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State-Level Renewable Energy Policy: The South Dakota Case Study  
Senior Honors Capstone

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## INTRODUCTION

“It’s a foundation built upon five pillars that will grow our economy and make this new century another American century... The third pillar of this new foundation is to harness the renewable energy that can create millions of new jobs and new industries. We all know that the country that harnesses this energy will lead the 21st century. Yet we have allowed other countries to outpace us on this race to the future.”<sup>1</sup>

- President Barack Obama

President Barack Obama has acknowledged the threat of global climate change and the need for the United States to capitalize on the economic opportunities associated with the expansion of renewable energy. Energy issues are expected to be a top priority for both the President and for the 111<sup>th</sup> Congress; however, it remains to be seen whether policymakers will move beyond optimistic rhetoric and begin taking action to encourage the growth of the renewable energy industry. Despite the gradual increase in its development, renewable energy accounts for only a small portion of the United States electricity consumption. Wind energy is the renewable energy technology that has experienced the largest growth in recent years and has achieved the greatest cost competitiveness with traditional energy generation. The United States has an excellent wind resource, particularly in the Midwestern Region from North Dakota to Texas. The American wind energy industry has grown in its installed wind energy capacity at a rate of twenty to thirty percent per year over the past decade.<sup>2</sup> Before America’s wind resource can be fully harnessed, certain challenges must be overcome.

State-level public policy has served as a significant driver of wind energy development in the United States. There is a breadth of literature on renewable energy policy, but insufficient research and analysis has been written on the challenges thwarting rapid wind energy

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<sup>1</sup> U.S. President Barack Obama, “Obama’s Remarks on the Economy,” Speech at Georgetown University, *The New York Times*, April 14, 2009, <http://www.nytimes.com/2009/04/14/us/politics/14obama-text.html?pagewanted=6>.

<sup>2</sup> Robert Thresher, Michael Robinson, and Paul Veers, “To Capture the Wind: The Status and Futures of Wind Energy Technology,” *IEEE Power & Energy Magazine* 5 (Nov/Dec 2007): 35.

expansion in rural states. The state of South Dakota is used as a case study to explore the unique challenges facing rural states. South Dakota, despite having the fourth most significant wind energy resource, is ranked nineteenth in its installed wind capacity in the United States. By researching the situation in South Dakota, this paper aims to identify some of the obstacles experienced by rural states and to evaluate policy remedies that may help South Dakota and other rural states overcome shared problems.

### **TECHNICAL, ENVIRONMENTAL, AND SOCIAL CHALLENGES**

At present, the United States remains highly reliant on traditional electric generation resources. Coal, petroleum, natural gas, and other mined fuels provide 75 percent of the nation's electricity.<sup>3</sup> In addition to the environmental consequences associated with fossil fuel emissions, proponents of renewable energy argue the country's high dependence on foreign energy creates a security risk. The United States imports approximately 60 percent of its oil and has already consumed 82 percent to 88 percent of its oil reserve.<sup>4</sup> In 20 years, projections suggest that the United States will import 80 to 90 percent of its oil.<sup>5</sup> Increasingly, there are those who believe the United States' high dependence on foreign oil makes the country vulnerable to other foreign nations. According to Tom Hassenboehler, Minority Council for the U.S. Senate Committee on Environment and Public Works, "one thing all [elected officials]

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<sup>3</sup> David Pimentel, Megan Herz, Michele Glickstein, Mathew Zimmerman, Richard Allen, Katrina Becker, Jeff Evans, Benita Hussain, Ryan Sarsfeld, Anat Grosfeld, and Thomas Seidel, "Renewable Energy: Current and Potential Issues," *BioScience* 52 (2002): 1111, Accessed from JStor on 21/11/2008. [www.jstor.org/stable/1314412](http://www.jstor.org/stable/1314412).

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

can agree on is that we want energy security.”<sup>6</sup> Increasingly, renewable energy policy and climate change policy is gaining political salience.<sup>7</sup>

However, the expansion of wind energy is confronted with many challenges ranging from limitations in the existing transmission infrastructure to ecological concerns, which delay its expansion. While these two obstacles will be further discussed, there are a host of other challenges facing the wind industry as the resource reaches higher penetration levels, including wind resource variability, a backlog in transmission interconnection requests, and contractual barriers in accessing the transmission grid.

One of the largest obstacles hindering the expansion of wind energy is limited capacity in the existing transmission system. The strongest wind resources are often located in isolated areas where there is limited transmission and small energy demand. Therefore, to increase national wind penetration levels, transmission development is necessary to interconnect abundant renewable resources, often located in isolated areas, to the transmission grid.<sup>8</sup> At present, wind energy has been developed in areas with an excellent wind resource that are conveniently located close to load centers where transmission capacity is adequate.<sup>9</sup> Development will soon exhaust the transmission capacity near these prime locations. If wind energy is to continue being developed, future wind energy will be located far from load centers and will require additional transmission infrastructure. In the near future, until transmission

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<sup>6</sup> Tom Hassenboehler, interview by author, Washington, DC, November 4, 2008.

<sup>7</sup> U.S. Representative Stephanie Herseth Sandlin, interview by author, Washington, DC, December 8, 2008.

<sup>8</sup> J. Charles Smith and Brian Parsons, “What Does 20% look like: Developments in wind technology and systems,” *IEEE Power & Energy Magazine* (Nov/Dec 2007): 22.

<sup>9</sup> Alfred J. Cavallo, Center for Energy and Environmental Studies, Princeton University, “High-Capacity Factor Wind Energy Systems,” *Journal of Solar Energy Engineering* 117 (1995): 137.

limitations are resolved, it is likely future projects may be stymied because of insufficient transmission capacity.<sup>10</sup>

The challenge facing transmission expansion can be viewed as a “chicken or the egg” dilemma. Transmission developers are unable to build to attractive wind locations because there is no existing load, and wind developers are unable to construct wind plants in wind rich locations outside of the existing grid.<sup>11</sup> Both transmission and wind developers are confronted with significant financial risk with no guarantee that their investment will pay off.<sup>12</sup> According to Joel Beauvais, Counsel for the U.S. House of Representatives Select Committee on Energy Independence and Climate Change, “It is not worth the risk for merchant transmission builders to build out to nowhere with no guarantee of wind development, and wind developers will not build a project if there is no transmission.”<sup>13</sup> Considering this dilemma, wind developers are often forced to construct wind plants in regions with less robust wind resources.

The development of wind energy can arouse concerns that wind plants may disrupt local ecosystems, which represents another obstacle encumbering wind resource development. The construction of wind plants can affect local ecosystems, but environmental impact assessments and mitigation can reduce the risk of ecological disruption.<sup>14</sup> Studies have shown that habitat loss due to wind plant development may have a significant impact on migratory species, depending upon plant siting and migratory patterns. Studies have shown the presence of wind plants can reduce bird densities in certain areas. Grassland bird populations were found to have a higher density on land greater than or equal to 80 meters from wind turbines. At the

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<sup>10</sup> Ibid.

<sup>11</sup> Richard Piwko, Robert DeMello, Robert Gramlich, Warren Lasher, Dale Osborn, Carl Dombek, and Kevin Porter, “What Comes First,” *IEEE Power & Energy Magazine* (Nov/Dec 2007) : 69.

<sup>12</sup> Ibid.

<sup>13</sup> Joel Beauvais, Counsel for the Select Committee on Energy Independence and Global Climate Change, Interview by author, November 18, 2008.

<sup>14</sup> Bob Gough, Intertribal Council on Utility Policy Lecture, Pine Ridge, SD, June 23, 2008.

Buffalo Ridge Resource Area in Minnesota, there has been a sharp decrease in the density of birds and bat species since the turbines were erected in the area.

The loss of habitat should be considered before pursuing the development of a wind plant, and plants should be built on agricultural lands, if possible, to reduce ecological disruption elsewhere. Wind energy development can often co-locate with other agricultural industries. Most of the land required for a wind plant leaves the majority of the land unencumbered because the wind plant only directly occupies two percent of land required for turbine spacing.<sup>15</sup> Therefore, land remains available for farming and grazing.<sup>16</sup> Constructing a wind plant on agricultural land, instead of on non-agricultural land, can reduce the ecological impact because the land and ecosystem has already been disrupted.<sup>17</sup>

The effect of wind turbine collision fatalities on migratory bird and bat species is another principal ecological concern. If a wind plant is sited without paying heed to the surrounding ecosystem and migratory patterns, wind energy development can effect local wildlife populations.<sup>18</sup> Scientists have determined that certain types of bird species are disproportionately impacted by turbine collisions, such as raptor populations that have longer life spans and lower reproductive potential.<sup>19</sup> Turbine bird kill projections have shown the estimated 13,000 turbines in the United States kill fewer than an approximately 300 birds per year.<sup>20</sup> Further precautions can be taken to reduce the risk to migratory aerial species, such as

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<sup>15</sup> Ibid.

<sup>16</sup> Ibid.

<sup>17</sup> William P. Kuvlesky, Jr, Leonard A. Brennan, Michael L. Morrison, Kathy K. Boydston, Bart M. Ballard, and Fred C. Bryant, "Wind Energy Development and Wildlife Conservation: Challenges and Opportunities," *The Journal of Wildlife Management* 71 (2007): 2493.

<sup>18</sup> William P. Kuvlesky, Jr, et al, "Wind Energy Development and Wildlife Conservation: Challenges and Opportunities," 1113.

<sup>19</sup> Ibid.

<sup>20</sup> R. Kerlinger, "Avian Mortality and Communication Towers: A Review of Recent Literature, Research, and Methodology," US Fish and Wildlife Service, Office of Migratory Bird Management (2000).

wind plants being located at least 300 meters from nature reserves.<sup>21</sup> These numbers can be further reduced with proper citing and improved repellent technology, such as strobe lights or paint patterns.<sup>22</sup>

There are a host of additional environmental concerns relating to wind energy development, ranging from the threat of noise pollution to the obstruction of natural scenery. Noise is produced from the rotating blades of a turbine; however, past 2.1 kilometers, even the largest turbines become inaudible.<sup>23</sup> At a distance of 400 meters away from a turbine, the noise level is comparable to that of a home air conditioning unit at approximately 56 decibels.<sup>24</sup> This is a concern that does not pose significant threat to humans; however, there is a need for more research to be conducted to study the affect of this noise on wildlife.

Aesthetic arguments represent another type of challenge facing the expansion of wind energy. Public perception of wind energy tends to vary widely with some individuals viewing turbines as visually pleasing, while others view them as “intrusive industrial machines.”<sup>25</sup> While research has generally shown strong support for wind energy, in general, there is significantly less support for wind projects located close to an individual’s home, which is known as the Not In My Back Yard (NIMBY) phenomenon.<sup>26</sup> There are many factors aggravating these aesthetic arguments. Wind plants must be developed in areas where a suitable resource, transmission lines, and access exist. Particularly in the eastern United States, these locations are often located at high elevation (e.g. mountain ridgelines) and are highly

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<sup>21</sup> A. Clarke, “Wind energy progress and potential,” *Energy Policy* 19 (1991): 742.

<sup>22</sup> Ibid.

<sup>23</sup> David Pimentel. et al, “Renewable Energy: Current and Potential Issues,” 1114.

<sup>24</sup> Ibid.

<sup>25</sup> *Environmental impacts of wind-energy projects*, National Research Council (U.S.). Committee on Environmental Impacts of Wind-Energy Projects, National Academies Press, 2007, 142.

<sup>26</sup> Ibid, 143.

visible.<sup>27</sup> While early wind development often occurred in remote areas, modern wind energy development has been built or proposed for areas closer to residential or recreational use.<sup>28</sup> As the public is exposed to wind energy development, public tolerance appears to grow.<sup>29</sup> In addition, arguments can be reduced through computer simulation to evaluate visual aesthetics.

Concerns pertaining to wind energy expansion should be understood and efforts should be taken to mitigate the industry's effect on the environment and vulnerable ecosystems. Proponents of wind energy often claim the benefits of wind energy outweigh the potential threats, especially when precautionary measures are followed. However, the concerns of communities anticipating future wind energy development should be addressed.

Although there are a host of challenges delaying wind energy development in the United States, these challenges are not insurmountable. Action can be taken by both federal and state governments to encourage the expansion of the wind industry, as well as other renewable energy technologies. Cost competitiveness is an important factor when discussing potential growth within the wind energy industry. The wind energy cost differential between traditional energy sources has narrowed; yet in many areas of the country, wind energy remains a more expensive power source than traditional energy generation. Greater cost competitiveness is likely to occur with future technological advancements, which will expedite the integration of wind energy into the United States energy portfolio.<sup>30</sup> Additionally, if the United States Congress were to pass a national renewable portfolio standard, carbon auction, or

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<sup>27</sup> Ibid

<sup>28</sup> Ibid.

<sup>29</sup> Margurite Kelly, Senior Project Manager, National Renewable Energy Laboratory, Wind Powering America, interview by author, Golden, CO, June 7, 2008.

<sup>30</sup> Benjamin K. Sovacool, "Coal and nuclear technologies: creating a false dichotomy for American energy policy," 109.

\*A Renewable Portfolio Standard (RPS) is a requirement that utilities must produce a specified percentage or amount of renewable energy by a given date.



pricing legislation, wind energy would increasingly become competitive with traditional generation resources.<sup>31</sup>

## **NATIONWIDE WIND ENERGY DEVELOPMENT: POLICY STRATEGIES AND ECONOMIC AND ENVIRONMENTAL OUTCOMES**

### **STATUS OF WIND ENERGY GENERATING CAPACITY**

In recent years, the United States wind industry has experienced dramatic growth. As of December 31, 2008, the United States has 25,170 megawatts<sup>32</sup> of wind power capacity, making it the leader in global wind energy generation; however, the country is not the leader in per capita wind energy generating capacity.<sup>33</sup> Wind energy in the United States accounts for less than 2 percent of the country's electricity load.<sup>34</sup> In Europe, the 8,660 megawatts of wind capacity added in 2007, accounts for 40 percent of all new power generation.<sup>35</sup> Wind energy now meets 4 percent of Europe's electricity demand and in certain countries wind energy

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<sup>31</sup> Interview with Todd Schleckeway, SD State Representative (District 11), interview by author, Pierre, SD, March 13, 2009.

<sup>32</sup> "Wind Energy Basics," American Wind Energy Association, [http://awea.org/faq/wwt\\_basics.html#What%20is%20wind%20energy](http://awea.org/faq/wwt_basics.html#What%20is%20wind%20energy).

\*According to the American Wind Energy Association: The gigawatt (symbol: GW) is equal to one billion watts. The ability to generate electricity is measured in watts. Watts are very small units, so the terms kilowatt (kW, 1,000 watts), megawatt (MW, 1 million watts), and gigawatt (pronounced "jig-a-watt," GW, 1 billion watts) are most commonly used to describe the capacity of generating units like wind turbines or other power plants. Electricity production and consumption are most commonly measured in kilowatt-hours (kWh). A kilowatt-hour means one kilowatt (1,000 watts) of electricity produced or consumed for one hour. One 50-watt light bulb left on for 20 hours consumes one kilowatt-hour of electricity (50 watts x 20 hours = 1,000 watt-hours = 1 kilowatt-hour). The output of a wind turbine depends on the turbine's size and the wind's speed through the rotor. Wind turbines being manufactured now have power ratings ranging from 250 watts to 5 megawatts (MW).

<sup>33</sup> "US Wind Energy Projects," American Wind Energy Association Website, December 31, 2008, <http://www.awea.org/projects/>.

<sup>34</sup> Fredric C. Menz, "Green electricity policies in the United States: case study," *Energy Policy*, Vol 33, Issue 18, December 2005, 2398-2410.

<sup>35</sup> Jonathan G. Dorn, "Global Wind Power Capacity Reaches 100,000 Megawatts," Earth Policy Institute News Release, March 3, 2008.

accounts for a much greater percentage.<sup>36</sup> For example, wind energy accounts for 7 percent of Germany's electricity and 30 percent of the electricity needs in the German states of Saxony-Anhalt, Mecklenburg-Western Pomerania, and Schleswig-Holstein.<sup>37</sup> Despite many countries deciding to adopt national renewable energy goals,<sup>38</sup> the United States has yet to adopt a national renewable energy standard, a cap on greenhouse gas emissions, or a trading system for carbon credits.<sup>39</sup>

While the federal government has resisted adopting such legislation, states have become the champions of ambitious renewable energy and climate change policy. Actions taken by states have been one of the most significant drivers of renewable energy and climate change policy in the United States, providing a testing ground for many national policy proposals. The upward evolution of state renewable energy policy is consistent with the development of national legislation on other environmental issues in the United States.<sup>40</sup> Prior to the passage of the Clean Air Act (PL 91-604) and the Clean Water Act (PL 92-500) in 1970 and 1972, respectively, the federal government faced the daunting prospect of 50 states having different air and water regulations.<sup>41</sup> Once again, as more states adopt renewable energy and

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<sup>36</sup> Ibid.

<sup>37</sup> Ibid.

<sup>38</sup> Benjamin K. Sovacool and Jack N. Barkenbus, "Necessary but Insufficient: State Renewable Portfolio Standards and Climate Change Policies," *Environment* (Jul/Aug 2007), Vol. 49, Iss. 6, pg. 21.

\*In February 2007, then-British Prime Minister Tony Blair announced the United Kingdom would aim for an ambitious 20 percent mandatory standard for renewable energy. At the time of Prime Minister Blair's announcement, 17 other European countries had set mandatory renewable energy targets. In addition, Brazil, China, Indonesia, Israel, Nicaragua, Norway, South Korea, Sri Lanka, Switzerland, and Turkey had all adopted mandatory renewable energy or climate change targets.

<sup>39</sup> Jonathan G. Dorn, "Global Wind Power Capacity Reaches 100,000 Megawatts," Earth Policy Institute News Release, March 3, 2008.

<sup>40</sup> Thomas D. Peterson and Adam Z. Rose, "Reducing conflicts between climate policy and energy policy in the US: The important role of the states," Pennsylvania State University, *Energy Policy*, Vol 34, Issue 5, March 2006, 619-631.

<sup>41</sup> Benjamin K Sovacool and Jack N Barkenbus, "Necessary but Insufficient: State Renewable Portfolio Standards and Climate Change Policies," 22.

climate change policies, the likelihood increases that the U.S. Congress will follow the states' lead in adopting legislation that promotes the expansion of renewable energy or the mitigation of climate change.<sup>42</sup>

## FEDERAL GOVERNMENT PUBLIC POLICY

From 1997 to 2006, there have been 17 bills introduced that would have established a national renewable standard (RPS) and 102 legislative proposals pertaining to climate change, but none of these policies have been adopted.<sup>43</sup> In an interview with Tom Hassenboehler, Minority Counsel for the U.S. Senate Committee on Environment and Public Works, he explained, "It is difficult [for the U.S. Congress] to aggressively act because you know the near term cost, but the real impact of climate change is still unknown." In addition, he said resistance to climate change legislation extends beyond partisan affiliation to regional divides because certain regions of the country feel threatened by the effects of climate change, whereas others feel economically threatened by efforts to reduce emissions. Passage of climate change legislation will be difficult due to "the power of unions, the wealth within the [mining and utility] industries, and particular regions," said Hassenboehler.<sup>44</sup>

With the election of President Barack Obama and a Democrat controlled U.S. Senate and House of Representatives, the prospect for adopting climate change policy has improved. However, it will be challenging to enact climate change policy during an economic recession because of the risk the policy could raise electricity costs. Despite the economic recession, the U.S. Environmental Protection Agency announced in April 2009 that it would begin a process

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<sup>42</sup> Stephanie Herseth Sandlin, U.S. Representative (D-SD), interview by author, Washington, DC, December 8, 2008.

<sup>43</sup> Benjamin K Sovacool and Jack N Barkenbus, "Necessary but Insufficient: State Renewable Portfolio Standards and Climate Change Policies," 22.

<sup>44</sup> Tom Hassenboehler, interview by author, Washington, DC, November 4, 2008.

that could lead to regulating carbon dioxide emissions (CO<sub>2</sub>) after determining CO<sub>2</sub> and five other greenhouse gases may endanger human health.<sup>45</sup> The recent announcement is a departure from the agency's original stance on CO<sub>2</sub> during the President Bush administration when it argued CO<sub>2</sub> was not a pollutant and therefore could not be regulated. Although climate change policy is being circulated in U.S. Congress, the "endangerment finding" by the EPA will permit the agency to begin mandating emissions reductions without waiting for a climate change bills to be enacted.<sup>46</sup>

Although the U.S. Congress has neither passed mandatory renewable standards nor climate change policy, the federal government does provide certain incentives to encourage renewable energy development. Most notably, the federal government provides a Production Tax Credit (PTC), which has been instrumental in making renewable energy more cost competitive. The PTC is an inflation-adjusted credit of 2.1 cents per kilowatt-hour for the output of a renewable project over the first 10 years of the project's operation.<sup>47</sup> The 1992 Energy Policy Act established the PTC and since its enactment, the PTC has undergone a series of short-term extensions and has been allowed to expire in three different years: 1999, 2001, and 2003.<sup>48</sup>

The expiration and subsequent reauthorization of the PTC has resulted in boom and bust cycles within the American renewable energy industry, which are clearly reflected in the rise and fall of annual wind energy installation (See Figure 1). There has been growth in installed wind energy capacity in years leading up to the expiration of the PTC, but then the

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<sup>45</sup> Richard Black, Environment correspondent, BBC News website "Obama to Regulate 'Pollutant' CO<sub>2</sub>," April 17, 2009, <http://news.bbc.co.uk/2/hi/science/nature/8004975.stm>.

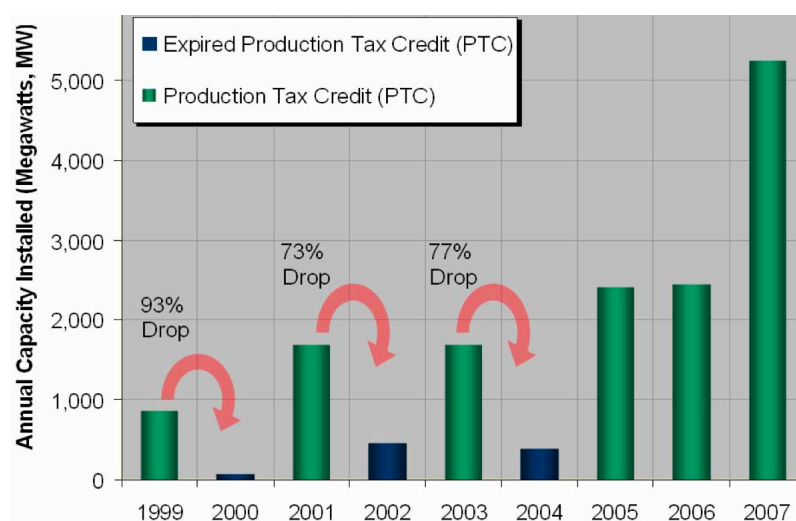
<sup>46</sup> Ibid.

<sup>47</sup> "Federal Production Tax Credit," American Wind Energy Association Website, <http://www.awea.org/policy/ptc.html>.

<sup>48</sup> Ibid.

expiration causes the industry to stall. When the PTC is reauthorized, it takes a considerable amount of time for the industry to regain momentum. The uncertainty associated with the PTC has discouraged investment in manufacturing. According to Jim Wilcox, a lobbyist and engineer for Xcel Energy, 53 percent of turbines installed in the United States are manufactured abroad.<sup>49</sup> The boom and bust nature of the American wind industry is one of the largest factors thwarting the expansion of turbine, blade, and component manufacturing because it would be challenging for manufacturing plants to withstand falls in industry demand.

FIGURE 1. The Effect of PTC Expiration On Annual U.S. Wind Energy Installation<sup>50</sup>



## STATE-LEVEL PUBLIC POLICY STRATEGIES

Climate change policy has evolved on the state level following resistance from U.S.

Congress towards national policy and participation in international climate change treaties.<sup>51</sup>

<sup>49</sup> Jim Wilcox, Engineer and Lobbyist for Xcel Energy, interview by author, Pierre, SD, February 26, 2009.

<sup>50</sup> “Wind Energy Production Tax Credit (PTC) Fact Sheet,” The American Wind Energy Association, [http://www.awea.org/pubs/factsheets/PTC\\_Fact\\_Sheet.pdf](http://www.awea.org/pubs/factsheets/PTC_Fact_Sheet.pdf).

<sup>51</sup> Thomas D. Peterson, “The Evolution of State Climate Change Policy in the United States: Lessons Learned and New Directions,” Pennsylvania State University, pg. 81,

Although the PTC and to a lesser extent, Clean Renewable Energy Bonds<sup>52</sup> and other federal tax-exempt renewable energy grants, have greatly influenced the wind industry, efforts by the states have been one of the largest factors stimulating wind energy development. State renewable energy mandates and tax incentives have played a significant role in encouraging the industry's expansion. There is a strong correlation between the states with the greatest installed wind energy capacity and those that have adopted ambitious renewable energy policies.<sup>53</sup> The effectiveness of these policies is most pronounced when wind generation is competitive with more traditional generation resources, and in some regions of the United States wind power is the lowest-cost option.<sup>54</sup>

The enactment of state renewable portfolio standards (RPS) is one state policy mechanism often considered to be the most effective policy tool states have in stimulating wind energy development. According to the National Conference of State Legislatures, a state renewable portfolio standard "is a requirement that utilities, usually investor owned utilities, must produce a specified percentage or amount of renewable energy by a given date."<sup>55</sup> As of February 6, 2009, twenty-six states including the District of Columbia have adopted an RPS, and four states have adopted renewable energy goals.<sup>56</sup> RPS policies and purchase mandates have been shown to have a dramatic effect on the expansion of wind energy in Texas,

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<http://www.wrapair.org/WRAP/meetings/050517board-phx/StatePolicies-Peterson.pdf>.

<sup>52</sup> \*The Clean Renewable Energy Bond (CREB) program is a financial incentive created in the Energy Policy Act of 2005. The program is available to tax exempt entities, which are not eligible for the PTC, to promote renewable energy development.

<sup>53</sup> Keith Hay, Clean Energy Advocate, Environment Colorado, interview by author, Denver, CO, July 2, 2008.

<sup>54</sup> L. Bird, B. Parsons, T. Gagliano, M. Brown, R. Wiser, and M. Bolinger, "Policies and Market Factors Driving Wind Power Development in the United States," National Renewable Energy Laboratory, July 2003, 1.

<sup>55</sup> "State Renewable Portfolio Standards," National Conference of State Legislatures, October 2008, [www.ncsl.org/programs/energy/RenEnerpage.htm](http://www.ncsl.org/programs/energy/RenEnerpage.htm).

<sup>56</sup> "Renewable Portfolio Standards," Federal Energy Regulatory Commission, February 6, 2009, <http://www.ferc.gov/market-oversight/mkt-electric/overview/elec-ovr-rps.pdf>.

Minnesota, and Iowa where 11,658 megawatts of generating capacity have been developed to meet requirements in these three states alone—this figure is up from around 1,700 megawatts in 2003. In other states, such as New Jersey and Wisconsin, the purchase mandate policies have been responsible for wind development, not only in those states, but in neighboring states, as well.<sup>57</sup>

The design of RPS policies varies widely among states that have adopted the policy. Some of the most unique characteristics include: the percentage or capacity mandate, which renewable resources qualify, the policy deadline, and whether out-of-state resources will qualify. Renewable energy developers are often supportive of RPS policies because the policy creates a guaranteed market for their energy generation and an assurance that the power distributors will be more inclined to incorporate renewable generation into the existing portfolio. Additionally, RPS policies often have the capability to drive down the cost of renewable energy. Instead of providing a subsidy or a setting a floor price, an RPS stimulates market competition among project developers.<sup>58</sup>

How an RPS policy is designed influences which renewable technologies will subsequently be developed. Unless otherwise specified, technology-neutral RPS policies most commonly result in the promotion of utility-scale development of wind energy, landfill gas, and geothermal energy development. Some critics of RPS policies argue that the implementation of an RPS disproportionately benefits certain renewable technologies and often results in minimal growth for renewable energy technologies that are less cost competitive. However, it is possible to manipulate the policy to encourage other types of renewable technology, such as solar, small-scale wind or fuel cells, but this may lead to electricity cost

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<sup>57</sup> L. Bird, B. Parsons, T. Gagliano, M. Brown, R. Wiser, and M. Bolinger, “Policies and Market Factors Driving Wind Power Development in the United States,” National Renewable Energy Laboratory, July 2003, 2.

<sup>58</sup> Ibid.

increases.<sup>59</sup>

One of the greatest concerns pertaining to state RPS policies is that the policy will increase electricity costs for ratepayers. In reality, there is neither a dramatic cost increase nor a dramatic cost savings associated with the adoption of most RPS policies, but this largely depends on the state and the design of the policy. RPS policies have been seen to both raise electricity rates in some states and to lower electricity rates in others, but generally, savings or cost increases fall within 0.5 percent of the original rate, which equals approximately \$3.50 per year for the typical household.<sup>60</sup> New Jersey was the exception to this rule, with a significantly higher cost estimate.

The cost variance can often be attributed to different regions of the country and the various ways the policy is designed. There are many different contexts to be considered throughout the country that affect the cost of incorporating renewable energy into a state energy portfolio. For example, there is a likelihood rates will rise if technology and investments cannot keep up with the requirements detailed in the policy. However, regions with higher quality renewable energy resources may see a reduction in rates; whereas, the rates in states with poor renewable resources may increase, which is the case for New Jersey. In New Jersey, it is anticipated rates will increase more than \$11 per customer per year as the RPS reaches its target.<sup>61</sup> In addition, regions that rely on potentially high cost energy resources, such as natural gas, may see cost reductions. Conversely, regions consuming low-cost resources, such as depreciated coal, could see rate increases. An RPS that requires the lowest cost renewable energy technology to meet the standard will be less expensive than a standard

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<sup>59</sup> “State Renewable Portfolio Standards: A Review and Analysis,” National Conference of State Legislatures, June 2005, 4.

<sup>60</sup> Ibid, 7.

<sup>61</sup> Ibid, 6.



that mandates certain percentages of higher cost renewable energy technologies.

Tax incentives are another commonly enacted state-level policy tool aimed at stimulating renewable energy development within a state. State legislatures adopt tax incentives to increase their state's interstate competitiveness in attracting wind energy development.<sup>62</sup> State tax incentive programs are designed to facilitate "the purchase, installation, or manufacture of renewable energy systems, equipment, and facilities."<sup>63</sup>

According to the U.S. Department of Energy, these tax incentive programs aim "to reduce the investment costs of acquiring and installing renewable energy systems and equipment. They reward investors with tax credits, deductions, and allowances for their support of renewable energy sources."<sup>64</sup> The most frequent state renewable energy tax incentives are employed through the income, corporate, property, and sales tax incentives.

A property tax incentive can help reduce some of the high fiscal costs of a renewable energy project that are disproportionately situated as the first phases of project development. Most tax incentives are implemented through tax credits, allowances, and deductions.<sup>65</sup> State property tax incentives are the most frequently available state renewable energy tax incentive. As of January 2006, 23 states have adopted renewable energy property tax incentives.<sup>66</sup> These range from local property tax exemptions to special assessments for value-added property from the renewable energy system.<sup>67</sup> Critics of property tax incentives often claim the economic

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<sup>62</sup> Jennifer DeCesaro, "State Sales Tax Incentives," The National Conference of State Legislatures, January 2006, <http://www.ncsl.org/print/energy/SalestaxFS.pdf>.

<sup>63</sup> "Tax incentives for Renewable Energy," Energy Efficiency and Renewable Energy, U.S. Department of Energy, February 29, 2008, [http://apps1.eere.energy.gov/states/alternatives/tax\\_incentives.cfm](http://apps1.eere.energy.gov/states/alternatives/tax_incentives.cfm).

<sup>64</sup> Ibid.

<sup>65</sup> Ibid.

<sup>66</sup> Jennifer DeCesaro, "Property Tax Incentives," The National Conference of State Legislatures, January 2006, <http://www.ncsl.org/print/energy/PTCFS.pdf>.

<sup>67</sup> "Tax incentives for Renewable Energy," Energy Efficiency and Renewable Energy, U.S. Department of Energy, February 29, 2008, [http://apps1.eere.energy.gov/states/alternatives/tax\\_incentives.cfm](http://apps1.eere.energy.gov/states/alternatives/tax_incentives.cfm).

benefits for local governments are reduced. Some states have mitigated this concern by allowing local authorities to determine whether a property tax incentive is offered.<sup>68</sup>

A sales tax incentive is another way state governments have encouraged wind energy development. As of 2006, 15 states have adopted a sales tax incentive for renewable energy projects.<sup>69</sup> The other two most commonly offered renewable energy tax incentives are state income tax and corporate tax incentives. Some states offer taxpaying residents a personal income tax credits up to a certain percentage or dollar amount for the cost of a renewable energy project. Other states offer a tax deduction from adjusted gross income to cover the expense of conversion equipment that switches their main energy source from gas or electricity to renewable energy sources.<sup>70</sup> Lastly, corporate tax incentives permit corporations to receive credits for the equipment and other expenditure costs associated with renewable energy systems.<sup>71</sup>

A state tax incentive has not traditionally been shown to single-handedly attract wind energy development into a state; instead, it becomes more effective when paired with multiple incentives and other policies. According to Troy Gagliano of the National Conference of State Legislatures and Ryan Wiser and Mark Bolinger of the Ernest Orlando Lawrence Berkeley National Laboratory, “State tax incentives alone are often not sufficient to encourage substantial wind power development without other supportive public policies such as

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<sup>68</sup> Jennifer DeCesaro, “Property Tax Incentives,” The National Conference of State Legislatures, January 2006, <http://www.ncsl.org/print/energy/PTCFS.pdf>.

\* The states that have opted to show deference to their local governments in determining whether to provide property tax incentive include: Connecticut, Iowa, Maryland, New Hampshire, Vermont, and Virginia.

<sup>69</sup> Ibid.

<sup>70</sup> “Tax incentives for Renewable Energy,” Energy Efficiency and Renewable Energy, U.S. Department of Energy, February 29, 2008, [http://apps1.eere.energy.gov/states/alternatives/tax\\_incentives.cfm](http://apps1.eere.energy.gov/states/alternatives/tax_incentives.cfm).

<sup>71</sup> Ibid.

renewable energy purchase mandates, renewable portfolio standards, or system-benefits charges.”<sup>72</sup> States often aim to enact tax policies that will ensure their state is competitive with other states, particularly neighboring states. Principally, states should work to ensure their tax laws will not deter development. However, it is important that legislators avoid “giving away the farm,” as said the SD House of Representatives Minority Leader Bernie Hunhoff (D-District 18). Tax incentives can attract development, but legislatures should avoid significantly reducing the economic benefits a state and locality may receive.

Community-Based Energy Development (C-BED) legislation is a policy tool designed to encourage the development of locally-owned renewable energy projects.<sup>73</sup> A C-BED project refers to a wind project that is at least partially a community-owned asset.<sup>74</sup> To date, three states have adopted C-BED legislation and several other states provide grants. Minnesota first adopted C-BED legislation in 2005 with the passage Omnibus Energy Bill (SF 1368 and HF 1344), and then Nebraska and Iowa adopted similar legislation in 2007. The Minnesota C-BED legislation established “a tariff ...based on the net present value of electricity and will provide wind projects with better cash flow during their debt service period and declining cost power for the utility and ratepayers over the 20 year term of the contracts.”<sup>75</sup> Further encouraging confidence and investment in C-BED projects, the legislation provides a stable incentive that is

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<sup>72</sup> Ryan Wiser, Mark Bolinger, Troy Gagliano, “Analyzing the Interaction Between State Tax Incentives and the Federal Production Tax Credit for Wind Power, Ernest Orlando Lawrence Berkeley National Laboratory, September 2002, <http://eetd.lbl.gov/EA/EMP/>.

<sup>73</sup> \*Definition of Community Wind Projects: “Community wind projects are owned by a variety of individuals including local small business owners, farmers, local organizations including schools and universities, as well as Native American Tribes, rural electric cooperatives, municipal utilities, and religious institutions. These projects can range from a single turbine to a community-owned commercial-scale wind farm,” according to the Windustry website.

<sup>74</sup> “Community Wind,” Windustry, March 2007, <http://www.windustry.org/communitywind>.

<sup>75</sup> Ibid.

not subject to state budget constraints or an expiration date.<sup>76</sup>

The legislation has since been amended, most notably in 2007, when significant revisions were made to the existing statute, mandating that utilities give preference to C-BED projects when meeting their RPS mandate and required Xcel Energy to develop a certain amount of locally owned wind capacity. In addition, counties were afforded greater permitting authority and a wind easement sunset clause was added to protect landowners.<sup>77</sup> It is apparent that C-BED legislation has stimulated locally-owned wind energy development, as can be seen in FIGURE 2. The states that have adopted C-BED legislation have more locally owned wind projects than the states that do not.

FIGURE 2. Installed Community Wind Capacity in the United States<sup>78</sup>



<sup>76</sup> Ibid.

<sup>77</sup> Carl Nelson, "Summary of 2007 Minnesota Legislation Relating to Community Wind," The Minnesota Project, June 2007, [http://www.c-bed.org/pdf/MN\\_Project\\_Summary\\_2007\\_Legislation.pdf](http://www.c-bed.org/pdf/MN_Project_Summary_2007_Legislation.pdf).

\* The 2007 amendment to the Minnesota C-BED statute established that wind easements and options be terminated after seven years, if a project has not reached commercial operation.

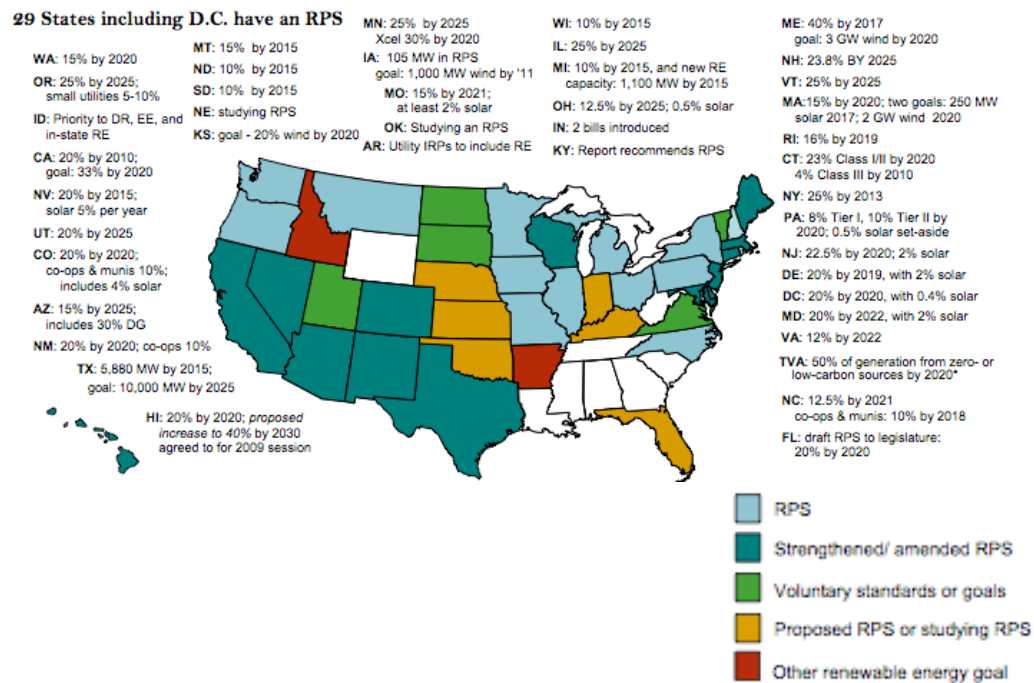
<sup>78</sup> "Community Wind," Windustry, March 2007, <http://www.windustry.org/communitywind>.

## **THE CHALLENGES HINDERING WIND ENERGY DEVELOPMENT IN RURAL STATES**

Many Midwestern states, despite having a tremendous wind energy resource, are lagging behind other states. Unlike many of the states with the greatest amounts of installed wind energy capacity, rural states, although to varying degrees, often lack access to load centers and the transmission infrastructure necessary to absorb large-scale wind development. In addition, many of these Midwestern states have resisted adopting renewable energy policies, such as an RPS. The factors fueling this resistance can be attributed to many things, including ideologically conservative political climates, insufficient salience on the issue of global climate change, concern about rising electricity costs, and insufficient gubernatorial and legislative leadership in promoting renewable energy.

As discussed earlier, RPS policies have been hailed for stimulating wind energy development in the states with the largest amounts of wind energy generation. Despite the outcomes produced by the policy in other states, many Midwestern states with abundant wind energy resources have resisted adopting such policies. The states of Wyoming and North Dakota south to Oklahoma have yet to adopt a mandatory RPS, which can be seen in FIGURE 3. “Even though Chicago, the Midwest’s largest city, is called the Windy City, the winds whipping around the city and across the vast plains of America have largely gone untapped,” said Joel Beauvais, Counsel for the U.S. House Select Committee on Energy Independence and Climate Change.

FIGURE 3. Nationwide Renewable Portfolio Standards<sup>79</sup>



## SOUTH DAKOTA: A CASE STUDY

Rural states are confronted with many similar challenges when working to capitalize on their wind resource. The latter portion of this paper will use South Dakota as a case study to explore the obstacles rural states face when expanding their wind resource and will aim to examine the importance of state action in stimulating wind energy development. The author researched the case study by working for the 2009 South Dakota State Legislature on a legislative fellowship from January through March 2009. While working in Pierre, SD, the state capital, the author conducted interviews with public officials, state employees, and lobbyists and administered a survey of state legislators. During November 2008, the author and a team of 4 students from American University conducted a survey of a 600-person sample of

<sup>79</sup> "Renewable Portfolio Standards," Federal Regulatory Commission, February 6, 2009, <http://www.ferc.gov/market-oversight/mkt-electric/overview/elec-ovr-rps.pdf>.

the South Dakota Farmers Union membership to gauge the views of farmers and ranchers, an important constituency in South Dakota.

WIND RESOURCE

South Dakota has the fourth greatest wind energy resource potential, behind North Dakota, Texas, and Kansas in first, second, and third, respectively.<sup>80</sup> Despite South Dakota’s abundant wind resource, the state ranks nineteenth in installed wind energy generation.<sup>81</sup> Many factors influence South Dakota lagging behind its neighboring states, including its sparse population, limited transmission infrastructure, and distance from load centers. FIGURE 4 displays the top twenty states with wind energy resource potential and FIGURE 5 depicts a map of installed wind energy in the United States.

FIGURE 4. The Top Twenty States<sup>82</sup>

**THE TOP TWENTY STATES** for wind energy potential, as measured by annual energy potential in the billions of kWhs, factoring in environmental and land use exclusions for wind class of 3 and higher.

1	North Dakota	1,210	11	Colorado	481
2	Texas	1,190	12	New Mexico	435
3	Kansas	1,070	13	Idaho	73
4	South Dakota	1,030	14	Michigan	65
5	Montana	1,020	15	New York	62
6	Nebraska	868	16	Illinois	61
7	Wyoming	747	17	California	59
8	Oklahoma	725	18	Wisconsin	58
9	Minnesota	657	19	Maine	56
10	Iowa	551	20	Missouri	52

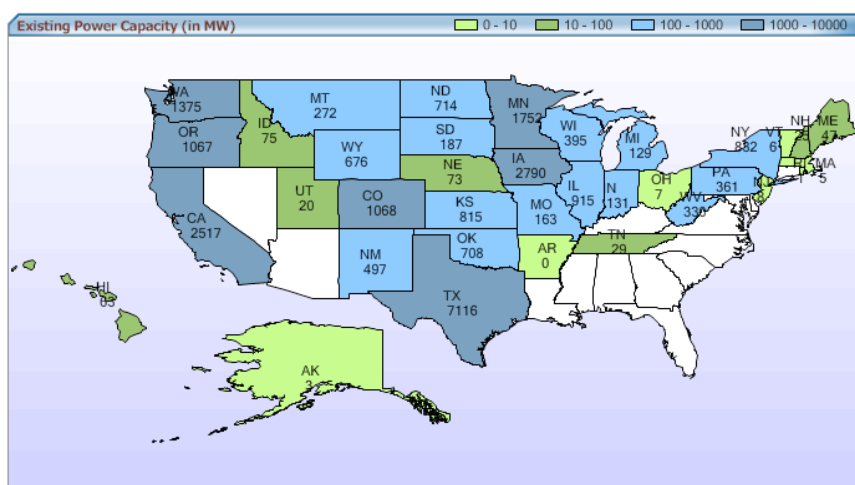
Source: *An Assessment of the Available Windy Land Area and Wind Energy Potential in the Contiguous United States, Pacific Northwest Laboratory, 1991.*

<sup>80</sup> Top Twenty States with Wind Energy Resource Potential, American Wind Energy Association, [http://www.awea.org/newsroom/pdf/Top\\_20\\_States\\_with\\_Wind\\_Energy\\_Potential.pdf](http://www.awea.org/newsroom/pdf/Top_20_States_with_Wind_Energy_Potential.pdf).

<sup>81</sup> “South Dakota Wind Energy Resources,” Windustry, <http://www.windustry.org/southdakota>.

<sup>82</sup> Top Twenty States with Wind Energy Resource Potential, American Wind Energy Association, [http://www.awea.org/newsroom/pdf/Top\\_20\\_States\\_with\\_Wind\\_Energy\\_Potential.pdf](http://www.awea.org/newsroom/pdf/Top_20_States_with_Wind_Energy_Potential.pdf).

FIGURE 5. Existing Wind Power Capacity (in megawatts)<sup>83</sup>



## SOCIAL, POLITICAL AND TECHNICAL CONTEXTS

South Dakota has the fifth-lowest population density of any state within the United States and a small electrical demand.<sup>84</sup> The state is located in the Midwestern region of the United States and covers an area of approximately 77,000 square miles, which extends 380 miles east to west and 245 miles north to south. The majority of this land supports the agricultural industry and a population, estimated at 755,000 people.<sup>85</sup> The Missouri River divides South Dakota into two socioeconomically distinct halves, which are referred to as “West River” and “East River” by its residents. The eastern portion of the state with its fertile soil grows a variety of crops, while ranching is the prime agricultural activity in the arid western portion of the state.

South Dakota is a conservative state, despite regularly electing Democrats to the U.S. Congress. However, the Republican Party dominates both chambers of the South Dakota State

<sup>83</sup> “U.S. Wind Projects (As of 12/31/08),” American Wind Energy Association, <http://www.awea.org/projects/>.

<sup>84</sup> *South Dakota Wind Power Report*, South Dakota Energy Infrastructure Authority, 54.

\* Only North Dakota, Montana, Wyoming and Alaska have lower population densities.

<sup>85</sup> U.S. Bureau of the Census, [www.npg.org/states/sd.htm](http://www.npg.org/states/sd.htm).



Legislature and has controlled the governorship since 1979. Furthermore, South Dakota has voted for Republican presidential candidates in the last eleven presidential campaigns. State politics in South Dakota is based on a strong Governor and weak legislature model. “The Governor needs to be on board for anything to pass,” according to Jim Fry, the Director of the Legislative Research Council.<sup>86</sup> In addition, the likelihood of legislation being passed is greatly increased if a Republican is the prime sponsor of a bill.<sup>87</sup> The legislature often resists legislative mandates because of its strong libertarian streak, which creates a hurdle when considering the adoption of ambitious environmental or renewable energy policy.<sup>88</sup>

South Dakotans receive their electricity from a variety of providers, including regulated utilities, municipalities, and rural electric cooperatives, depending on where they live.<sup>89</sup> Approximately 250,000-300,000 people, primarily in rural regions of South Dakota, receive their power from rural electric cooperatives.<sup>90</sup> Because of South Dakota’s rural nature, its rural electric cooperatives have only 2.6 consumers per mile of transmission; whereas the national cooperative average is 6 consumers per mile, with each mile of transmission line costing approximately \$50,000.<sup>91</sup> In 2005, the peak electrical demand for all residential, commercial, industrial, and governmental South Dakota electric customers was 2,043 megawatts, which is

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<sup>86</sup> Jim Fry, Director of the Legislative Research Council, Pierre, SD, February 27, 2009.

<sup>87</sup> Ibid.

<sup>88</sup> South Dakota House Minority Leader Bernie Hunhoff, interview by author, Pierre, SD, March 3, 2009.  
Steve Willard, Executive director of the South Dakota Electric Utility Companies, interview by author, Pierre, SD, March 3, 2009.

<sup>89</sup> “The Transmission Network in South Dakota,” Public Utilities Commission, *South Dakota Energy Infrastructure Authority*, p. 68.

\* South Dakota’s electricity providers include: one federal power marketing agency, six vertically integrated investor-owned utilities, 35 municipally-owned distribution systems, 29 rural electric distribution systems, two cooperative transmission systems, one cooperative generation provider, and the Nebraska Public Power District

<sup>90</sup> Ed Anderson, SDREA, interview by author, Pierre, SD, July 17, 2009.

<sup>91</sup> Merlin Goehring, General Manager at Bon Homme Yankton Electric, interview by author, Marion, SD, July 16, 2008.

small compared to states with larger populations.<sup>92</sup> As of January 2009, South Dakota's peak electrical demand had grown to 2,400 megawatts.<sup>93</sup> Of this electricity used by South Dakota customers, most is imported from other states. Although South Dakota is technically a net electricity exporter because it generates more electricity than it consumes, the state both exports and imports electricity. The federal government reserves a major portion of the electricity generated from the hydroelectric dams on the Missouri River for out-of-state markets.<sup>94</sup> During 2005, the South Dakota electrical portfolio included these sources:<sup>95</sup>

Coal—75 percent  
Nuclear—9.8 percent  
Hydro—9.7 percent  
Natural gas—3.2 percent  
Non-hydro renewable—1.6 percent  
Oil—0.1 percent

South Dakota's electricity use is expected to grow by 1 to 2 percent per year over the course of 10 to 15 years.<sup>96</sup> At these rates, the demand for new generating capacity could grow 20 to 40 megawatts per year.<sup>97</sup> This is not a significant growth rate, which means South Dakota must locate out-of-state electricity markets if it wants to sustain large-scale wind energy development. South Dakota, like Montana and Nebraska, is served by both the western and eastern grid interconnections. The eastern grid serves the majority of South Dakota, which means South Dakota's primary area for renewable energy export is in the eastern

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<sup>92</sup> *South Dakota Wind Power Report*, South Dakota Energy Infrastructure Authority, 54.

\*South Dakota's twelve power distributors reported their combined electric energy sales in South Dakota to be approximately 9.3 million megawatt-hours (MWh) in 2005.

<sup>93</sup> Jim Wilcox, Engineer and Lobbyist for Xcel Energy, interview by author, Pierre, SD, February 26, 2009.

<sup>94</sup> Sylvia Christen, Dakota Rural Action, interview by author, Pierre, SD, March 11, 2009.

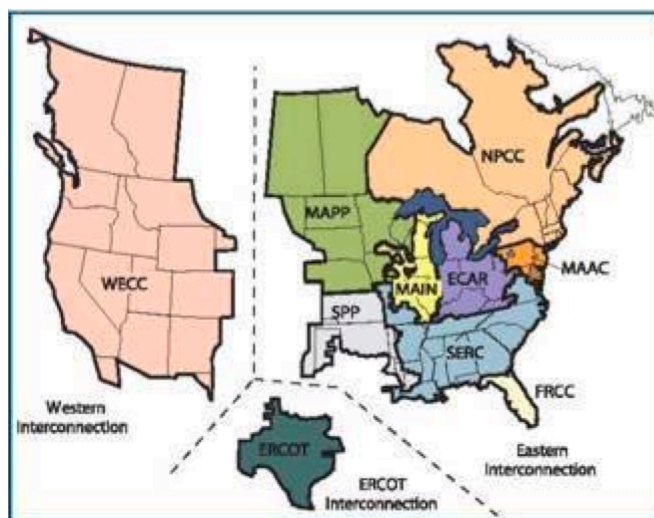
<sup>95</sup> "South Dakota PUC June 9, 2006 presentation," *South Dakota Wind Power Report*, South Dakota Energy Infrastructure Authority, 55.

<sup>96</sup> Frank James, Director of Dakota Rural Action, interview by author, Brookings, SD, July 30, 2008.

<sup>97</sup> *South Dakota Wind Power Report*, South Dakota Energy Infrastructure Authority, 55.

interconnection—mainly to load centers in metropolitan areas, such as Minneapolis, Milwaukee, and Chicago.<sup>98</sup>

FIGURE 6. North American Interconnections<sup>99</sup>



The expansion of wind energy is generally supported among state legislators in South Dakota, which extends beyond party affiliation. In a survey conducted during the 2009 legislative session, the vast majority of legislators said they believed wind energy is important to the state’s economic development future.<sup>100</sup> South Dakota does not have the oil and coal deposits its neighboring states of Wyoming and North Dakota have in abundance, consequently providing less tax revenue in South Dakota than in neighboring states. Wind energy is

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<sup>98</sup> *South Dakota Wind Power Report*, South Dakota Energy Infrastructure Authority, 55.

<sup>99</sup> *South Dakota Wind Power Report*, South Dakota Energy Infrastructure Authority, 55.

\*Although the transmission system in North America is commonly referred to as “the grid,” it is actually divided into three transmission grids or “interconnections,” which includes the Eastern Interconnection, Western Interconnection, and the third interconnection serves most of Texas.

<sup>100</sup> 2009 Survey of the South Dakota House of Representatives and Senate, Conducted by Author, 5-13 March 2009.

\* The survey had a response rate of response rate of 80 percent for SD House of Representative members (56/70) and 77 percent for SD Senate members (27/35). The author designed the survey and used an online survey service, and then emailed legislators a link to the survey where it could be completed and recorded online. The author sent out two emails, one email on March 5, 2009 that sent legislators the survey, and then another email that reminded legislators to complete the survey before the legislative session ended on March 13, 2009. The author conducted the survey while working for the South Dakota State Legislature on a legislative fellowship. The survey questions can be found in Appendix A.

increasingly being viewed as an energy resource of which South Dakota should take advantage. The Assistant Leader in the SD House of Representatives Kristi Noem said, “South Dakota should stop bemoaning its lack of resources and should take advantage of the wind it has.” Steve Willard, the Director of the South Dakota Electric Utility Companies, adds to Rep. Noem’s statement by explaining that “for the past 200 years, South Dakotans have cursed the wind, and now we want to know how we can mine the resource.”<sup>101</sup> Many legislators are enthusiastic about South Dakota’s wind energy potential, but the issue becomes more divisive when legislators determine how best to make wind energy development operational.

In recent years, South Dakota has made progress in increasing its installed wind energy capacity and has encouraged utility-scale development. As of December 2008, South Dakota now has 189 megawatts of wind energy development, which has grown from 3 megawatts in 2002, 44 megawatts in 2005, and 98 megawatts 2007.<sup>102</sup> In 2008, South Dakota adopted a non-mandatory 10 percent renewable electricity objective (HB 1123) and modernized its tax incentives, reducing the competitive gap between South Dakota and its neighboring states.<sup>103</sup> There are several transmission development proposals that would increase the state’s transmission infrastructure and that would allow for the absorption of further wind energy development, such as the Big Stone II Coal Plant and ITC Green Power Express that would create approximately 38 miles of transmission in South Dakota and 3,000 miles transmission, some of which would traverse portions of South Dakota, respectively.<sup>104</sup> At

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<sup>101</sup> Steve Willard, Executive director of the South Dakota Electric Utility Companies, interview by author, Pierre, SD, March 3, 2009.

<sup>102</sup> Governor M. Michael Rounds, interview by author, Pierre, SD, March 12, 2009.  
“Installed Wind Capacity,” National Renewable Energy Laboratory, March 5 2009,  
[http://www.windpoweringamerica.gov/images/windmaps/installed\\_wind\\_capacity\\_561.gif](http://www.windpoweringamerica.gov/images/windmaps/installed_wind_capacity_561.gif).

<sup>103</sup> Governor M. Michael Rounds, interview by author, Pierre, SD, March 12, 2009.

<sup>104</sup> “Green Power Express Q & A,” ITC Holdings, Inc., <http://www.thegreenpowerexpress.com/faqs.php>.  
“Transmission Project Overview,” Big Stone Transmission,  
<http://www.bigstoneii.com/TransmissionProject/TransProjectOverview.asp>.

present, there are approximately 18,000 proposed wind projects for South Dakota in the Midwest Independent Transmission System Operator queue.<sup>105</sup> According to SD Public Utilities Commissioner Dusty Johnson, most of these projects will never become operational because of market demand and technical limitations.<sup>106</sup> However, if additional transmission were made available, there is a strong likelihood greater amounts of wind energy would be installed.<sup>107</sup>

The citizens of South Dakota appear to be supportive of wind energy expansion. State Senator Cory Brown (R-District 23) has a wind plant within his district and has observed that public support for wind energy is high among his constituents because they recognize the economic potential associated with wind energy development.<sup>108</sup> A survey of the South Dakota Farmers Union membership confirmed that the majority of members view wind energy development as “important” to South Dakota’s economic development future.<sup>109</sup> Despite the popularity of wind energy among citizens in South Dakota, there was little support for wind energy development from non-governmental organizations before the establishment of the South Dakota Wind Energy Association during the summer of 2008.<sup>110</sup> Because of the diverse organizational entities and policy preferences represented in SDWEA, the Association may not be an effective source of political advocacy, but may instead provide an important educational

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<sup>105</sup> Jim Wilcox, Engineer and Lobbyist for Xcel Energy, interview by author, Pierre, SD, February 26, 2009.

<sup>106</sup> Dusty Johnson, SD Public Utilities Commissioner, interview by author, Pierre, SD, February 25, 2009.

<sup>107</sup> Steve Willard, Executive director of the South Dakota Electric Utility Companies, interview by author, Pierre, SD, March 3, 2009.

<sup>108</sup> South Dakota State Senator Cory Brown (R-District 23), interview by author, Pierre, SD, March 4, 2009.

<sup>109</sup> Survey of the South Dakota Farmers Union, Survey Conducted By: Genevieve Cervante, Carrie Johnson, Sarah Lehar, Carley Papi, Lisa Paquette.

<sup>110</sup> Opening Presentation, First Meeting of the SD Wind Energy Association, Attendance by Author, Brookings, SD, July 30, 2009.

resource to citizens in South Dakota.<sup>111</sup> Therefore, some South Dakotans believe a grassroots citizen's organization is needed to advocate progressive renewable energy policy.<sup>112</sup> Support from rural advocacy groups can have significant influence on the adoption of renewable energy policy, as was seen in Colorado when rural advocacy groups played an instrumental role in passing Amendment 37<sup>113</sup> on the Colorado 2006 ballot.<sup>114</sup>

## FOREMOST CHALLENGES AND POTENTIAL STATE ACTIONS

There are several key obstacles impeding the expansion of wind energy in South Dakota. Wind Powering America (WPA) is a program within the Department of Energy that aims to assist states in capitalizing on their wind resources. WPA determines which states to assist based on a variety of factors, including the amount of installed generation, how much advocacy there is within the state from citizen's organizations and public officials, and whether there is an RPS or other policies in effect, such as model ordinances, state incentives, and net metering.<sup>115</sup> According to Marguerite Kelly from WPA, "We work with the stuck states. South Dakota has a great wind resource and very little on the ground so far. So that is where we work." South Dakota's largest challenge is insufficient transmission, locating distant markets to export its wind energy, and the need for regional planning.<sup>116</sup>

Regional planning is of the utmost importance for many rural states. Through regional

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<sup>111</sup> Hunter Roberts, Director of the Energy Infrastructure Authority, interview by author, Pierre, SD, March 4, 2009.

<sup>112</sup> State Senator Jean Hunhoff (R-District 18), interview by author, Yankton, SD, July 1, 2008.

<sup>113</sup> John Convert, Colorado Working Landscapes, interview by author, Denver, CO, July 2, 2008.

\* Amendment 37 enacted the first RPS in Colorado. The law has since been amended into a more aggressive RPS.

<sup>114</sup> Ibid.

<sup>115</sup> Margurite Kelly, Senior Project Manager, National Renewable Energy Laboratory, Wind Powering America, interview by author, Golden, CO, June 7, 2008.

<sup>116</sup> Steve Wegman, Wind Powering American's South Dakota Contact and Former Public Utilities Commissioner, telephone interview by author, August 1, 2008.

planning, rural states can work to secure out-of-state markets, encourage interstate transmission planning, and advocate that certain transmission policies be changed to encourage wind energy development within their states. The problem of “pancaking rates” is one example that emphasizes the need for regional planning and cooperation. Despite South Dakota having an excellent wind resource, there is a loss of cost competitiveness during the transfer of electricity to distant load centers. Costs are pancaked to wind energy generated in South Dakota because the transmission tariffs add cost to electricity whenever it passes through non-jurisdictional transmission entities, possibly increasing the price per kilowatt-hour up to 15 percent.<sup>117</sup> South Dakota wind energy will be at a price disadvantage as long as Basin Electric and the Western Area Power Administration resist joining the Midwestern Independent Electricity Market Operator (MISO) transmission system.<sup>118</sup> “What is sometimes referred to as an ‘exit charge’ or a ‘through and out’ charge may well impede the ability of distant generators to compete with nearby generators. Indeed, the elimination of an exit charge, especially one imposed on individual inter-regional transactions, would encourage trade among regions and increase competition.”<sup>119</sup> Until non-jurisdictional transmission owners are persuaded to join an ISO within their region, pancaking rates will continue to be a problem whenever an electricity transaction flows across the transmission facilities of non-jurisdictional entities.<sup>120</sup>

One policy tool that has been credited for helping states overcome certain hurdles associated with wind development is the renewable portfolio standard. South Dakota has not adopted an RPS, but passed a non-mandatory renewable electricity objective in 2008, which is

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<sup>117</sup> Dusty Johnson, SD Public Utilities Commissioner, interview by author, Pierre, SD, February 25, 2009.

<sup>118</sup> Ibid.

<sup>119</sup> “Remedying Undue Discrimination Through Open Access Transmission Service and Standard Electric Market Design,” Notice of Proposed Rulemaking, 170, 179 Fed. Reg. 55451 (July 31, 2002), FERC States. And Regs. (2002), <http://www.caiso.com/docs/2002/11/12/2002111215125211680.pdf>.

<sup>120</sup> Ibid.

comparable to a policy goal. Undeniably, the state has benefited from the RPS policies adopted in other states because these policies have expanded the market for wind energy.<sup>121</sup> Individuals from both the traditional and the renewable energy industries say utility companies are hesitant to increase investment in renewable energy without a mandate.<sup>122</sup> Jim Wilcox, an engineer and lobbyist for Xcel Energy explains, “wind power presently exists because of the federal Production Tax Credit and states that have mandated it, such as Minnesota and Texas.” There are policymakers who think an RPS would be valuable because utilities are fundamentally risk adverse and passage of an RPS would pressure utilities to incorporate higher percentages of renewable energy.<sup>123</sup> Although RPS policies have yielded increased wind development, South Dakota remains apprehensive toward adopting such a mandate.

It is difficult to identify precisely why South Dakota has resisted toward the adoption of an RPS. One source of this resistance can be attributed to the state’s political culture. Even though the vast majority of state legislators perceive wind energy as “important” to South Dakota’s economic development, many resist enacting mandates, especially if the affected industry is opposed.<sup>124</sup> South Dakota is a “no mandate state” and resists mandates beyond renewable energy policy, such as the defeat of a mandatory seat-belt bill (SB 103) during the 2009 state legislature.<sup>125</sup> Democrat Representative Mark Feinstein introduced an RPS bill (HB 1272) during the 2008 South Dakota Legislature, but its passage failed in the Senate State

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<sup>121</sup> Hunter Roberts, Director of the Energy Infrastructure Authority, interview by author, Pierre, SD, March 4, 2009.

<sup>122</sup> Rick Schwarck, Chairman, President, and CEO of Absolute Energy, telephone interview by author, November 7, 2008.

<sup>123</sup> Jim Fry, Director of the Legislative Research Council, Pierre, SD, February 27, 2009.

<sup>124</sup> 2009 Survey of the SD State Legislature, conducted by author.  
South Dakota House Minority Leader Bernie Hunhoff, interview by author, Pierre, SD, March 3, 2009.

<sup>125</sup> Senator Minority Leader Scott Heidepriem (D-District 13), interview with author, Pierre, SD, March 5, 2009.

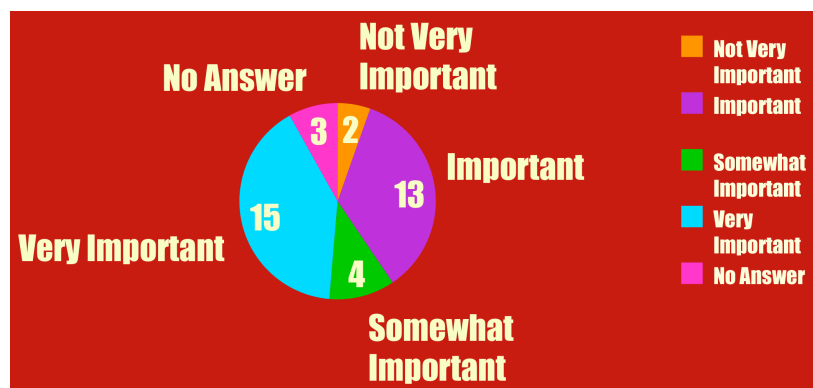


Affairs Committee on a party-line vote.<sup>126</sup> Instead, the state legislature passed a renewable portfolio objective that established a goal that South Dakota should achieve a 10 percent renewable portfolio by 2010.<sup>127</sup>

The conservative political culture and party animosity in South Dakota makes it difficult for an ambitious RPS to pass. There is a “snowballs chance South Dakota would enact an RPS,” said Jim Fry, Director of the S.D. Legislative Research Council.<sup>128</sup> At present, it is unlikely the South Dakota legislature would pass an RPS, unless there was a change in party control or general Republican sentiments toward legislative mandates.<sup>129</sup> There is significant division among Republicans and Democrats in their support for an RPS. According to a survey of state legislators, Democrats tend to be more supportive of RPS policies with around 84 percent of Democrat respondents saying a mandatory RPS was either “very important,” “important” or “somewhat important” to stimulating wind energy growth.

FIGURE 7a and 7b. Perception of the Importance of a Mandatory PRS on Wind Energy Growth

FIGURE 7a. The Perceived Importance of a Mandatory RPS by SD State Democrat Legislators (33/38 Response Rate of SD House and Senate Democrats)



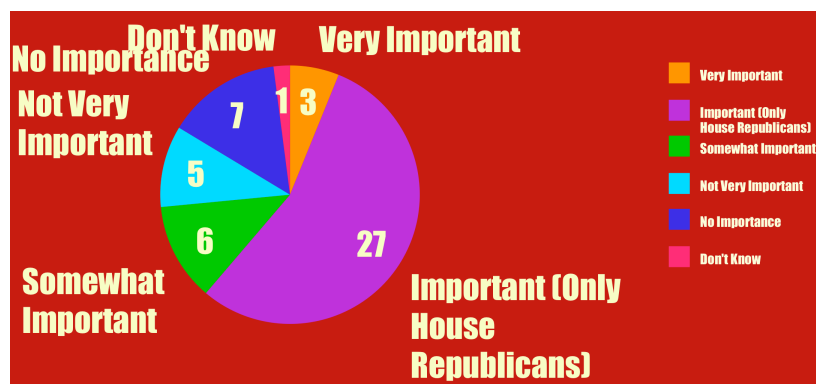
<sup>126</sup> Representative Mark Feinstein (D-District 14), interview with author, Pierre, SD, March 13, 2009.

<sup>127</sup> \*Republican Legislator Joel Dykstra introduced the Renewable Electricity Objective bill and served as the prime sponsor of the bill.

<sup>128</sup> Jim Fry, Director of the Legislative Research Council, Pierre, SD, February 27, 2009.

<sup>129</sup> State Senator Jean Hunhoff (R-District 18), interview by author, Yankton, SD, July 1, 2008.

FIGURE 7b. The Perceived Importance of a Mandatory RPS by SD State Republican Legislators (49/67 Response Rate of SD House and Senate Republicans)



Individuals familiar with South Dakota political culture attribute the legislature's opposition toward an RPS to its tendency to resist adopting progressive policy. Jim Fry, the Director of the SD Legislative Research Council, explained that it is unlikely the legislature would pass an RPS because the state is rarely at the "forefront of progressive policy."<sup>130</sup> Assistant House of Representatives Leader Kristi Noem further explained that South Dakota often resists mandates, even if mandates often lead to growth. Rep. Noem said, "progressive states are the leaders and we [conservative states] are often the followers" due to a host of factors ranging from having yet to recognize our wind resource potential to skepticism towards climate change to fear of rising electricity costs.<sup>131</sup> Senator Cooper Garnos (R-District 21) attributes South Dakota's resistance to fear of change and admits that the time may have come for South Dakota to become more of a leader in renewable energy. He expressed the need to

<sup>130</sup> Jim Fry, Director of the Legislative Research Council, Pierre, SD, February 27, 2009.

<sup>131</sup> Representative Kristi Noem (R-District 6), House of Representatives Assistant Leader, Pierre, SD, March 5, 2009.

determine what is best for South Dakota by weighing what is good for the environment with what is good for the economy.<sup>132</sup>

Despite greater awareness of climate change fueling demand for wind energy, many South Dakotans are skeptical of the existence or severity of climate change. This skepticism toward climate change and the weak commitment to its mitigation make it difficult to build support for ambitious renewable energy policy. The prospect of increased economic development is the driving force behind support for wind energy in South Dakota, and the environmental benefits are secondary.<sup>133</sup> The environmental benefits associated with wind energy have contributed to motivating the adoption of bold renewable energy policy in many states, despite some of these states having poor renewable energy potential. At present, global climate change is not a significant policy issue in South Dakota, and therefore state legislators are often not willing to risk raising utility costs in an effort to mitigate climate change. “Climate Change is not one bit a factor influencing the majority of legislators,” said Jim Fry, Director of the SD Legislative Research Council.<sup>134</sup>

A survey of the SD Senate and House of Representatives membership confirmed Mr. Fry’s assessment. The survey showed global climate change is not a salient issue among many legislators with 44.4 percent of respondents from the Senate believing climate change is not anthropogenically-caused and 5.4 percent and 42.9 percent believing climate change either does not exist or is not anthropogenic, respectively, from the House of Representatives.<sup>135</sup> As reflected in the survey, many government officials in South Dakota believe the potential threat of climate change is not worth risking electricity cost increases. SD Public Utilities

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<sup>132</sup> State Senator Cooper Garnos (R-District 21), interview by author, Pierre, SD, March 12, 2009.

<sup>133</sup> Ibid.

<sup>134</sup> Jim Fry, Director of the Legislative Research Council, Pierre, SD, February 27, 2009.

Commissioner Steve Kolbeck, explained, “political popularity should not dictate investment in utilities.” Furthermore, Commissioner Kolbeck explained that many legislators still question the potential consequences of climate change, and therefore, the potential problems associated with wind energy cannot be offset by the perceived benefits of climate change mitigation.

There are opponents to RPS policies who believe governments should approach carbon reduction through a technology-neutral approach.<sup>136</sup> These officials often perceive an RPS as a “crude tool.” Public Utilities Commissioner Dusty Johnson said, “wind for wind’s sake does not make environmental sense.” Instead of establishing certain renewable energy percentage benchmarks, these individuals believe the government should rely on market competition and allow other technologies, such as nuclear energy and carbon sequestration, to compete.<sup>137</sup>

As earlier stated, the largest concern regarding an RPS is the threat of subsequent cost increases. This concern is aggravated in a state, like South Dakota, with a small population disproportionately affected by rural poverty. In South Dakota, 1 in 10 people east of the Missouri River and 1 in 5 people west of the Missouri River currently cannot pay their electricity bills.<sup>138</sup> The implementation of an RPS may be more burdensome on residents in rural states because fewer people are available to absorb the costs increases that may be incurred.<sup>139</sup> South Dakota is a state that has traditionally enjoyed low electricity costs because of its reliance on coal-generated power, which accounts for a large portion of its electricity portfolio.<sup>140</sup> An RPS mandating higher percentages of renewable energy be incorporated into the existing portfolio could raise electricity rates because wind energy is not cost competitive

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<sup>136</sup> Karl Mallon, “Myth, Pitfalls and Oversights,” *Renewable Energy Policy and Politics* (Earthscan: London, 2006), 19-20.

<sup>137</sup> Dusty Johnson, SD Public Utilities Commissioner interview by author, Pierre, SD, February 25, 2009.

<sup>138</sup> Steve Kolbeck, SD Public Utilities Commissioner, interview by author, Pierre, SD, March 5, 2009.

<sup>139</sup> Ibid.

<sup>140</sup> Michael Milligan, Consultant, National Renewable Energy Laboratory, interview by author, Golden, CO, July 7, 2009.

with depreciated coal resources.<sup>141</sup> Many policymakers believe the large infrastructure development necessary to absorb large-scale wind energy development would be costly and could become burdensome if South Dakota's small population were to solely absorb its costs.<sup>142</sup> In addition, critics cite South Dakota's reliance on natural gas to meet only a small portion of its electricity needs, and claim wind integration will be more difficult because coal generation is not as flexible to ramp up or shut down in offsetting wind resource variability.<sup>143</sup>

There is greater possibility that electricity costs could increase as a result of an RPS than a renewable electricity objective. Passage of an RPS affords investor-owned utilities greater leverage in passing rate increases onto their customers.<sup>144</sup> State Public Utilities Commissions have traditionally overseen investor-owned utilities, requiring these utilities to justify electricity rate increases and receive approval from the Commission. When a state enacts an RPS, it becomes much easier for utilities to justify rate increases because their compliance with the RPS is mandatory. Jim Wilcox, a lobbyist for Xcel Energy, explained:

South Dakota's main interest is keeping the cost of electricity down. Having a mandatory standard would actually make it easier for Xcel Energy. With the objective, we can only meet the objective with very low cost projects...all wind energy that gets developed in South Dakota must meet a reasonableness test to ensure the project is cost effective.<sup>145</sup>

South Dakota's renewable energy objective makes development of wind energy more challenging for regulated utilities because they must prove proposed wind projects are cost-competitive and they face rigorous scrutiny when requesting cost-recovery to the Public Utilities Commission.

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<sup>141</sup> Margurite Kelly, Senior Project Manager, National Renewable Energy Laboratory, Wind Powering America, interview by author, Golden, CO, June 7, 2008.

<sup>142</sup> Ibid.

<sup>143</sup> Hunter Roberts, Director of the Energy Infrastructure Authority, interview by author, Pierre, SD, March 4, 2009.

<sup>144</sup> Ibid.

<sup>145</sup> Jim Wilcox, Engineer and Lobbyist for Xcel Energy, interview by author, Pierre, SD, February 26, 2009.

Incorporating cost caps into an RPS policy can reduce concerns that cost increases could follow the adoption of an RPS. Montana has adopted an RPS, which sets the state apart from many of its neighboring states and other rural and sparsely populated states. The RPS enacted in Montana has set cost caps that aim to ensure the policy will not dramatically raise electricity costs for state residents. Montana has three utility providers, which include the rural electric cooperatives, North Western Power, and Montana-Dakota Utility (MDU). Under the Montana RPS, rural electric cooperatives are exempt, but cooperatives with more than 5,000 customers are encouraged to participate. Cooperatives are exempt because the Montana Public Services Commission has not traditionally exercised oversight over cooperatives and cooperatives would be under a greater burden trying to comply with an RPS. The Montana RPS tailors two cost caps to its regulated utilities. The cost cap for North Western Power is stringent, requiring the utility to open a competitive bidding process for renewable energy projects and select projects that are less than or equal to the cost of traditional energy resources. The cost cap placed on MDU is less strict because the utility is smaller and serves more rural customers than North Western Power. Under the cost cap for MDU, the renewable projects used to meet the RPS cannot exceed 15 percent of traditional energy resource costs.

Other criticism states that RPS policies in South Dakota could make existing wind energy less profitable because some “green tags” would need to be retired. The energy generated from wind energy in South Dakota presently can be sold as green tags or can be used by utility providers to meet out-of-state RPS mandates.<sup>146</sup> If South Dakota were to pass an RPS, then utilities in South Dakota would need to retire some of their green tags to meet South Dakota’s mandate, reducing the profit from wind energy and possibly raising electricity rates

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<sup>146</sup> Dusty Johnson, SD Public Utilities Commissioner, interview by author, Pierre, SD, February 25, 2009.

for South Dakota consumers, according to opponents. The money generated from selling green tags can assist utilities in off-setting the additional costs incurred from the renewable project and can mitigate rises in electricity rate increases.<sup>147</sup> Seventeen states have created Public Benefit Funds, generally collecting a small charge on the bill of every electric customer or specified contributions from utilities to siphon money to support renewable energy projects.<sup>148</sup> South Dakota is a low tax state, and it is especially unlikely the state would consider raising taxes during the present economic recession.<sup>149</sup> Therefore, critics of an RPS claim it is important that utilities are able to capitalize on the sale of green tags to assist them in the transition to greater integration of renewable energy.<sup>150</sup>

Lastly, there are those who are uncertain that an RPS policy would result in large amounts of installed wind energy capacity. With South Dakota's small electrical load, even a high percentage mandate may not directly produce large amounts of installed wind generation. Steve Wegman, a former SD Public Utilities Commissioner, explained that even if an ambitious mandate were enacted, South Dakota with a small daily load of 2,800 megawatts would not equal significant amounts of generation.<sup>151</sup> According to Hunter Roberts, the head of the Governor's Energy Infrastructure Authority, "Regardless of what standard could be established, South Dakota has much higher goals." Although South Dakota lags behind many of its neighbors in installed wind energy capacity, the state has enough wind energy being generated, most of which is exported, that 26 percent of homes could be powered by wind

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<sup>147</sup> Ibid.

<sup>148</sup> "Public Benefit Funds," Pew Center on Global Climate Change, [http://www.pewclimate.org/what\\_s\\_being\\_done/in\\_the\\_states/public\\_benefit\\_funds.cfm](http://www.pewclimate.org/what_s_being_done/in_the_states/public_benefit_funds.cfm).

<sup>149</sup> Steve Willard, Executive director of the South Dakota Electric Utility Companies, interview by author, Pierre, SD, March 3, 2009.

<sup>150</sup> Dusty Johnson, SD Public Utilities Commissioner, interview by author, Pierre, SD, February 25, 2009.

<sup>151</sup> Steve Wegman, Wind Powering American's South Dakota Contact and Former SD Public Utilities Commissioner, telephone interview by author, August 1, 2008.

energy, if consumed in South Dakota.<sup>152</sup> Yet, it is important to note that this percentage is not evenly distributed among South Dakota utilities. If an RPS were adopted, it could require all investor-owned utilities to begin incorporating larger amounts of wind energy into their energy portfolios, which would increase the amount of wind energy installed in South Dakota and would “get the ball rolling for all utilities” to begin buying or developing wind energy.<sup>153</sup>

For South Dakota to ever become a leading producer of wind energy, the state must go beyond local use to sustain large amounts of wind energy development. Utility-scale development will most likely be fueled by demand from out-of-state markets that can consume large amounts of new generating capacity.<sup>154</sup> “South Dakota wind energy hinges on other state Renewable Portfolio Standards or federal action,” said Jim Wilcox, a lobbyist for Xcel Energy.<sup>155</sup> As utilities in other states seek to meet other state mandates, a larger market is being created for South Dakota wind energy. In addition, if the federal government were to enact a national renewable portfolio standard or a carbon auction or tax, South Dakota wind energy would become increasingly competitive and attractive to wind energy developers and utility providers.

Although the South Dakota Legislature has resisted a renewable energy mandate, it has provided tax incentives to encourage the development of wind energy. South Dakota has made progress in recent years by reducing the gap between its incentives compared to the incentives

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<sup>152</sup> Dusty Johnson, SD Public Utilities Commissioner, interview by author, Pierre, SD, February 25, 2009.

\* Much of the wind energy generated in South Dakota is being exported to out of state markets, and the overall amount being generated is enough to power 26 percent of homes. This figure is also not spread around evenly among all electricity providers in South Dakota.

<sup>153</sup> Margurite Kelly, Senior Project Manager, National Renewable Energy Laboratory, Wind Powering America, interview by author, Golden, CO, June 7, 2008.

<sup>154</sup> Representative Kristi Noem (R-District 6), House of Representatives Assistant Leader, Pierre, SD, March 5, 2009.

<sup>155</sup> Jim Wilcox, Engineer and Lobbyist for Xcel Energy, interview by author, Pierre, SD, February 26, 2009.



offered in neighboring states. According to Hunter Roberts of the Governor's Energy Infrastructure Authority, the Authority worked to determine the state's competitiveness by running cross comparisons with Minnesota and North Dakota and found that "South Dakota is in the right ball park." Mr. Roberts explained the incentives offered, and particularly the Contractors Excise Tax, are relatively competitive, especially for larger projects of 100 megawatts and above. Nevertheless, the tax incentives offered in North Dakota remain more cost competitive. In fact, a North Dakota project becomes revenue negative in 25 years because of the tax incentives.<sup>156</sup> The North Dakota state government can offer such competitive tax incentives because of the tax revenue produced from coal production.

South Dakota's small tax base makes it difficult for the state to provide as generous incentives and grants as other states with greater discretionary spending.<sup>157</sup> Dr. Michael Twedt, a Professor at South Dakota State University explains, "South Dakota seems to be pretty laid back with incentives. There is less of a tax base in South Dakota, so you have less to work with. Having a low tax base is good at first, but then it makes giving incentives difficult."<sup>158</sup> Therefore, legislators must balance the need to provide incentives with the need to stimulate local and state tax bases.<sup>159</sup> Governor Rounds said, "We want South Dakota to be competitive. We want to provide incentives, but then again, we still do want them [the developers] to pay a fair share, but it should not be cost prohibitive."

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<sup>156</sup> Hunter Roberts, Director of the Energy Infrastructure Authority, interview by author, Pierre, SD, March 4, 2009.

<sup>157</sup> Jim Fry, Director of the Legislative Research Council, Pierre, SD, February 27, 2009.

<sup>158</sup> Professor Michael Twedt, South Dakota State University, Brookings, SD, July 30, 2008.

<sup>159</sup> Dusty Johnson, SD Public Utilities Commissioner, interview by author, Pierre, SD, February 25, 2009.

Gubernatorial leadership has been an instrumental factor in encouraging the adoption and implementation of renewable energy policy in many states.<sup>160</sup> Gubernatorial leadership on renewable energy can transcend party affiliation, as has been seen in Colorado with Democrat Governor Ritter or in Minnesota with Republican Governor Tom Plunty, for example. Governor Ritter won the governorship in 2006 in an election where renewable energy played a central role in his campaign. Since his election, he expanded the Colorado Governor's Energy Office (GEO) into a thirty-person staff office that works to advance the Governor's renewable energy agenda.<sup>161</sup> According to its website, the GEO "recognizes the critical role it plays in charting Colorado's leading role in the provision of clean and renewable forms of energy."<sup>162</sup> In many state governments, the governor plays the principal role in directing policy, yet it is difficult to quantify the importance of gubernatorial leadership. In Montana, for example, gubernatorial leadership played an instrumental role in motivating the legislature to adopt an RPS in its 2005 Renewable Power Production and Rural Economic Development Act (SB 415) RPS.<sup>163</sup> In fact, the RPS legislation in Montana was introduced at the request of Governor Brian Schweitzer.

In South Dakota, gubernatorial support is essential in order to get public policy adopted.<sup>164</sup> Undeniably, wind energy development has experienced gains while Governor Rounds has been in office. Governor Rounds discussed the importance of renewable energy in his 2009 State of the State Address. On January 13, 2009, Governor Rounds acknowledged the

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<sup>160</sup> Joel Beauvais, Counsel for the U.S. House of Representatives Select Committee on Energy Independence and Climate Change, interview by author, Washington, DC, November 18, 2008.

<sup>161</sup> Matt Futch, Utilities Program Manager, Colorado Governor's Energy Office, Denver, CO, July 3, 2008.

<sup>162</sup> "Program Overview," Colorado Governor's Energy Office Website, <http://www.colorado.gov/energy/index.php?/about/program-overviews/>.

<sup>163</sup> Sonja Nowakowski, Legislative Services Research Assistant, Montana Legislative Services, telephone interview by author, April 22, 2009.

<sup>164</sup> Jim Fry, Director of the Legislative Research Council, Pierre, SD, February 27, 2009.

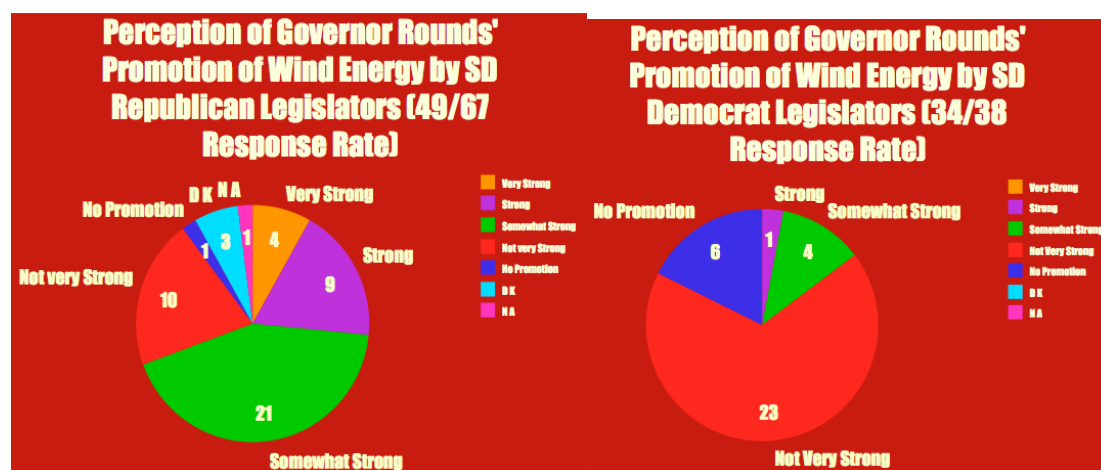
importance of wind energy and explained the actions the state government had taken to promote wind energy:

South Dakotans .... are starting to embrace wind power for its environmental and economic benefits. More wind power means lease payments to landowners; additions to the local property tax base to help hold down taxes on everyone else; and new construction, operation, and manufacturing jobs.

To accelerate more wind power development, last year we changed the way we tax wind farms to make South Dakota’s tax structure more attractive for wind power developers. The new law provides a rebate on some of the taxes that can then be used to build transmission lines and substations.<sup>165</sup>

Despite the Governor’s supportive rhetoric exhibited in his State of the State Address, it is difficult to determine his prioritization of wind energy development. There is discrepancy among public officials in their perceptions of the Governor’s commitment to wind energy.<sup>166</sup> In a 2009 survey of SD state legislators, the majority of Republicans perceived the Governor’s promotion of wind energy as “somewhat strong,” whereas the majority of Democrats perceived the Governor’s promotion of wind energy as “not very strong” (FIGURE 8).<sup>167</sup>

FIGURE 8. Perception of the Governor’s Promotion of Wind Energy By South Dakota Republican and Democrat State Legislators



<sup>165</sup> Governor Michael Rounds, State of the State Speech, 13 January 2009, Pierre, SD, <http://www.state.sd.us/governor/>.

<sup>166</sup> Jim Fry, Director of the Legislative Research Council, Pierre, SD, February 27, 2009.

<sup>167</sup> 2009 South Dakota Legislative Survey, conducted by author.

In response to Governor Rounds' 2009 State of the State Address, Senate Minority Leader Scott Heidepriem (D-District 13), a potential 2010 Democratic gubernatorial candidate, criticized the speech as an "hour-long message [that] contained no new proposals."<sup>168</sup> Margurite Kelly of Wind Powering America explained that gubernatorial leadership is important in stimulating wind development within a state. She said [South Dakota] does not have a very active state energy office and observed that Governors in conservative states often "feel their job is to nurture what is, instead of making a change."<sup>169</sup> Critics of Governor Rounds have argued that his administration lacks vision and have labeled it a "maintainer" or "caretaker" government.<sup>170</sup> However, other public officials counter these critics by claiming Governor Rounds has not received sufficient credit for the expansion of South Dakota's wind industry.<sup>171</sup> According to SD Public Utilities Commissioner Dusty Johnson, Governor Rounds re-started the Energy Infrastructure Authority within the Economic Development Department and has worked on many long-term and multi-jurisdictional projects in which it is difficult for him to receive principal credit for their progress.<sup>172</sup>

Much of the frustration toward Governor Rounds has come from the perceived inaction by the Governor's Energy Infrastructure Authority, which the Governor assigned the task of promoting renewable energy development in South Dakota.<sup>173</sup> In response to the question, "How much interest has Governor Rounds shown in expanding wind energy development,"

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<sup>168</sup> Terry Woster, The Associated Press, "Some lawmakers say governor is leaving decisions to them," *The Rapid City Journal*, 4 February 2009, [http://rapidcityjournal.com/articles/2009/02/04/news/legislature/2008\\_stories/doc496d2d165d18e037491129.txt](http://rapidcityjournal.com/articles/2009/02/04/news/legislature/2008_stories/doc496d2d165d18e037491129.txt).

<sup>169</sup> Margurite Kelly, Senior Project Manager, National Renewable Energy Laboratory, Wind Powering America, interview by author, Golden, CO, June 7, 2008.

<sup>170</sup> Former SD Senator Tom Katus (D-District 32), interview by author, Rapid City, SD, July 25, 2008.

<sup>171</sup> Dusty Johnson, SD Public Utilities Commissioner, interview by author, Pierre, SD, February 25, 2009.

<sup>172</sup> Ibid.

<sup>173</sup> An observation by the author of the paper while working on a fellowship in Pierre, SD, the State Capitol and after interviewing legislators, lobbyists, and state employees.

Senator Jean Hunhoff (R-District 18), chairwoman of the Senate Appropriations Committee, said, “I want to say...that it is not necessarily a priority. If it was, then you would probably see the energy authority more active. I think he [the Governor] could do better. I think you need to have champions...”<sup>174</sup> Others have been more critical of Governor Rounds’ leadership, such as Senator Minority Leader Scott Heidepriem who said, “we need to move from benign neglect to activism. Gubernatorial leadership is critical, especially in a strong executive and weak legislature model. The leadership must come from the executive.”<sup>175</sup> The frustration and skepticism toward the Authority has been exacerbated by the frequency with which the head of the Authority, Hunter Roberts, testified against community wind and small-scale wind energy development legislation.

The Governor’s administration often resists legislation that would encourage small-scale and locally owned wind energy development.<sup>176</sup> In an interview, Governor Rounds explained, “The large projects are more efficient than the small projects. Additionally, the small projects are more expensive and the rate of return is less. The larger projects are more efficient over the long term.” Wind energy generally is not a partisan issue in South Dakota, except party affiliation becomes divisive when legislation is proposed to either support locally owned wind energy or when mandates are considered.<sup>177</sup> Democrats largely favor locally-owned wind energy (also known as community-based wind energy), whereas Republicans largely favor reliance on market competition. When asked whether the state government should provide support to encourage community and residential wind energy development, 81 percent

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<sup>174</sup> State Senator Jean Hunhoff (R-District 18), interview by author, Yankton, SD, July 1, 2008.

<sup>175</sup> Senator Minority Leader Scott Heidepriem (D-District 13), interview with author, Pierre, SD, March 5, 2009.

<sup>176</sup> Frank James, Director of Dakota Rural Action, interview by author, Brookings, SD, July 30, 2008. Representative Kristi Noem (R-District 6), House of Representatives Assistant Leader, Pierre, SD, March 5, 2009.

<sup>177</sup> Sylvia Christen, Dakota Rural Action, interview by author, Pierre, SD, March 11, 2009.

of Democrat legislators responded, “Yes,” compared to 29 percent of Republican legislators who responded, “Yes.”<sup>178</sup>

The resistance towards locally owned or small-scale wind development by the Governor and many Republican legislators has been motivated by a desire to not validate an economic model that is perceived to not make “economic sense.” Instead, these lawmakers often opt to support corporate wind development via tax incentives.<sup>179</sup> Despite Community-Based Energy Development (C-BED) legislation being proposed multiple times, the legislation has been soundly defeated on a party-line vote.<sup>180</sup> The argument that community wind energy does not make economic sense is rooted in the belief that these projects often lack economy of scale, the expertise, and a willing buyer, which consequently may raise electricity rates.<sup>181</sup> Other critics believe it is unnecessary for the state government to incentivize or mandate the development of C-BED projects because if a community wind project makes economic sense, then it will be built without state intervention.<sup>182</sup> However, proponents of C-BED legislation claim the state government should encourage community wind energy, citing increased revenue creation and retention within a community as a principal benefit.<sup>183</sup>

In addition to resistance toward C-BED legislation, the South Dakota Legislature has also resisted adopting other policy tools that have been employed in other states to promote locally owned wind development. Net metering is one policy that allows customers to receive full value for the electricity generated from a renewable energy project and increases the rate of

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<sup>178</sup> 2009 Survey of the SD Legislature, conducted by author.

<sup>179</sup> Steve Willard, Executive director of the South Dakota Electric Utility Companies, interview by author, Pierre, SD, March 3, 2009.

<sup>180</sup> Frank James, Director of Dakota Rural Action, interview by author, Brookings, SD, July 30, 2008.

<sup>181</sup> Steve Willard, Executive director of the South Dakota Electric Utility Companies, interview by author, Pierre, SD, March 3, 2009.

<sup>182</sup> Steve Kolbeck, SD Public Utilities Commissioner, interview by author, Pierre, SD, March 5, 2009.

<sup>183</sup> Dusty Johnson, SD Public Utilities Commissioner, interview by author, Pierre, SD, February 25, 2009.

return on the project.<sup>184</sup> Net metering allows the customer to bank the excess electricity produced by the wind turbine until it is needed by the customer, providing the customer full retail value for the electricity produced.<sup>185</sup> Since April 2009, 42 states and the District of Columbia have net metering.<sup>186</sup> Rural electric cooperatives have historically opposed net metering, which represents the largest resistance toward the legislation in South Dakota and the other rural states that have yet to adopt the legislation.<sup>187</sup> Governor Rounds explained that he opposes net metering because “the owner of the wind turbine does not pay their fair share of the cost of the infrastructure.” The most common argument against net metering is that the policy allows a certain segment of the population to inappropriately take advantage of the electrical system, specifically, individuals with a quality wind resource on their property and with enough discretionary spending to invest in a high capital-intensive renewable energy project.<sup>188</sup>

Despite the arguments against C-BED and net metering legislation, the policies have been important factors in stimulating local-ownership and small-scale wind energy development in other states. In an interview with Frank James, the Director of Dakota Rural Action, he explained, “net metering is the ‘holy grail’ of distributed wind energy

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<sup>184</sup> “Wind Energy FAQ,” American Wind Energy Association, <http://www.awea.org/faq/netbdef.html#Whatisnetmetering>.

<sup>185</sup> “Wind Energy FAQ,” American Wind Energy Association, <http://www.awea.org/faq/netbdef.html#Whatisnetmetering>.

<sup>186</sup> “Net Metering Programs By State,” The Green Power Network, U.S. Department of Energy, April 2009, [http://apps3.eere.energy.gov/greenpower/resources/maps/netmetering\\_map.shtml](http://apps3.eere.energy.gov/greenpower/resources/maps/netmetering_map.shtml).

\*The states that have not adopted net metering include: South Dakota, Nebraska, Kansas, South Carolina, Alabama, Mississippi, Tennessee, and Alaska. However, Idaho, Michigan, and Arizona have net metering voluntarily offered by one or more utilities.

<sup>187</sup> Ed Anderson, Director of Government Relations, South Dakota Rural Electric Association, Pierre, SD, July 17, 2008.

<sup>188</sup> Bradley J. Schardin, General Manager, Southeastern Electric Cooperative, Inc., interview by author, Marion, SD, July 17, 2008.

generation.”<sup>189</sup> Despite arguments against net metering, the policy has not been shown to have a significant effect on utility costs in the states that have implemented the policy.<sup>190</sup> Although South Dakota presently lacks the transmission infrastructure to absorb large amounts of utility-scale development, many proponents of C-BED or small-scale wind development claim these projects will ensure continued wind energy development because the existing transmission grid can often absorb these projects.<sup>191</sup> According to Pat Spears, the President of the Intertribal Council on Utility Policy, there are “sweet spots” on the existing transmission grid that can absorb projects fewer than 100 megawatts.<sup>192</sup> However, it is important to note that community-based and residential wind energy will not reduce carbon emissions as significantly as utility-scale wind projects because they are generally smaller.<sup>193</sup>

Despite not being a principal source of emissions reduction, proponents of community wind energy claim its expansion encourages public awareness and local economic development. Smaller-scale wind energy development can play an excellent educational role in increasing public awareness and support for renewable energy.<sup>194</sup> In addition, proponents of small-scale development claim local ownership maximizes the economic benefits a community

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<sup>189</sup> Frank James, Director of Dakota Rural Action, interview by author, Brookings, SD, July 30, 2008.  
Joel Beauvais, Counsel for the U.S. House of Representatives Select Committee on Energy Independence and Climate Change, interview by author, Washington, DC, November 18, 2008.

<sup>190</sup> Sylvia Christen, Dakota Rural Action, interview by author, Pierre, SD, March 11, 2009.

<sup>191</sup> Professor Michael Twedt, South Dakota State University, Brookings, SD, July 30, 2008.

<sup>192</sup> Pat, Spears, President of the Intertribal Council on Utility Policy, interview by author, Pine Ridge, SD, June 23, 2008.

<sup>193</sup> Joel Beauvais, Counsel for the U.S. House of Representatives Select Committee on Energy Independence and Climate Change, interview by author, Washington, DC, November 18, 2008.

Michael Milligan, Consultant, National Renewable Energy Laboratory, interview by author, Golden, CO, July 7, 2009.

<sup>194</sup> Margurite Kelly, Senior Project Manager, National Renewable Energy Laboratory, Wind Powering America, interview by author, Golden, CO, June 7, 2008.

\* According to the Wind Powering America Program with in the U.S. Department of Energy, the Wind For Schools program aims to “raise awareness in rural America about the benefits of wind energy while simultaneously developing a wind energy knowledge base in future leaders of our communities, states, and nation.”



can receive from wind energy development. According to Frank James, the Director of Dakota Rural Action, “Companies will come [to develop wind energy] regardless, so why not allow communities to get involved, too.”<sup>195</sup> Acknowledging the challenges associated with getting a locally owned wind project to become operational, Senate and House Minority Leaders Scott Heidepriem and Bernie Hunhoff have stated that the state should provide additional incentives for C-BED projects, beyond the general incentive presently offered that are designed to benefit utility-scale development.

## CONCLUSION

Many rural communities, including those in South Dakota, have experienced declining populations, as residents are attracted to the economic prospects of larger cities.<sup>196</sup> In addition, South Dakota is home to some of the poorest counties in the United States, particularly on its eight American Indian Reservations.<sup>197</sup> The expansion of both locally owned and corporate wind energy has the potential to direct needed revenue into these areas.

The South Dakota state government should consider continuing its promotion of wind energy development because of the economic opportunities to be gained from the expansion of wind energy. Transmission is one of the largest hurdles facing the expansion of wind energy, and therefore the state government should continue to encourage bonding and to allow a portion of its tax incentives to be used to encourage transmission development. The Western Area Power Administration’s transmission system that follows the hydroelectric dams along the Missouri River may also provide greater transmission availability. The Governor should

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<sup>195</sup> Frank James, Director of Dakota Rural Action, interview by author, Brookings, SD, July 30, 2008.

<sup>196</sup> Leroy Mauch, Commission Chair, Prowers County, CO, telephone interview by author, July 3, 2008.

<sup>197</sup> Faye Brown, Development and Communications Director, Honor the Earth, interview by author, Pine Ridge, SD, June 26, 2008.

Winona LaDuke, Director, Honor the Earth, interview by author, Washington, DC, December 2, 2008.

consider advocating for wind energy integration into the WAPA transmission system and should encourage WAPA to upgrade its transmission lines, which would provide even greater transmission capacity.<sup>198</sup>

Several transmission development companies have recently proposed projects that, if developed, could lessen the transmission limitations in the Upper Midwest.<sup>199</sup> ITC Holdings, Inc., the largest electricity transmission company in the United States, announced its plans to build a “Green Power Express.” The Green Power Express transmission project “would facilitate the movement of 12,000 megawatts of power from the wind-abundant areas in the Dakotas, Minnesota and Iowa to Midwest load centers, such as Chicago, southeastern Wisconsin, Minneapolis and other states that demand clean, renewable energy,” according to an ITC Holdings press release.<sup>200</sup> The state government could serve as a supportive entity while ITC Holdings works to obtain the necessary easement and siting permits.<sup>201</sup>

While South Dakota presently lacks the transmission infrastructure to sustain large amounts of utility-scale wind energy development, smaller-scale wind energy are attractive because the existing grid can often absorb the energy generated. Therefore, the author has concluded that the state legislature should consider broadening its support beyond corporate wind energy development. Net metering is a policy that has been widely adopted throughout the United States and has not dramatically raised utility rates. South Dakota could gradually adopt net metering legislation by first enacting a limited form in which the rural electric cooperatives are exempt or only schools are eligible.

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<sup>198</sup> Lynn Coles, Senior Engineer, National Wind Technology Center, interview by author, Golden, CO, June 30, 2008.

<sup>199</sup> South Dakota Public Utilities Commissioner Dusty Johnson, interview by author, Pierre, SD, February 25, 2009.

<sup>200</sup> “ITC Holdings Unveils Green Power Express,” ITC Holdings Press Release, February 9, 2009, <http://www.nationalwind.org/pdf/GreenPowerExpressPressRelease.pdf>

<sup>201</sup> Hunter Roberts, Director of the Energy Infrastructure Authority, interview by author, Pierre, SD, March 4, 2009.

Community-based wind energy development legislation is another way states can encourage local ownership of wind energy projects. Community wind energy has been shown to create and retain revenue within a community. For that reason, the state legislature should consider adopting C-BED legislation that will incentivize local ownership and encourage utilities to partner with communities. To mitigate the concern that the policy would raise utility rates, price caps could be employed to lessen the risk. In addition, for C-BED and net metering legislation to have a greater chance of passage in the South Dakota Legislature, bipartisan support is needed.

Another policy option is a renewable portfolio standard. This policy has been enacted by many of the states with greatest wind energy generating capacity. Despite abundant wind resource potential, South Dakota has resisted adopting the policy. Rural states have valid concerns that an RPS could raise utility costs; however, the policy adopted in Montana may serve as a model to reduce these concerns through the incorporation of price caps and the exemption for rural electric cooperatives.

Some opponents have argued that an RPS would be insignificant in South Dakota because even an aggressive percentage mandate would produce a relatively small amount of installed wind energy capacity. The wind energy already being generated in South Dakota, most of which is exported, could power 26 percent of South Dakota households. This percentage, however, is not spread evenly among utilities. Therefore, an RPS policy could play an instrumental role in encouraging all investor-owned utilities in South Dakota to begin incorporating wind energy into their portfolio. Lastly, it can be argued that there is a symbolic significance associated with the adoption of an RPS because it exhibits a state's commitment to

renewable energy, yet this value is difficult to quantify.<sup>202</sup>

South Dakota's existing renewable energy objective may actually serve as an effective tool in encouraging wind energy development, while reducing the risk of electricity rate increases. However, for this policy to receive comparable outcomes, it appears that the Governor and the Public Utilities Commission must be vigilant in pressuring the utilities to comply and the state legislature must conduct effective oversight, which at present does not appear to be happening. With the limited scope of this paper, it is difficult to determine the effectiveness of renewable electricity objectives in comparison to RPS policies. There is a need for future research to evaluate the success of the South Dakota objective by its 2010 deadline.

President Barack Obama has made legislation combating global climate change a priority. Congress has begun drafting legislation and final action could come this year or early next. This represents a paradigm shift in United States energy policy. President Obama has spoken often about his plans for the expansion of renewable energy; however, it is yet to be determined whether this rhetoric will actually bring about results. President Obama has called for the United States to "harness the renewable energy that can create millions of new jobs and new industries." However, for a revolutionary transformation in United States energy consumption to occur, the federal government must make a significant fiscal commitment to the rapid expansion of the renewable energy industry, as well as employing other strategies, such as energy efficiency. Without this kind of tangible, on-the-ground support from the federal government, the expansion of the industry will remain incremental.

In contrast to the high levels of government involvement advocated by President Obama, there are other public officials who would prefer that the government take a backseat

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<sup>202</sup> Stephanie Herseth Sandlin, U.S. Representative (D-SD), interview by author, Washington, DC, December 8, 2008.

to private industry development. According to Public Utilities Commissioner Dusty Johnson, “South Dakota’s wind energy development will be an evolution, not a revolution.”

Commissioner Johnson’s assessment may be true, especially due to the existing transmission infrastructure limitations and the market demand needed in sustaining expansive utility-scale wind energy development. Even in an area like South Dakota with a robust wind energy resource, the exploitation of this resource is dependent on numerous variables, including potential federal action, gubernatorial leadership, actions by other states and the cost competitiveness of wind energy compared to traditional energy resources. Despite the bold vision exhibited by President Obama and other lawmakers, a substantial commitment must trickle down to rural states for their resource potential to become fully actualized.

Regardless of the success or failure of President Obama’s climate change policy, South Dakota legislators and the Governor can continue to encourage the gradual development of wind energy. As earlier stated, if the state broadens its support for wind energy to include small-scale and community owned wind projects, then development could continue to grow despite the existing transmission limitations. Regional planning and encouraging future transmission development also remains instrumental to the gradual expansion of wind energy. The development of large-scale wind energy in South Dakota will largely be fueled by the growing demand for an emissions-free energy resource. Therefore, for South Dakota to become a growing leader in the wind energy industry, public officials need to increase their awareness of climate change and their commitment to its mitigation. Whether wind energy development in the rural Midwest, and South Dakota in particular, changes incrementally or rapidly, policymakers at both the federal and state level need to address wind energy’s potential for economic development in rural states and climate change mitigation.

APPENDIX A. The South Dakota State House of Representatives and Senate Legislative Survey

- 1) What is your party affiliation?
  - a. Republican
  - b. Democrat
  - c. Independent
- 2) How important do you think wind energy is to South Dakota's economic development future?
  - a. Very important
  - b. Important
  - c. Somewhat important
  - d. Not very important
  - e. No importance
  - f. I don't know
  - g. No Answer
- 3) How important do you think state policy is in helping to stimulate wind energy growth in South Dakota?
  - a. – g. Same as Question 2
- 4) Is passing a (mandatory) Renewable Portfolio Standard important in order to stimulate wind energy growth in South Dakota?
  - a. – g. Same as Question 2
- 5) How important do you think it is for South Dakota to have a diversified wind energy market that includes community wind energy projects?
  - a. – g. Same as Question 2
- 6) Do you think state government should provide support to encourage community and residential wind energy development?
  - a. Yes
  - b. Maybe
  - c. No
  - d. I don't know
  - e. No Answer
- 7) How much influence does the governor have in shaping your view of wind energy-related policy?
  - a. Very strong influence
  - b. Strong influence
  - c. Somewhat strong influence
  - d. Not very strong influence
  - e. No influence
  - f. I don't know

g. No Answer

8) How would you rate the governor's promotion of wind energy?

a. – g. Same as Question 7

9) Which statement best reflects your view of global climate change?

a. I do not believe climate change exists

b. I believe climate change happens naturally over time and is not caused by humans

c. I believe climate change is largely caused by humans

d. I don't know

e. No Answer

10) Please share your feelings towards the construction of new coal-fired power plants to generate electricity and their potential impact on the environment.

a. I am very concerned

b. I am concerned

c. I am somewhat concerned

d. I am not very concerned

e. I have no concern

f. I don't know

g. No Answer

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