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Johnny-Come-Lately: Practical Considerations of a National RPS

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The debate as to whether the United States should adopt a national renewable portfolio standard ("RPS") has persisted for years. During this time, the states, largely through their adoption of state-level RPSs, have laid the foundation needed for the creation of a viable renewable energy market. Proponents of a national RPS argue that its enactment is a necessary step toward solving the energy-related challenges faced by the United States. This Commentary Article concludes that a national RPS—arriving at this late stage—may do more to slow the momentum toward the development of a renewable energy industry. The Article describes the current state of the renewable energy market, including the growth of a rather robust market for renewable energy certificates. The Article also considers the practical impact a national RPS may have on the renewable energy market, as well on the policy objectives of the states that have implemented an RPS.

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I. INTRODUCTION

In *Power Forward: The Argument for a National RPS*, Professor Lincoln L. Davies argues that the focus on whether the concept of a renewable portfolio standard ("RPS") has merit is a "wasted effort," since thirty-five states (and the District of Columbia) have RPSs already in place.[1] Instead, he focuses on whether a state-based or federal-based regime will best accomplish the RPSs' objectives—the primary purpose of which he describes as "promoting renewables deployment to, in turn, begin changing the shape of our energy infrastructure."[2] He concludes that a national RPS will best accomplish such objectives and argues that the existing state-based RPSs (i) "prevent the formation of a uniform renewables market" and (ii) "erect[] . . . geographical barriers to trade."[3]

Without disparaging any potential merits of a national RPS, this Commentary Article disputes several of Professor Davies' conclusions. Although a national RPS may seem to be the panacea needed for our climate change and energy security woes, such a program—arriving as late as it does—may do more to slow the United States' current momentum toward the development of a renewable energy industry. This Article describes the current state of the renewable energy market, including the growth of the rather robust market for renewable energy certificates ("RECs")[4] spurred largely by the state RPSs. It also considers the potential impact a national RPS may have on this market as well on the policy objectives of the states that have implemented an RPS.

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[1] Lincoln L. Davies, *Power Forward: The Argument for a National RPS*, 42 CONN. L. REV. 1339, 1397 (2010).

[2] *Id*.

[3] *Id*.

[4] RECs are electronic certificates that represent the non-power attributes of electricity, typically including fuel source and emissions. Typically, one REC is created for every megawatt-hour ("MWh") of electricity generated. CHICAGO CLIMATE FUTURES EXCHANGE, COMPLIANCE RECS (2009), *available at* http://www.ccfe.com/about_ccfe/products/rec-ct/CCFE_REC_Brochure.pdf. Although, as noted by Professor Davies, under certain state RPSs, one REC may represent one kilowatt-hour of electricity generated. *See* Davies, *supra* note 1, at 1378.

II. CURRENT STATE OF THE RENEWABLE ENERGY MARKET

As stated by Professor Davies, thirty-five states and the District of Columbia currently have an RPS in effect.[5] Wishing to address the climate change issue, the states have jumped into the void created by the lack of federal legislative action. The state RPSs, in conjunction with a variety of state[6] and federal financial incentives,[7] have provided the encouragement

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[5] Davies, *supra* note 1, at 1341–42. Note that the number of state RPSs varies depending on the definition used. The DSIRE website currently counts thirty-nine state RPSs, but this includes alternate energy-only standards, such as Iowa's, as well as local, utility-specific, and territory RPSs. DSIRE: Database of State Incentives for Renewables & Efficiency, http://www.dsireusa.org/summarytables/rrpre.cfm (last visited June 17, 2010); *see also* IOWA CODE § 476.43 (2009). For instance, Guam enacted an RPS in March 2008 that establishes a renewable energy portfolio goal of twenty-five percent renewable energy by 2035, beginning with a five percent requirement by December 31, 2015. DSIRE: Database of State Incentives for Renewables & Efficiency, Guam: Renewable Energy Portfolio Goal, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=GU03R&re=1&ee=0 (last visited June 17, 2010).

[6] Several states in New England have enacted legislation under which the electric suppliers are required to enter into long-term power purchase contracts to purchase a percentage of their power from new Class I renewable energy resources. *See* Connecticut Clean Energy Fund, Supplying Clean Energy to Electric Distribution Companies, http://www.ctcleanenergy.com/YourBusinessorInstitution/Project150/tabid/97/Default.aspx (last visited June 17, 2010); *see also* R.I. GEN. LAWS § 39-26.1-3 (2010); S.B. 2768, § 83, 2008 Leg. (Mass. 2008). In addition, some states require their state agencies to procure power from renewable energy resources. For example, Connecticut's Green Power Purchase Plan requires the state government and state universities to purchase a certain percentage of Class I renewable power with a goal of 20% by 2010, and up to 100% by 2050. *See* Exec. Order No. 32 (2004), *available at* http://www.ctenergy.org/pdf/ExOrder32.pdf. Numerous other states, including New York, Massachusetts, and Maine have similar programs. *See* Exec. Order No. 111 (2001), *available at* http://www.nyserda.org/programs/pdfs/exorder111.pdf; Exec. Order No. 484 (2007), *available at* http://www.mass.gov/Agov3/docs/Executive%20Orders/Leading%20by%20Example%20EO.pdf; DSIRE: Database of State Incentives for Renewables & Efficiency, Maine: Green Power Purchasing, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=ME08R&re=1&ee=1 (last visited June 17, 2010). Further, in Connecticut, as of December 2008, more than seven dozen municipalities have committed to purchase "clean energy" up to a minimum of 20% of their electricity consumption by 2010. Open Energy Info, Connecticut Municipalities: Smart Power 20% by 2010 Campaign (Connecticut), http://en.openei.org/wiki/Connecticut_Municipalities_-_SmartPower_20%25_by_2010_Campaign_%28Connecticut%29 (last visited June 17, 2010). Municipalities that meet certain additional criteria are eligible to receive a free renewable energy system, either a wind turbine, a photovoltaic system, or a solar-thermal system, from the Connecticut Clean Energy Fund. *See* Connecticut Clean Energy Fund, About the Connecticut Clean Energy Communities Program, http://www.ctcleanenergy.com/YourCommunity/CTCleanEnergyCommunities/AboutthePrograM/tabid/364/Default.aspx (last visited June 17, 2010). In addition to purchasing requirements, numerous states offer various grants, tax credits, and loan and rebate programs for a variety of renewable energy resources—wind, solar, biomass, and geothermal are among the more common. *See* DSIRE: Database of State Incentives for Renewables & Efficiency, Financial Incentives for Renewable Energy, http://www.dsireusa.org/summarytables/finre.cfm (last visited June 17, 2010).

[7] The Energy Policy Act of 2005 ("EPACT 2005") extended production tax credits ("PTCs") for certain renewable energy resources. *See* NORTHEAST REG'L BIOMASS PROGRAM, RENEWABLE ELECTRICITY PRODUCTION TAX CREDIT: ENERGY POLICY ACT OF 2005 (2005), *available at* http://www.nrbp.org/pdfs/energy_policy_act_2005.pdf (detailing the PTCs of EPACT 2005). EPACT 2005 also authorized loan guarantees for "innovative technologies" that avoid the production of greenhouse gases, including renewable energy, nuclear, and clean coal facilities. *See* Energy Policy Act of 2005, 42 U.S.C. §§ 16511–16513 (2006). The American Recovery and Reinvestment Act of 2009 ("Recovery Act") further extends PTCs for wind, municipal solid waste, geothermal energy, qualified biomass, and hydroelectric and marine/hydrokinetic resources. American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, §§ 1101, 1302, 123 Stat. 115 (2009). The Recovery Act also allows

and flexibility needed by developers to get new renewable energy facilities financed and built.[8]

This flexibility is essential for balancing environmental benefits with cost and reliability concerns.[9] Flexibility also fosters an atmosphere that is more conducive to innovation and the development of new renewable energy and energy efficiency technologies. Further, state legislatures and public utility commissions understand that the construction of new generation requires a compromise between affordability and reliability for customers and profitability for generators.[10] A national RPS focused solely on environmental benefits may create an unworkable regulatory regime from the standpoint of both customers and generators.

That the combination of state and federal financial incentives and state RPSs has been successful is evidenced by a growth in renewable energy generation since 2001. According to the Energy Information Administration, data compiled from 2001 through 2007 illustrate that thirty-six states have increased generation from renewable energy resources, with total renewable energy generation increasing by 22.6% during this time period.[11]

Professor Davies argues, however, that the state RPSs frustrate the purpose of encouraging the development of new renewable energy facilities by creating varying definitions of "renewable energy."[12] Although the disparity between the various state definitions of renewable energy is undisputable, there is little evidence that this variation has deterred the development of new renewable energy facilities. In fact, all state RPSs include those renewable energy resources that most view as the "core"[13]—wind, solar, biomass, landfill gas, and small hydropower.[14] In

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owners of certain PTC-eligible facilities to elect to earn a thirty percent investment tax credit in lieu of the PTC. *Id*. § 1102. Furthermore, the Recovery Act provides for Renewable Energy Grants in lieu of tax credits (the "Section 1603 Grant Program") under which investors may forgo tax credits down the line in favor of an immediate reimbursement of a portion of the facility's expense, equal to thirty percent of the tax basis for the facility, so long as the facility is depreciable or amortizable. *Id*. §§ 1302, 1603.

[8] Mary Ann Ralls, *Congress Got It Right: There's No Need To Mandate Renewable Portfolio Standards*, 27 ENERGY L.J. 451, 460–62 (2006).

[9] *Id*. at 463.

[10] Some states have amended their RPSs to include caps or cost/benefit thresholds. *See* MONT. ADMIN. R. 38.5.8301 (2007); *see also* DSIRE: Database of State Incentives for Renewables & Efficiency, New Mexico: Renewables Portfolio Standard, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NM05R&re=1&ee=1 (last visited June 17, 2010) (detailing New Mexico's two-pronged "Reasonable Cost Threshold").

[11] ELIZABETH DORIS ET AL., NAT'L RENEWABLE ENERGY LAB., STATE OF THE STATES 2009: RENEWABLE ENERGY DEVELOPMENT AND THE ROLE OF POLICY, at xii, 8 (2009).

[12] Davies, *supra* note 1, at 1366.

[13] *Id.* at 1376.

[14] The definition of "small hydropower" varies, but a generating capacity of up to 30 megawatts ("MW") is generally accepted as the upper limit of what can be called small hydropower. There are exceptions, including Maine, whose RPS allows hydroelectric facilities as large as 100 MW, and Vermont, whose RPS allows hydroelectric facilities as large as 200 MW. *See* VT. STAT. ANN, tit. 30 §

addition, all of the existing state RPSs (with the exception of Vermont) include one or more of a "sub-core" of resources—biofuels, geothermal, and a variety of hydrokinetic technologies.[15] Most variations from the core and sub-core resources stem from a particular state's environment or economy. For instance, Maryland's RPS includes poultry-litter incineration as a renewable energy resource to capitalize on the byproduct of a well-established Maryland industry.[16] Pennsylvania, in turn, considers waste coal, coal mine methane, and coal gasification to be renewable resources.[17]

Unlike a national RPS, a state RPS has the flexibility to take advantage of the state's natural resources and local industry. A more narrowly tailored definition of "renewable energy" would thwart the ability of the states to generate clean energy using the resources most readily available to them. A national RPS that only encourages the core and sub-core technologies (or some sub-set thereof) will stifle the kind of ingenuity shown by Maryland in finding a use for the large amount of waste generated by one of its largest industries, or Vermont in using the byproduct of its dairy industry to create clean energy.[18]

Further, as a result of the variation in geography and natural resources,[19] there will always be disparate development of renewable energy across the country. For instance, it is unlikely that a land-locked state such as Kansas would include ocean or tidal resources in its list of eligible technologies. But such exclusion is merely the legislative reflection of the state's environmental reality. Even with a national RPS that includes "ocean/tidal" in its definition of "renewable energy," such a facility would never be built within the state of Kansas given the lack of availability of the resource. Instead, an ocean or tidal facility will inevitably be built in one of the nineteen states (plus the District of Columbia) where ocean/tidal is already an eligible technology.[20]

8002(2)(C) (2008); Energy Info. Admin., U.S. Dep't of Energy, State Renewable Energy Requirements and Goals: Status Through 2003, http://www.eia.doe.gov/oiaf/analysispaper/rps/ (last visited June 17, 2010).

[15] *See* DSIRE: Database of State Incentives for Renewables and Efficiency, Rules, Regulations & Policies for Renewable Energy, http://www.dsireusa.org/summarytables/rrpre.cfm (last visited June 17, 2010).

[16] MD. CODE ANN., PUB. UTIL. COS. § 7-701(m)(2) (2008).

[17] 73 PA. STAT. ANN. § 1648.2 (West 2008).

[18] VT. STAT. ANN. tit. 30, § 8002 (2)(A) (Supp. 2009).

[19] Certain states will always be more suitable for certain technologies: solar in the Southwest; geothermal in the West; and off-shore wind in the coastal states. The National Renewable Energy Laboratory, a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, studies renewable resources and creates Global Information System maps showing concentrations of various energy resources. Resource maps for renewable resources are available at http://www.nrel.gov/gis/maps.html.

[20] Such states include: California, Connecticut, Delaware, Hawaii, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, North Carolina, Oregon, Rhode

In addition, the majority of renewable energy capacity installed within the last couple of years falls into the wind and solar categories (two core technologies that would be included in the definition of "renewable energy" under any national RPS). In 2009, almost 10,000 megawatts ("MW") of new wind capacity was installed[21] and in 2008, 1265 MW of solar capacity was installed.[22] In contrast, other renewable energy technologies, such as biomass and geothermal, continue to increase, but at a much slower pace.[23]

Many commentators may cite these statistics as evidence that a patchwork of state RPSs (and RPSs that favor certain technologies, such as wind and solar, over others) does little to encourage the development of a fully-diversified fleet of renewable energy facilities. The reality, however, is that the majority of states have the natural resources necessary to support one or more of the core renewable energy technologies, which means that the majority of the renewable energy facilities developed in the United States will likely fall into these categories—with or without a national RPS.[24]

Professor Davies also argues that state RPSs erect geographically-based barriers to trade that "undermine the very markets they seek to build."[25] He further states that "without those limits, developers might find it more cost-efficient to build a facility . . . just inside . . . [the] border and transmit the power into [the neighboring state]."[26] To the extent that geographical barriers exist, however, they are more a byproduct of the U.S.

Island, Texas, Utah, Virginia, Washington, and Wisconsin, as well as the District of Columbia. *See* DSIRE, Rules, Regulations & Policies for Renewable Energy, *supra* note 15.

[21] *AWEA Q4 Report: 4,041 MW of New U.S. Wind Capacity*, CLEAN EDGE NEWS, Jan. 26, 2010, http://cleanedge.com/news/story.php?nID=6655.

[22] SOLAR ENERGY INDUS. ASS'N, US SOLAR INDUSTRY YEAR IN REVIEW: 2008, at 1 (2009), *available at* http://www.seia.org/galleries/pdf/2008_Year_in_Review-small.pdf. This total installed capacity includes PV only, since no concentrated solar power ("CSP") facilities were built in 2008, and represents a sixteen percent increase in total installed capacity from 2007. *Id.* As of 2008, CSP projects totaling more than 6000 MW are on the drawing board or under construction. *Id.*

[23] ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, ELECTRIC POWER INDUSTRY 2008: YEAR IN REVIEW 10 (2010), *available at* http://www.eia.doe.gov/cneaf/electricity/epa/epaxlfilees1.pdf.

[24] Despite the protest of many southern states that they lack renewable energy resources, many southern states are rich in biomass, solar, hydroelectric, and off-shore wind resources. Letter from Jim Sullivan, President, Ala. Pub. Serv. Comm'n, et al. to Senator Bingaman et al. (May 31, 2007), *available at* http://www.searuc.org/newsreleases/2007-05-31.pdf; Press Release, U.S. Senate Comm. on Energy & Natural Res., Murkowski Raises Concerns About RPS Proposal (Feb. 23, 2009), *available at* http://energy.senate.gov/public/index.cfm?FuseAction=PressReleases.Detail&PressRelease_id=1e7f9b1c-eae6-4d2d-9e5a-e2b0e4356af7&Month=2&Year=2009. S*ee also* DENNIS CREECH ET AL., LOCAL CLEAN POWER 1 (2009), *available at* http://pdf.wri.org/southeast_local_clean_power.pdf; S. ALLIANCE FOR CLEAN ENERGY, YES WE CAN: SOUTHERN SOLUTIONS FOR A NATIONAL RENEWABLE ENERGY STANDARD 1–3 (2009), *available at* http://www.cleanenergy.org/images/files/SERenewables020911.pdf; UNION OF CONCERNED SCIENTISTS, THE SOUTHEASTERN UNITED STATES CAN BENEFIT FROM A NATIONAL RENEWABLE ELECTRICITY STANDARD 1–2 (2007), *available at* http://www.ucsusa.org/assets/documents/clean_energy/hr969_southeast.pdf.

[25] Davies, *supra* note 1, at 1381.

[26] *Id.*

transmission grid than of the state RPSs and their underlying objectives. As Professor Davies states, "There are three primary power grids in the United States—the Texas Interconnect, the Eastern Interconnect, and the Western Interconnect—and power generally does not flow readily among them."[27] Even with a national RPS in place, wind farms built in the Texas panhandle cannot currently be used to provide clean power to the load centers of the Northeast.[28]

Further, many state legislators have other, equally important (and politically expedient) goals in addition to that of incentivizing the overall development of renewable energy resources. Such goals may include furthering economic development by encouraging developers to build *within* their state borders. They may also include the displacement of "brown" power generated within their borders with clean power generated within their borders. The "barriers" created by the state RPSs are intended to provide the economic incentives needed to attract developers to that state. That said, many state RPSs, such as those in New England, do allow the importing of energy and RECs from adjacent states, thereby encouraging the creation of regional markets.[29] The same is true of many of the western and mid-western states.[30]

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[27] *Id.* at 1362–63 (footnotes omitted). The Texas Interconnect covers most of Texas. The Eastern Interconnect encompasses part of Montana, part of South Dakota, Nebraska, Kansas, Oklahoma, part of Texas, and points east. The Western Interconnect includes the rest of Montana, the rest of South Dakota, Colorado, New Mexico, the rest of Texas, and all points west. *Id.* at 1363 n.139.

[28] This lack of interconnection between the three primary grids may change in the future. The Tres Amigas Project, announced on October 13, 2009, intends to connect the Eastern, Western, and Texas Interconnects via three 5-gigawatt superconductor links. *See* Tres Amigas, Overview, http://www.tresamigasllc.com/about-overview.php (last visited June 17, 2010); Tres Amigas, Events, 10.13.09: Tres Amigas, LLC—Public Announcement, http://www.tresamigasllc.com/events.php (last visited June 17, 2010).

[29] For example, in Connecticut, RPS Class I and II can be satisfied with RECs issued by the New England Power Pool Generation Information System ("NEPOOL GIS") if the RECs are for generation by resources of the respective class located within the ISO New England ("ISO-NE") area, or for energy imported to the ISO-NE area in compliance with the NEPOOL GIS import rule. CONN. GEN. STAT. § 16-245a(b) (2009). Maine regulations provide that renewable and eligible portfolio standards may be satisfied with NEPOOL GIS certificates so long as the source of the certificate is energy physically delivered to the ISO-NE control area. ME. CODE R. § 65-407-311(6)(D) (2010).

[30] For example, in Oregon, only RECs from the Western Renewable Energy Generation Information System ("WREGIS") may be used to satisfy the RPS and WREGIS Operating Rules governing data reporting and verification. OR. ADMIN. R. 330-160-0005 to -0030 (2010). Similarly, in Minnesota, RECs on the Midwest Renewable Energy Tracking System ("M-RETS") may be used for RPS compliance. In the Matter of a Commission Investigation into a Multi-State Tracking and Trading System for Renewable Energy Credits, No. E-999/CI-04-1616, at 2 (Minn. Pub. Util. Comm'n Dec. 18, 2007), *available at* http://www.puc.state.mn.us/portal/groups/public/documents/puc_pdf_orders 010095.pdf. In California, out-of-state renewable energy generation may count toward RPS compliance provided that the facility is near the border and makes its first connection to the transmission network in California, or the facility is connected to the Western Electricity Coordinating Council area, began operating after 2004, delivers power in California, does not violate California environmental laws, participates in the WREGIS system, and for generation facilities outside the United States, is developed and operated with a similar degree of environmental protection as a California facility. CAL. PUB. RES. CODE § 25741 (Deering 2010). Illinois requires in-state generation for RPS compliance until July 2011 unless cost-effective renewable energy resources are not available,

While state RPSs have encouraged the development of renewable energy facilities by providing a market for the buying and selling of clean energy, the development of the regional tracking systems[31] has facilitated the growth of another revenue stream for developers: the REC. The tracking systems are software-based systems that allow the trading of renewable attributes by creating certificates that can be bought and sold without encumbering the associated power markets. The RECs are sold either separately from the energy via bilateral REC contracts, or can be "bundled" with the sale of energy (and often capacity[32]) in bilateral power purchase contracts. Having long-term power purchase and/or REC contracts in place is a critical early step in project development and crucial in obtaining the financing needed to construct a new facility. Without this additional revenue stream, made possible largely by the enactment of state RPSs, it is unlikely that the United States would have had the growth in renewable energy generation that it has witnessed since 2001.

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in which case generation from adjoining states will count. Beginning June 2, 2011, adjoining states' generation can be used alongside in-state generation. 20 ILL. COMP. STAT. 3855/1-75(3)(c) (2008).

[31] The regional tracking systems consist of the following: (i) the NEPOOL GIS, which covers a control area comprised of Connecticut, Massachusetts, New Hampshire, Rhode Island, Vermont, and part of Maine; (ii) PJM's Generation Attribute Tracking System ("GATS") covering the PJM control area, which includes all or part of Pennsylvania, New Jersey, Maryland, Delaware, D.C., Virginia, West Virginia, North Carolina, Kentucky, Ohio, Tennessee, Indiana, Illinois, and Michigan; (iii) WREGIS, developed by the California Energy Commission, Western Regional Air Partnership, and Western Governors Association, which covers the Western Interconnection, including Arizona, California, Colorado, Idaho, Montana, Nebraska, Nevada, New Mexico, Oregon, South Dakota, Texas, Utah, Washington, Wyoming, British Columbia, and Alberta; (iv) M-RETS, serving Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Montana, North Dakota, Ohio, Pennsylvania, South Dakota, Wisconsin, and Manitoba; (v) Michigan Renewable Energy Certification System ("MIRECS") serving Michigan; and (vi) Texas's REC program, managed by ERCOT. *See* Flett Exchange, Environmental Regions, http://www.flettexchange.com/index.php?page=regions (last visited June 17, 2010). In addition, the North American Renewables Registry ("NAR"), launched in June 2009, is available for facilities and regions not covered by any of these other systems. APX, NORTH AMERICAN RENEWABLES REGISTRY (2008), *available at* http://www.apx.com/documents/North-American-Renewables-Registry-Overview.pdf. Lastly, on January 26, 2006, the New York Public Service Commission ordered the development of a tracking system that would be compatible with neighboring systems (NEPOOL GIS and PJM GATS, specifically) as soon as feasibly possible. N.Y. State Pub. Serv. Comm'n, Order Authorizing Additional Main Tier Solicitations and Directing Program Modifications, Case 03-E-0188 (Jan. 26, 2006), *available at* http://documents.dps.state.ny.us/public/Common/ViewDoc.aspx?DocRefId={A64A5FC7-24BF-4FDE-82BC-1793630E5D82}. Recently, the North Carolina Utilities Commission selected a vendor, APX, Inc., to provide registry services for the North Carolina Renewable Energy Tracking System ("NC-RETS"). NC-RETS will allow for the import and export of RECs into and out of the NAR, as well as other tracking systems. Press Release, APX Inc., North Carolina Utilities Commission Selects APX Renewable Energy Tracking Infrastructure (Feb. 4, 2010), *available at* http://www.apx.com/news/pr-North-Carolina-Utilities-Commission-Selects-APX-Renewable-Energy-Tracking-Infrastructure.asp.

[32] "Capacity" means the amount of energy a generation facility can produce, often referred to as the "nameplate capacity" of a facility (i.e., the maximum rated capacity such facility can produce). "Capacity" can also mean the average capacity of a facility (i.e., the average output of the facility over a given period of time). A facility's capacity often varies from its energy output based on a variety of factors—outages, load requirements, cost of power, and in the case of intermittent resources such as wind and solar, environmental factors. In many regions of the United States, separate capacity markets have developed providing another revenue stream for generators.

Further, since many RPSs allow electric suppliers[33] to satisfy their RPS requirements through the purchase of RECs, the tracking systems serve another important role in allowing the electric suppliers and regulators to track compliance with the state RPSs. These tracking systems have, in fact, created a "larger, more liquid market" and have provided electric suppliers with "greater options for compliance"—the very goals Professor Davies seeks from a national RPS.[34]

In addition to these benefits, the tracking systems have done much to weaken any perceived geographic barriers created by certain state RPSs. The tracking systems (mirroring the importing regulations of many of the state RPSs)[35] allow the importing of RECs and energy from adjacent states and, in certain cases, from Canada.[36] In fact, with the recent launching of the North American Renewables Registry ("NAR"), available for generating facilities and regions not covered by any other tracking system, there is no portion of the United States that is without access to a tracking system.[37]

As mentioned above, the revenue stream provided by RECs is important to the financing of a renewable energy project. Therefore, the monetary value of the REC is critically important from the generator's perspective. Proponents often cite the ability of a national RPS to create

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[33] The term "electric suppliers" is used in this Article to refer to retail suppliers of electricity. The electric supplier is the entity directly subject to the RPS, although the various state RPSs may refer to electric suppliers differently. For instance, Arizona's RPS refers to the "Affected Utility," ARIZ. ADMIN. CODE § R14-2-1801 (2008); Massachusetts' RPS refers to "retail supplier," MASS. GEN. LAWS ch. 25A, § 11f (2010); and California's RPS refers to "retail seller," CAL. PUB. UTIL. CODE § 399.12 (West 2010).

[34] Davies, *supra* note 1, at 1378.

[35] *See supra* notes 29–30 (discussing the development of RPSs).

[36] The following tracking system rules address imports: CTR. FOR RES. SOLUTIONS, MIDWEST RENEWABLE ENERGY TRACKING SYSTEM OPERATING PROCEDURES 45–47 (July 2, 2007), *available at* http://www.m-rets.com/resources/M-RETS-Operating-Procedures-07.02.2007.pdf; NEW ENGLAND POWER POOL GENERATION INFO. SYS., OPERATING RULES 12–14 (Jan. 21, 2004), *available at* http://www.nepoolgis.com/GeneralDoc/41439831_6(HARTFORD).pdf; and PJM ENVTL. INFO. SERV., GENERAL ATTRIBUTE TRACKING SYSTEM (GATS) OPERATING RULES 55–59 (Dec. 8, 2008), *available at* http://www.pjm-eis.com/documents/downloads/gats-operating-rules.pdf. WREGIS's Operating Rules contemplate the creation of functionality for imports and exports in section 17 of the Final Operating Rules. W. RENEWABLE ENERGY GENERATION INFO. SYS., WREGIS OPERATING RULES 50 (June 4, 2007), *available at* http://www.wregis.org/Documents.php. The WREGIS Committee Charter, revised July 31, 2009, provides that the Committee will approve protocol agreements for the import/export of WREGIS certificates. Charter of the Western Renewable Energy Generation Information System Committee, July 31, 2009, at 2–3, *available at* http://www.wregis.org/uploads/files/513/WREGIS%20Charter%20Final%20%20%2009July31. NAR is currently working to enable the transfer of credits between tracking systems.

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[37] In addition, realizing that the possible enactment of a national RPS may require importing/exporting capabilities among the various tracking systems, the Environmental Tracking Network of North America, a voluntary association of tracking systems, registries, state regulators, and interested market participants, has issued a White Paper addressing this issue. *See* ENVTL. TRACKING NETWORK OF N. AM., INTER-REGISTRY REC TRANSFERS WHITE PAPER 1, 3 (Aug. 25, 2009), *available at* http://www.etnna.org/images/PDFs/ETNNA-Inter-registry-Import-Export-final-8-25-09.pdf.

lower priced clean energy and RECs.[38] Generators, however, do not want low REC prices, nor are they concerned about uniformity in price, unless those prices are uniformly high. The generators are interested in maximizing their revenue stream to lower their (and their lender's) risk and meet their financing obligations. To the extent an assured revenue stream will lower risk and thereby lower the risk premium built into the financing, the resulting lower interest on the developer's debt may translate into lower energy costs for customers. Rather than encouraging the development of new renewable energy resources, low REC prices tend to have the opposite effect.

The monetary value of an REC is driven by several factors. First, the requirements of a state RPS will often promote certain types of renewable energy over others. This is apparent by either the establishment of various "classes" of eligible technologies and/or the inclusion of "multipliers" or "adders." For instance, Connecticut's RPS has three distinct classes of eligible technologies. Class I resources include solar, wind, fuel cells, methane gas from landfills, ocean thermal power, wave or tidal power, low emission advanced renewable energy conversion technologies, certain run-of-the-river hydropower facility (less than 5 MW) that began operation after July 1, 2003, or certain sustainable biomass facilities.[39] Class II resources include energy derived from a trash-to-energy facility, certain biomass facilities that began operation before July 1, 1998, or certain run-of-the-river hydropower facility (less than 5 MW) that began operation prior to July 1, 2003.[40] Class III resources include the electricity output from combined heat and power systems that are part of customer-side distributed resources developed at commercial and industrial facilities in Connecticut on or after January 1, 2006, a waste heat recovery system installed on or after April 1, 2007, or the electricity savings created in Connecticut from conservation and load management programs begun on or after January 1, 2006.[41] The value of a Class I REC tends to be significantly higher than the value of Class II or Class III RECs.[42]

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[38] Davies, *supra* note 1, at 1374–75; *see also* UNION OF CONCERNED SCIENTISTS, FACT SHEET: A NATIONAL RENEWABLE ELECTRICITY STANDARD WILL BOOST THE ECONOMY AND PROTECT THE ENVIRONMENT (Mar. 2009), *available at* http://www.ucsusa.org/clean_energy/solutions/renewable_energy_solutions/clean-energy-green-jobs.html (stating that a national renewable electricity standard will lead to $64.3 billion in lower electricity and natural gas bills by 2025).

[39] CONN. GEN. STAT. § 16-1(26) (2009).

[40] *Id.* § 16-1(27).

[41] *Id.* § 16-1(44).

[42] Like any market-based value, the values fluctuate depending on supply and demand. In December 2009, however, Class I RECs were priced at $23.50–$25.50. Evolution Markets, *REC Markets—December 2009: Monthly Market Update* (Dec. 2009), *available at* http://new.evomarkets.com/pdf_documents/December%20REC%20Market%20Update.pdf. In October 2009, a Connecticut Class II REC was selling for an average price of $1.10. Press Release, Evolution Markets, Evolution Markets Completes Auction of Massachusetts, Connecticut, New Hampshire and Rhode Island RECs for the Massachusetts Renewable Energy Trust (Oct. 21, 2009), *available at* http://new.evomarkets.

Multipliers or adders inflate the value of one type of renewable energy over another. For example, under Nevada's Energy Portfolio Standard, a 2.4 multiplier has been applied to solar photovoltaics ("PV"); therefore, a facility producing one kilowatt-hour of electricity from a PV system in Nevada will be credited 2.4 RECs rather than 1 REC.[43]

Second, REC values are also determined by the needs of the electric supplier that must satisfy the state RPS. Each RPS requires an electric supplier to provide some minimum percentage of their retail load using renewable energy with such percentage increasing on an annual basis. For instance, under Connecticut's RPS, in 2010, an electric supplier must supply seven percent of its retail load using Class I renewable energy, three percent using Class II or additional Class I, and four percent with Class III.[44] These annual requirements determine the amount and types of RECs the electric supplier must purchase and thus drive the demand for certain RECs within the market.

Lastly, REC values are affected by supply and demand. If, for instance, the demand for Class I RECs created by an RPS is close to or equal to the supply of RECs eligible for that RPS, REC prices tend to rise to a price near the state RPS's alternative compliance payment price ("ACP"). If that demand is less than the supply of those RECs, REC prices tend to drop to a price substantially below the state ACP.

III. OTHER PRACTICAL IMPLICATIONS

Many of the articles favoring enactment of a national RPS fail to consider some of the very real, practical impacts a national RPS may have on the momentum of the current renewable energy market, as well as on the policy objectives of the states that have enacted RPSs.

A. *Momentum of Renewable Energy Markets*

1. *State RPSs and REC Markets*

Given that many of the state RPSs have requirements that are more stringent than those in the American Clean Energy and Security Act Bill (the "Waxman-Markey Bill"),[45] the question of what happens when a

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com/pdf_documents/Evolution%20Markets%20Hosts%2012th%20New%20England%20REC%20Auction.pdf. Recent market prices for Connecticut Class III RECs were not available at the time of this publication.

[43] NEV. REV. STAT. § 704.7822 (2009). In addition to Nevada, multipliers can be found in the following state RPSs: Arizona, Colorado, Delaware, Maine, Michigan, Virginia, Washington, and West Virginia. ARIZ. ADMIN. CODE § R14-2-1806 (2008); COLO. REV. STAT. § 40-2-124 (2009); DEL. CODE ANN. tit. 26, § 356 (2009); ME. REV. STAT. ANN. tit. 35-A, § 3605 (2009); MICH. COMP. LAWS. § 460.1039 (2010); VA. CODE ANN. § 56-585.2 (2010); WASH. REV. CODE § 19.285.040 (2010); W. VA. CODE § 24-2F-4 (2010).

[44] CONN. GEN. STAT. §§ 16-245a, 16-243q (2009).

[45] American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (2009).

national RPS is layered over the existing state RPSs is a fundamental one. Under the Waxman-Markey Bill, there is no state preemption issue. Although all states must satisfy the national requirements, the Waxman-Markey Bill allows state RPS requirements to exceed those in the proposed national RPS. The languishing Senate bill[46] also allows state RPSs and includes eligible renewable technologies similar, but not identical, to those allowed in the Waxman-Markey Bill. It is unclear whether technologies eligible under a state RPS but not under a national RPS would still be permissible. Even if such technologies were permitted, but would earn only state RECs, the question remains as to whether such facilities would ever get built when eligible for only part of the revenue stream. Financially, it would make more sense to build facilities that would qualify under both state and national RPSs.

Both bills contemplate a dual REC, where each megawatt-hour of energy produced from a renewable energy facility would earn one federal REC and one state REC. Although workable, such a system could be more cumbersome to implement and administer, requiring a duplication of efforts and cost.

An alternative not contemplated by either bill would be to make eligibility for national RPS compliance just another "attribute" on a REC issued by any of the existing tracking systems. This federal attribute could still be unbundled from the state REC and sold or transferred separately. Such a system would be less confusing for those already in the market and would minimize implementation and administrative costs.

Assuming the federal attribute is unbundled, or federal RECs are wholly separate from state RECs, the potential for double-counting under a national RPS becomes another possible concern—one not fully addressed by either bill. Although the federal bills prohibit double-counting of federal RECs, they do not address or attempt to mitigate the consequences of counting a REC representing one megawatt-hour of generation at both the state and federal levels. If a state RPS's annual requirements exceed those under the national RPS, in regulated states where utilities own the generation, the utilities will have more federal RECs than needed for their own federal compliance. These utilities would likely seek to sell their surplus federal RECs on the market to lower their compliance costs. If, however, these surplus federal RECs are purchased by other utilities to satisfy their compliance obligations, the more stringent state RPS requirement may be undercut. Instead of driving high REC prices and additional generation, compliance with stringent state RPSs would in effect be subsidized by the sale of the federal attribute of the REC. Such surplus federal RECs could be used by a utility in another state to satisfy its federal

[46] American Clean Energy Leadership Act of 2009, S. 1462, 111th Cong. (2009).

compliance requirement without creating any additional generation. To avoid this outcome, the national RPS would have to require that a federal REC be retired for every state REC used for state compliance.

Concerns regarding double-counting have also been raised by participants in the voluntary REC markets.[47] Green-e® and other certification program rules prohibit the use of a REC for compliance with a state RPS program *and* the selling of the same REC in the voluntary REC market. The reasoning is that the renewable energy a customer buys should be above and beyond what would otherwise have occurred without the REC purchase.[48] The same reasoning would have to be applied to any national RPS program, such that a federal REC could either satisfy the national requirement *or* be sold in the voluntary REC market, but not both.

2. *Tracking Systems*

The question of whether the federal government needs to create yet another tracking system to transfer and monitor federal RECs must also be addressed. The Waxman-Markey Bill directs the Federal Energy Regulatory Commission to work with the existing regional and state tracking systems "to the extent practicable."[49] As shown above, however, states are heavily invested in the existing tracking systems and rely on such systems to avoid double-counting. The only viable options to avoid double-counting are (i) to use the existing tracking systems for both federal and state purposes; or (ii) to use a new federal tracking system for both state and federal RECs.[50] It would seem easier and less costly to modify the existing tracking systems than to create an entirely new one.[51]

The creation of another system to track only federal RECs would be a costly duplication of efforts, adding to the compliance costs of electric suppliers and administrative costs of generators.[52] For instance, electric suppliers would have to provide sufficient staff to monitor compliance and reporting requirements under both state and federal programs. In the case of electric suppliers located in states that do not currently have RPS

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[47] ENVTL. TRACKING NETWORK OF N. AM., ETNNA WHITE PAPER SYSTEM CHANGES TO SERVE A FEDERAL RES 10 (2009), *available at* http://www.etnna.org/images/PDFs/ETNNA-WHITEPAPER_System-Changes-to-Serve-a-Federal-RES-final1.pdf.

[48] *Id*.

[49] H.R. 2454, § 101 (adding § 610(c)(2) of Title VI of the Public Utility Regulatory Policies Act of 1978).

[50] ENVTL. TRACKING NETWORK OF N. AM., *supra* note 47, at 1.

[51] In addition to modifying the individual tracking systems to track, transfer, and modify federal RECs, the various systems could be modified to communicate with one another to facilitate the transfer of RECs between such tracking systems. This modification is eased by the fact that all of the existing tracking systems were developed by APX, Inc. APX, Renewable Energy Market Infrastructure, http://www.apx.com/environmental/renewable-energy-market-infrastructure.asp (last visited June 17, 2010).

[52] Joshua P. Fershee, *Changing Resources, Changing Market: The Impact of a National Renewable Portfolio Standard on the U.S. Energy Industry*, 29 ENERGY L.J. 49, 62–63 (2008).

requirements, the enactment of a national RPS would require new staffing and acclimation to an entirely new program and market. Such additional costs would eventually find their way to the customers.[53]

3. *Existing Contracts*

Federal RECs may also inadvertently create uncertainty with respect to ownership rights under certain, existing power purchase and REC contracts that are silent as to federal RECs, resulting in both parties claiming rights to the new commodity and associated revenue streams. The current bills only address *power purchase contracts* that are silent as to ownership. The bills propose giving the federal RECs to the utility purchasing the power. The bills, however, fail to address the following scenarios: (i) pre-existing REC contracts (without a separate power purchase contract, i.e., the power is sold in the spot market); (ii) pre-existing contracts for RECs bundled with energy; and (iii) pre-existing power purchase contracts that are silent because a separate contract with a third party conveys the RECs. A straightforward solution would be to ensure that unless a contract states otherwise, all federal RECs are conveyed to the purchaser of the state RECs. Language implementing this solution would need to be incorporated into the final bill.

B. *State Policy Objectives: Does a National RPS Get Them There?*

One of the primary questions that should be asked by our federal legislators prior to the enactment of a national RPS is whether a national RPS will provide the correct incentives. While it may serve to reduce CO_2 emissions overall (and there is still no evidence that a national RPS will fulfill this obligation more effectively than will a patchwork of state RPSs), will a national RPS undercut state policy objectives?

For instance, there may be limited incentive for a wind developer to build a large wind farm in New England, where costs are higher, large tracts of land are scarcer, and public opposition is more strident,[54] than to build such project in a more "wind friendly" state such as Texas. The New England governors, however, are very interested in enticing wind developers to the region to support the development of cost-effective, clean

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[53] Edison Electric Institute has argued that a national RPS would lead to a rise in electricity prices. *See Renewable Electricity (Portfolio) Standards*, BRIGHTERENERGY.ORG, Jan. 15, 2010, http://www.brighterenergy.org/3972/faq/faq-legislation/renewable-electricity-portfolio-standard/.

[54] John M. Broder, *Decision Promised Soon on Cape Cod Wind Farm*, N.Y. TIMES, Jan. 14, 2010, at A22; Richard Creaser, *In Barton—Wind Opposition Unanimous But Does It Come Too Late?*, CHRONICLE, WEEKLY J. ORLEANS COUNTY, Jan. 17, 2007, http://www.bartonchronicle.com/index.php/wind-power-sheffield/in-barton-wind-opposition-unanimous-but-does-it-come-too-late.html; Chris Jensen, *Proposed Windfarm in Millsfield Is Drawing Opposition*, N.H. PUB. RADIO, Oct. 7, 2008, http://www.nhpr.org/node/18028; Save Our Sound, Alliance To Protect Nantucket Sound, http://www.saveoursound.org (last visited June 17, 2010).

energy and to secure local energy resources.[55] They believe the region has over 10,000 MW of combined off-shore and on-shore wind on which to capitalize.[56] State RPSs that encourage the construction of new wind by offering multipliers, high REC prices, and other benefits can serve as an inducement. A national RPS that provides the equivalent incentives will, however, encourage development in areas where wind developers already have experience, contacts, and knowledge of state and local regulations, as well as in those states where it is cheaper to do so—creating a significant disadvantage for the other states.

Furthermore, will a national RPS that encourages the development of new renewable energy generation wherever it is cheaper and easier to build result in the pooling of fossil fuel plants in areas less favorable to renewable energy? Wind and concentrated solar facilities, for instance, need large tracts of land, in addition to good wind and/or solar access. These requirements mean that such facilities are more likely to be built in the western portion of the United States and hundreds of miles from the nearest load centers. Remotely located renewable energy facilities require new transmission to move the power from the facility to the load centers. Under a federal system, who bears this cost? If it is the developer, the costs will likely be pushed on to the off-takers of the power (i.e., the utilities and electric suppliers), which means it will eventually be pushed down to the customers. If the federal government elects to subsidize the construction of new transmission, query whether it is fair to spread these transmission costs across the entire country through a federal tax, when the economic benefits are so localized.

Alternatively, coal plants will continue to be built in areas where it is cheaper to build coal, either by virtue of proximity to fuel, lack of public opposition, and/or a strong coal industry presence. For this reason, many opponents of a national RPS have argued that it would penalize certain states, especially southern states, whose natural resources and location may not be ideal for the construction of certain types of renewable energy facilities or, conversely, who have ready access to fossil fuel resources.[57] Such opponents have argued that a national RPS would act as a wealth drain with all the money from such states flowing out to pay for RECs to comply with the national RPS with no hope of new generation (and the

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[55] NEW ENGLAND GOVERNORS' RENEWABLE ENERGY BLUEPRINT 5 (2009), *available at* http://www.nescoe.com/uploads/September_Blueprint_9.14.09_for_release.pdf.

[56] *Id*.

[57] *See Renewable Energy Standard Portfolio: Testimony Before the S. Comm. on Energy and Natural Res.*, 111th Cong. 6 (2009) (statement of David Wright, Chairman, Southeastern Ass'n of Regulatory Util. Comm'n); Robert J. Michaels, *National Renewable Portfolio Standard: Smart Policy or Misguided Gesture?*, 29 ENERGY L.J. 79, 110–11 (2008); Jim Rossi, *The Limits of a National Renewable Portfolio Standard*, 42 CONN. L. REV. 1425, 1431 (2010); Anne C. Mulkern, *Lobbyists Sparring Over Details of RPS Bill*, GREENWIRE, Mar. 16, 2009, http://www.eenews.net/Greenwire/2009/03/16/1/.

related boost to the local economy through the creation of jobs) being built within their state borders.[58]

IV. CONCLUSION

Despite arguments to the contrary—and there are many[59]—there appears to be little hard evidence that a national RPS would ensure a more diversified, clean energy supply that would be both more reliable and more cost-effective. Rather, the adoption of a national RPS at this stage—years into the development of a U.S. renewable energy market—may slow down, if not halt, the very momentum federal legislators seek to stoke.

In addition, there are a host of factors that impact the development of renewable energy generation and markets upon which a national RPS will have little effect, including: the availability of financing; transmission and reliability issues; land use constraints; public support for, or opposition to, certain renewable energy resources (e.g., wind); and energy costs, which vary widely across the country. Each of these factors is a potential hurdle to the development of new renewable energy generation. Although a national RPS may provide a single definition of renewable energy and impose a national requirement on electric suppliers to purchase a certain percentage of their load from such renewable energy resources, in overcoming the above hurdles, a national RPS offers no more than its state brethren.

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[58] Fershee, *supra* note 52, at 60 n.74.

[59] *See, e.g.*, NAVIGANT CONSULTING, JOBS IMPACT OF A NATIONAL RENEWABLE ENERGY STANDARD (Feb. 2010) (report prepared for the RES Alliance for Jobs), *available at* http://www.res-alliance.org/public/RESAllianceNavigantJobsStudy.pdf; Davies, *supra* note 1, at 1341–42, 1374, 1382; Robin J. Lunt, *Recharging U.S. Energy Policy: Advocating for a National Renewable Portfolio Standard*, 25 UCLA J. ENVTL. L. & POL'Y 371, 373–76 (2007); Christopher Cooper & Benjamin Sovacool, *Maryland Shouldn't Pay for South's Pollution*, BALT. SUN, July 27, 2007, at 17A; Thomas L. Friedman, *Mother Nature's Dow*, N.Y. TIMES, Mar. 29, 2009, at WK9; Press Release, American Wind Energy Ass'n, Industry Leaders Call for Immediate Passage of Key Policies To Create Jobs and Maintain American Competitiveness (Feb. 9, 2010), *available at* http://www.awea.org/newsroom/releases/02-09-10_2010_Renewable_Energy_Outlook_for_2010.html.