoring these issues and moving forward with promotional feed-in tariffs. The relevant case law would seem to create a solid barrier to such action. An important recent decision in California in 2011 held that California has no ability to regulate out-of state energy products (renewable biomass-based ethanol) based on geographic location or the type of electricity used at that geographic location to produce the renewable fuel.[261] The court reiterated that only the federal government can regulate commerce between the states, and California cannot attempt to regulate commerce outside its borders.[262] This decision has significant implications for state regulation of renewable energy and the regulation of greenhouse gases. The court held that "[a]lthough [the state's] goal to combat global warming may be legitimate, it cannot be achieved by the illegitimate means of isolating the state from the national economy."[263]

In 2012, in a much-watched case in Vermont federal court, state attempts to regulate wholesale power pricing and discriminate in favor of in-state power moving in interstate commerce were found to be Dormant Commerce Clause violations and preempted by federal law. A state cannot regulate interstate or wholesale power sales from an in-state facility nor its radiological safety, and cannot discriminate in its sales of interstate power.[264]

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[258] *Nantahala Power & Light Co.*, 476 U.S. at 966; *Miss. Power & Light Co.*, 487 U.S. at 371; *accord* Miss. Indus. v. FERC, 808 F.2d 1525, 1535–49 (D.C. Cir. 1987), *cert. denied*, 484 U.S. 985 (1987).

[259] Pub. Util. Dist. No. 1 of Gray's Harbor Cnty. v. IDACORP, Inc., 379 F.3d 641, 649 (9th Cir. 2004); *accord* Snohomish Cnty. Pub. Util. Dist. No. 1 v. FERC, 471 F.3d 1053, 1080 (9th Cir. 2006), *vacated*, 547 F.3d 1081 (9th Cir. 2008); Morgan Stanley Capital Grp., Inc. v. Pub. Util. Dist. No. 1, 554 U.S. 527, 535–38 (2008); Town of Norwood v. New England Power Co., 202 F.3d 408, 419 (1st Cir. 2000), *cert. denied*, 531 U.S. 818 (2000).

[260] 18 C.F.R. 292.304 (2012).

[261] Order on NPRA Plaintiffs' Summery Adjudication Motion, Rocky Mountain Farmers Union. v. Goldstene, No. CV-F-09-2234 LJO DLB (D. Cal. Dec. 29, 2011).

[262] *Id.*

[263] *Id.*

[264] Entergy Nuclear Vermont Yankee, LLC v. Shumlin, 838 F. Supp. 2d 182 (D. Vt. 2012).

C. Net Metering As Within State Authority

By turning the meter backward, net metering effectively compensates the generator at the full retail rate for transferring just the wholesale energy commodity. While most states compensate the generator for excess generation at the avoided cost or market-determined wholesale rate, some states compensate the wholesale energy seller for the excess at the fully loaded, and much higher, retail rate.

In 2001, FERC[265] held that state net metering decisions were not preempted by federal law. In its decision, FERC held that no sale occurs when an individual installs distributed generation and accounts for its dealings with the utility through the practice of netting.[266] Somewhat ambiguously, it concluded that a change of title to power did not constitute a "sale."[267] Net metering is not deemed a retail or wholesale sale of power, and therefore is not subject to any federal law limitations on its price implications.[268]

FERC determined in *Sun Edison LLC* that net metering, even involving third-party power purchase agreements (PPAs) did not result in a wholesale power sale as long as, on balance, the net amount of power sale was in the direction of the utility to the customer, rather than vice versa.[269] FERC reasoned that electricity is not sold in interstate commerce, so FERC lacks jurisdiction over PPAs. [270] In the *Sun Edison* case, FERC determined the commission lacks jurisdiction over the generator if there is no net sale over the billing period.[271] There is no net sale unless, potentially, the customer sells back more energy than the back up power it consumes within the billing period. [272]

In Rhode Island, a challenge was made to net metering where the wind generator at the Portsmouth High School is directly interconnected to the distribution grid, rather than first serving a substantial host load.[273] The argument was that as an independent wholesale project, it could be paid no more than the avoided cost afforded to qualifying facilities under PURPA, rather than the net

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[265] *See* MidAmerican Energy Co., 94 FERC ¶ 61,340 (Mar. 28, 2001). In March 2001, MidAmerican Energy Company challenged before FERC the state of Iowa's regulations directing MidAmerican to interconnect with three "Alternate Energy facilities and to offer net billing arrangements to those facilities." MidAmerican also requested a declaratory order that federal law preempted these regulations. MidAmerican asked the commission to undertake enforcement action against the Iowa Board, or to issue a declaratory order that the final orders of the Iowa Board are preempted by PURPA. *Id.*

[266] *Id.* ¶ 61,341.

[267] *Id.* ¶ 61,349.

[268] *Id.*

[269] 129 FERC ¶¶ 61,146, 61,620–21 (Nov. 19, 2009).

[270] *Id.* (under the Federal Power Act and the Public Utility Holding Company Act).

[271] *Id.* ¶ 61,120.

[272] *Id.*

[273] Complaint of Benjamin Riggs Relating to Town of Portsmouth Generator Facility, No. D-10-126 (R.I. Pub. Util. Comm'n).

metered calculation, which was approximately 300% of avoided cost.[274] This challenge caused the state, in response, to immediately amend its law.[275]

VI. CONCLUSION

Of particular note, RPS and SBC discrimination does not confront the more formidable constitutional problem faced by state feed-in tariffs for renewable power.[276] In 2010, FERC issued a definitive ruling on state feed-in tariffs that made their constitutional limits clear.[277] It reiterated that the commission's authority under the Federal Power Act includes the exclusive jurisdiction to regulate the rates, terms and conditions of sales for resale of electric energy in interstate commerce.[278] State efforts to regulate wholesale power transactions and to set prices in excess of market prices were entirely stricken.[279] Despite this, RPS and SBC programs, if structured consciously and carefully, remain two state renewable power incentives that can fit within the requirements imposed by the U.S. Constitution. Feed-in tariffs do not so fit.[280]

In part, these jurisdictional and constitutional issues explain why twenty-nine states have adopted RPSs, eighteen states have adopted SBCs, and less than a handful of the contiguous U.S. states have attempted feed-in tariffs.[281] Although feed-in tariffs are the most utilized type of renewable power incentive internationally,[282]in the U.S., they work at the federal level, but do not pass constitutional muster when implemented by states. The recent regulatory challenges in California, Massachusetts, New Jersey, Missouri, Vermont, Colorado, and New York appeared as the opening legal shots in this major battle over implementation of future energy policy.[283] However, "The Good, the Bad, and the Ugly" can be legally navigated: With proper drafting and implementation, the constitutional challenges can be circumvented.

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[274] *Id.*

[275] *Id.*

[276] Ferrey et al., *supra* note 35, at 126.

[277] 16 U.S.C. §§ 824(b)(1), (d)–(e) (2006).

[278] *Id.*

[279] *Id.*

[280] *Id.*

[281] *See generally* DSIRE, U.S. DEP'T OF ENERGY, http://www.desireusa.org (last visited Aug. 15, 2012).

[282] WILSON RICKERSON & ROBERT C. GRACE, THE DEBATE OVER FIXED PRICE INCENTIVES FOR RENEWABLE ELECTRICITY IN EUROPE AND THE UNITED STATES: FALLOUT AND FUTURE DIRECTIONS 1 (2007), *available at* http://www.futurepolicy.org/fileadmin/user_upload/PACT/Learn_more/Rickerson_Grace__2007_.pdf (Eighteen European Union countries, as well as Brazil, Indonesia, Israel, South Korea, Nicaragua, Norway, Sri Lanka, Switzerland, and Turkey use feed-in tariffs).

[283] *See supra* Parts IV.B, V.B.