

# **MISO & ERCOT Cost Allocation Methods for New Transmission: A Comparative Analysis**

By Jacob Clark

## **I. INTRODUCTION**

According to Federal Energy Regulatory Commission (FERC) Chairman Jon Wellinghoff, “we need a National policy commitment to develop the extra-high voltage transmission infrastructure to bring renewable energy from remote areas where it is produced most efficiently into our large metropolitan areas where most of this Nation’s power is consumed.”<sup>1</sup> In the U.S., many of the best non-coastal areas to site wind farms are in the corridor running from North Dakota to North Texas.<sup>2</sup> Despite their great wind energy potential, these geographic regions have inadequate transmission connections to regional grids.<sup>3</sup> Allocating the costs of new transmission investment is a controversial process, and different parts of the country have taken different approaches. This study compares the cost allocation methods used by the Midwest Independent Transmission System Operator, Inc. (MISO) to the methods used by the Electric Reliability Council of Texas (ERCOT) and identifies the advantages and disadvantages of each. After explaining the connections between transmission investments and new sources of renewable energy, the discussion outlines the potential benefits that new transmission investments could create. The discussion then identifies the scope of state and federal regulation of transmission projects, followed by a more detailed review of federal regulation of transmission investment. The discussion of federal regulations is followed by

---

<sup>1</sup> *Transmission Infrastructure: Hearing before the S. Comm. on Energy and Natural Resources*, 111<sup>th</sup> Cong. 10 (Mar. 12, 2009) (statement of Jon Wellinghof, Acting Chairman, Federal Energy Regulatory Commission).

<sup>2</sup> See *Wind Resources and Transmission Lines*, U.S. Dept of Energy National Renewable Energy Laboratory (April 19, 2007), [http://http://www.nrel.gov/wind/systemsintegration/images/home\\_usmap.jpg](http://http://www.nrel.gov/wind/systemsintegration/images/home_usmap.jpg).

<sup>3</sup> Steven Ferry, *Restructuring a Green Grid: Legal Challenges to Accommodate new Renewable Energy Infrastructure*, 39 *Envtl. L.* 977, 977 (2009).

comparative analyses of cost allocation in a market that is subject to FERC regulation, and cost allocation in a market in Texas that is not subject to FERC jurisdiction.

### *A. Transmission and Wind Energy*

The electric power system's main components are energy generation, high-voltage electrical transmission facilities, lower-voltage distribution, and end-user consumption, or load. In terms of percentage of generation, wind energy is one of the fastest growing sources of energy in the United States.<sup>4</sup> In 2011, thirty-five percent of new electricity generating capacity was wind powered, adding 6,816 megawatts (MW) of new generating capacity for a total of 46,916 MW installed in the United States to date.<sup>5</sup> The strong growth of wind energy as a generation source can be attributed to increasing public support for renewable energy. This heightened interest in renewable energy is driven by several factors, including concerns about pollution from conventional fossil-fuel energy sources, enhancing national energy security by decreasing dependence on imported fuel, and increased awareness of the adverse effects of climate change.<sup>6</sup>

Despite the promising growth in wind turbine installations, the lack of transmission for wind-generated electricity is one of the greatest impediments to rapid development of utility-scale renewable energy in the United States.<sup>7</sup> Although wind power is the most economically viable renewable resource on a bulk power basis, the best areas for wind generation are located far from load centers, where the existing transmission infrastructure cannot accommodate high

---

<sup>4</sup> Ernest E. Smith & Becky H. Duffen, *Winds of Change: The Creation of Wind Law*, 5 Tex. J. Oil Gas & Energy L. 165, at 166 (1009-2010).

<sup>5</sup> Am. Wind Energy Ass'n ("AWEA"), Annual Report: Wind power bringing innovation, manufacturing back to American Industry, at 2 (2012), available at [http://www.awea.org/newsroom/pressreleases/Annual\\_Report.cfm](http://www.awea.org/newsroom/pressreleases/Annual_Report.cfm).

<sup>6</sup> Darrell Blakeway & Carol Brotman White, *Tapping the Power of Wind: FERC Initiatives to Facilitate Transmission of Wind Power*, 26 Energy L.J. 393 (2005).

<sup>7</sup> Jennifer E. Gardner & Ronald L. Lehr, *Wind Energy in the West: Transmission, Operations, and Market Reforms*, 26 WTR Nat. Resources & Environmental't 13 (2012).

capacity generation.<sup>8</sup> In the MISO region, the strongest wind resources are located in North and South Dakota, and in northern Michigan.<sup>9</sup> Wind resources in Texas are primarily in West Texas and the Panhandle, “where the transmission lines lack the capacity to transfer significant amounts of electricity to the Dallas/Fort Worth Metroplex, Houston, central Texas, and other high population, high-use areas.”<sup>10</sup> Because optimal wind resources are located far from load, the costs of additional transmission investment and construction are often higher than for conventional energy generation plants that can be located closer to transmission facilities and system loads.<sup>11</sup>

### *B. The Chicken and Egg Problem*

The barrier to transmission line construction is a financial barrier often called the chicken-and-egg predicament. Incumbent transmission utilities have little interest in building transmission capacity to remote areas far from the existing generation assets and load centers.<sup>12</sup> Transmission utilities traditionally have no incentive to secure financing for transmission upgrades until the generation assets are in place, when the risk of building futile transmission assets is minimized.<sup>13</sup> At the same time, renewable energy developers are reluctant to develop projects in areas where there are no transmission facilities that would enable them to sell the power harnessed from renewable resources to consumers.<sup>14</sup> Because of community resistance and regulatory barriers to transmission projects, the construction of transmission systems usually

---

<sup>8</sup> Ashley C. Brown & Jim Rossi, *Siting Transmission Lines in a Changed Milieu: Evolving Notions of the “Public Interest” in Balancing State and Regional Considerations*, 81 U. Colo L. Re. 705, 711 (2010).

<sup>9</sup> Patrick L. Anderson, ET AL., *Michigan Unplugged? The Case for Shared Investment in Regional Transmission Projects*. Appendices 2-5 (Anderson Economic Group, LLC, 2011).

<sup>10</sup> Ernest E. Smith, Becky H. Diffen, *Winds of Change: The Creation of Wind Law*, 5 Tex. J. Oil Gas & Energy L. 165, 201-202 (2009-2010).

<sup>11</sup> See Blakeway & Brotman, *supra* note 6, at 401.

<sup>12</sup> *MIT Study On The Future of the Electric Grid*, 96 (MIT, 2011).

<sup>13</sup> *Id.*

<sup>14</sup> *Id.*

takes an average of five to seven years to build, while a wind farm can be built in a year.<sup>15</sup> Thus, even if a transmission project has been granted approval and has secured financing, renewable developers will not build new plants if such plants will have to sit idle for years before they can interconnect to the grid and generate revenue.<sup>16</sup>

### *C. Transmission Congestion*

Where transmission facilities are available to transport power from remote renewable generation plants, transmission congestion can inhibit the delivery of the low-cost renewable power to load centers. Transmission congestion occurs when the amount of power available to be transported across transmission lines exceeds the physical limits of the line.<sup>17</sup> If system operators exceed the physical limits on the line, the line will fail, which can cause grid failure on a larger scale.<sup>18</sup> In order to avoid these failures, system operators on the export side of the transmission system reduce the output of their generation assets, while system operators on the import side of the transmission system increase their input.<sup>19</sup> In terms of wind generation, this constraint means that at times when a remote wind farm is operating at peak capacity, it may not be able to transmit the maximum amount of power that is available to the load center. Instead, the power output of the wind farm will be reduced to the maximum amount that the transmission system can support, and the load center will draw more power from generation facilities that are not constrained by congestion. In this way, transmission congestion can separate a regional

---

<sup>15</sup> Alborz Nowamooz, *Inadequacy of Transmission Lines: A Major Barrier to the Development of Renewable Energy*, 3 *Env'tl & Energy L. & Pol'y J.* 176, 178 (2008).

<sup>16</sup> *MIT*, at 96

<sup>17</sup> See Brendan Kirby & Eric Hirst, *Maintaining Transmission Adequacy in the Future*, *Electricity J.*, Nov. 1999 at 62, 65-66.

<sup>18</sup> *Id.*

<sup>19</sup> Exporters are regions or systems with excess capacity that can be transmitted to regions with greater demand. Importers are regions or systems where demand is high, and electricity can be transmitted into the region to serve that demand.

geographic market into multiple smaller markets that need to rely on more costly, fossil fuel-based generation to meet demand.<sup>20</sup>

Inadequate transmission capacity imposes operational risks on electricity markets, and imposes costs on market participants. For instance, the Northeast blackout of 2003 demonstrated the dangerous instability that inadequate transmission can introduce into a system.<sup>21</sup> In addition, inadequate transmission can impose hundreds of millions of dollars of costs on power purchasers throughout regional power markets because congested transmission lines prevent power purchasers from having access to purchase power from the lowest cost generators.<sup>22</sup> For example, in 2011, congestion costs in MISO's western region alone increased by \$120 million to \$299 million.<sup>23</sup> In a competitive market for electricity, transmission congestion imposes these costs because generators cannot be dispatched in the lowest cost manner. Congestion creates load concentrations where the need for consumption of power exceeds the capacity of the transmission lines from distant low cost generation sources, and so system operators must increase the generation supply from higher-cost local generators.<sup>24</sup>

Economic theory would dictate that the increased demand for generation at locations close to the load concentration would result in the construction of new generation facilities proximate to these metropolitan areas. In practice, however, local environmental and zoning laws make construction of new generation very difficult in these areas.<sup>25</sup> This situation exacerbates the interference of congestion in the system, because the forced reliance on

---

<sup>20</sup> See Sandeep Vaheesan, *Preempting Parochialism and Protectionism in Power*, 49 Harv. J. on Legis. 87, 92 (2012).

<sup>21</sup> See Vaheesan, *supra* note 19, at 95. ("The failure of a nuclear power plant and transmission lines serving Cleveland, Ohio on a hot summer day triggered cascading line outages that left tens of millions of people in the Northeast United States and Ontario without power. The series of transmission line outages separated the power importing markets of New York State and points north from the power exporting markets of Ohio and Appalachia.")  
<sup>22</sup> *Id.* at 95.

<sup>23</sup> See Potomac Economics, *State of the Market Report for the MISO Electricity Markets* 85 (2011)

<sup>24</sup> See Vaheesan, *supra* note 19, at 102.

<sup>25</sup> *Id.*

expensive local generators simultaneously causes high energy costs, fails to stimulate the construction of new generation in those areas,<sup>26</sup> and prevents the price mechanism from increasing demand for the low-cost power from congestion constrained renewables.<sup>27</sup> Expansion of transmission capacity promises to eliminate the costly and dangerous effects described here, as well as improve other characteristics of the markets and regions in which they operate.

## II. BENEFITS OF NEW TRANSMISSION

Investment in the expansion of regional transmission systems can provide key benefits with the potential to impact an entire region. Transmission enhances system reliability by increasing the amount of backup generation capacity that can be accessed in response to reduced supply or a spike in demand.<sup>28</sup> Although building more generation capacity is the obvious means to enhance reliability, constructing reserve margins that will often be out of service can be economically wasteful where existing generation assets are sufficient to supply the load during a majority of periods.<sup>29</sup> Instead, new transmission lines can provide system reliability by creating a larger pool of backup generation.<sup>30</sup>

New transmission capacity can reduce energy costs by preventing the congestion that causes power purchasers in load pockets to become captives to the older, high-cost generators in those locations.<sup>31</sup> New transmission lines provide customers in would-be load pockets with access to power from more distant markets where low-cost power supply exceeds demand. This

---

<sup>26</sup> *Id.*

<sup>27</sup> See Clinton A. Vince, ET AL., *What is Happening and Where in the World of RTOs and ISOs?*, 27 Energy L.J. 65, 138-39 (2006).

<sup>28</sup> See Vaheesan, *supra* note 19, at 100.

<sup>29</sup> *Id.*

<sup>30</sup> See PETER FOX-PENNER, SMART POWER: CLIMATE CHANGE, THE SMART GRID, AND THE FUTURE OF ELECTRIC UTILITIES, at 27-29.

<sup>31</sup> See Discussion of Congestion costs, *supra* at section I. (C)

limits the ability of the incumbent generators in the load pockets to raise prices above competitive levels.<sup>32</sup>

Investment in new transmission facilities can increase the diversity of fuels used for generation in a regional market. New transmission investments can allow wind resources to displace gas and coal-fired generation and can potentially reduce the number of hours during which fossil fuel-based generation assets set the market price for electricity.<sup>33</sup> Overall, increased access to renewables through new investment in transmission capacity can increase the ability of those renewables to insulate energy prices from fluctuations in the prices of fuels.<sup>34</sup>

Transmission investments that integrate renewable sources—such as geothermal, solar, and wind—into regional power markets can also decrease local and global air pollutant emissions.<sup>35</sup> New transmission lines can improve air quality by reducing the need for older, inefficient generating units that are dispatched at times of peak demand. These older units within the most congested metropolitan areas emit high levels of sulfur dioxide, nitrogen oxides, and particulate matter, which contribute to the degradation of air quality within these areas.<sup>36</sup> In response to concerns about air pollution, and as a means of protecting customers, many states have enacted Renewable Portfolio Standards or Renewable Energy Goals in order to increase fuel diversity and reliability.<sup>37</sup> These measures will not be successful, however, unless transmission is available to transport the renewable power to reach major consumer markets in metropolitan areas that are distant from the renewable resources.<sup>38</sup> Moreover, the state-by-state consideration of renewable energy benefits fails to take into account the national and global harm

---

<sup>32</sup> See Vaheesan, *supra* note 19, at 105.

<sup>33</sup> See Vaheesan, *supra* note 19, at 106.

<sup>34</sup> *Id.*

<sup>35</sup> *Id.* at 107

<sup>36</sup> *Id.*

<sup>37</sup> See Brown & Rossi, *supra* note 8, at 751-52.

<sup>38</sup> *Id.*

caused by climate change.<sup>39</sup> More specifically, the state-by-state approach to transmission investment will not succeed because although certain states possess much rich renewable energy resources, it is the other states that suffer the harm caused by congestion.<sup>40</sup>

### III. STATE AND FEDERAL REGULATION OF TRANSMISSION

Throughout the evolution of electricity markets, states have generally continued to exercise authority to approve new transmission facilities. While the benefits of new transmission projects are often regional, the costs tend to be concentrated in the states and localities in which they are located.<sup>41</sup> The authority of states to approve transmission projects whose costs will be imposed within the state, but whose benefits will be extra-jurisdictional, presents an obstacle to new transmission because states have an obvious incentive to be parochial in making such decisions.<sup>42</sup>

The traditional model for cost recovery of new transmission facilities calls for including the cost of each new transmission facility in the retail rate base of the utility building it.<sup>43</sup> In this traditional model, a utility investing in new transmission in one state cannot directly collect revenue from customers outside the state. Income may be credited back to captive retail ratepayers, however, by using revenue derived from “wheeling” power to “off system” entities under rates regulated by FERC.<sup>44</sup> The problem with this cost recovery model is that the state in which the new transmission is to be sited will resist the project because the full risk of the

---

<sup>39</sup> See Jim Rossi, *The Trojan Horse of Electric Power Transmission Line Siting Authority*, 39 *Envtl. L.* 1015, (2009).

<sup>40</sup> See Steven Ferry, *Restructuring a Green Grid: Legal Challenges to Accommodate New Renewable Energy Infrastructure*, 39 *Envtl. L.* 977 (2009) (explaining that nine states east of the Mississippi river not have any subregions with high wind resources, and that many of the same regions with fewer renewable resources have dense populations and high demand).

<sup>41</sup> See Vaheesan, *supra* note 19, at 110.

<sup>42</sup> See Brown & Rossi, *supra* note 8, at 709-10.

<sup>43</sup> *Id.* at 709.

<sup>44</sup> *Id.*

residual revenue responsibility for the line is generally placed on in-state load customers.<sup>45</sup> The state's parochial concern with the cost allocation of a project whose benefits are extra-jurisdictional makes the cost allocation issue a critical component of obtaining siting approval for a proposed new transmission line. Federal policy promoting competitive regional wholesale power markets has created opportunities for utilities and states to look to interstate markets to both import and export electricity. New cost allocation methods have been promoted to facilitate the new transmission facilities demanded by these regional markets.

#### IV. FERC Regulation of Transmission

Recognizing the need for new transmission facilities, FERC has issued four orders intended to facilitate regional transmission planning and investment and to address the issue of cost allocation. Section 201 of the Federal Power Act<sup>46</sup> limits FERC's jurisdiction in electricity markets to the transmission of electricity in interstate commerce, the sale for resale of electricity in interstate commerce, and the interstate transmission facilities that service the interstate sales.<sup>47</sup>

FERC Order No. 888, which required public utilities to provide transmission service for all customers at rates comparable to the transmission service they provided themselves,<sup>48</sup> also identified eleven principles to be used as guidance for the creation of properly structured Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs).<sup>49</sup> These principles encouraged RTOs and ISOs to engage in planning neighboring and regional

---

<sup>45</sup> *Id.*

<sup>46</sup> 16 U.S.C. § 824 (2006).

<sup>47</sup> JAMES H. MCGREW, FERC BASIC PRACTICE SERIES, 20 (ABA Section of Environment, Energy, and Resources, 2<sup>nd</sup> ed. (2009).

<sup>48</sup> *Id.* at 154.

<sup>49</sup> Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities: Recovery of Stranded Costs by Public Utilities, Order No. 888, 61 Fed. Reg. 21,540, 21,595-97 (May 10, 1996) (codified at 18 C.F.R. pts 35 & 385).

transmission providers and customers. These directives were issued as guiding principles, however, and were not required.<sup>50</sup>

Order No. 2003, issued in July 2003, required public utilities to “offer nondiscriminatory, standardized interconnection service, and amended order No. 888 to do so.”<sup>51</sup> Order 2003 required owners of new generation plants of a certain size to pay for the direct connection facilities<sup>52</sup> between the generation plant and the transmission grid.<sup>53</sup> Order 2003 further required the owner of the new generation plant to pay for any “network upgrades<sup>54</sup> and new additions to the transmission network that were required as a result of the interconnection.” The Order stipulated that “generators should be fully reimbursed for the network upgrade costs by transmission providers within five years, with interest.”<sup>55</sup> Although the Order appeared to leave builders of new transmission generation assets saddled with the costs (or at least the risk) of the generation plant and the transmission facilities to connect to the grid, the Order created some flexibility for RTOs and ISOs by allowing them to “propose variations to the interconnection policies and procedures” contained in the Order.<sup>56</sup>

In 2007, partly in response to concerns that the transmission planning process was discriminatory to customers, FERC issued Order No. 890, *Preventing Undue Discrimination and Preference in Transmission Service*,<sup>57</sup> with the stated objective of correcting the flaws in Order

---

<sup>50</sup> *Id.* at 21,596 – 97.

<sup>51</sup> See MCGREW, *supra* note 46, at 157.

<sup>52</sup> S. Fink et. al., *A Survey of Transmission Cost Allocation Methodologies for Regional Transmission Organizations*, 9 (NREL, 2011) (explaining that direct connection facilities are “all equipment and construction required to connect the new generating facility to the first point of interconnection with the transmission grid”)

<sup>53</sup> *Id.*

<sup>54</sup> *Id.* at 9, (explaining that network transmission upgrades are “the equipment and construction required to reinforce the existing transmission system in order to accommodate the new generation” project.)

<sup>55</sup> *Id.*

<sup>56</sup> *Id.*

<sup>57</sup> See *Preventing Undue Discrimination and Preference in Transmission Service*, Order No. 890, 72 Fed. Reg. 12,266.

No. 888.<sup>58</sup> Order 890 required that all public utility transmission providers participate in transmission planning processes at the local and regional level. The order required RTOs and ISOs to add to their open access transmission tariff an attachment that described how the organization's planning process satisfied nine mandatory planning requirements.<sup>59</sup> The attachment was required to address the following principles: (1) coordination; (2) openness; (3) transparency; (4) information exchange; (5) comparability; (6) dispute resolution; (7) regional participation; (8) economic planning studies; and (9) cost allocation for new projects.<sup>60</sup>

FERC issued Order No. 1000, *Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities*, on July 21, 2011.<sup>61</sup> Order 1000, which reformed the Commission's electric transmission planning and cost allocation requirements for public utility transmission providers, "builds on the reforms of Order No. 890 and is intended to correct remaining deficiencies with respect to transmission planning processes and cost allocation methods."<sup>62</sup> The rule established three **requirements** for transmission cost allocation:

- Each public utility transmission provider must participate in a regional transmission planning process that has a regional cost allocation method for new transmission facilities selected in the regional transmission plan for purposes of cost allocation. The method must satisfy six regional cost allocation **principles**.
- Public utility transmission providers in neighboring transmission planning regions must have a common interregional cost allocation method for new interregional transmission facilities that the regions determine to be efficient or cost effective. The method must satisfy six similar interregional cost allocation principles.

---

<sup>58</sup> See MCGREW, *supra* note 46, at 158.

<sup>59</sup> Matthew McGuire, *Misunderstanding "Undue Discrimination": FERC's Misguided Effort to Extend the Boundaries of the Federal Power Act*, 19 Geo. Mason L. Rev. 549, 557 (2012).

<sup>60</sup> *Id.*

<sup>61</sup> *Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities*, Order No. 1000, 76 Fed. Reg. 49,841.

<sup>62</sup> Federal Energy Regulatory Commission Facts: Order 1000, (last visited April 29, 2012), <http://www.ferc.gov/media/news-releases/2011/2011-3/07-21-11-E-6-factsheet.pdf>.

- Participant funding of new transmission facilities is permitted, but is not allowed as the regional or interregional cost allocation method.<sup>63</sup>

The six regional cost allocation **principles** are: (1) costs must be allocated in a way that is roughly commensurate with benefits; (2) involuntary allocation of costs to non-beneficiaries is prohibited; (3) if a benefit to cost threshold is established for determining which projects have net benefits, that threshold should not be higher than 1.25, absent sufficient justification; (4) the allocation of costs must be solely within transmission planning regions unless ratepayers outside the planning region voluntarily assume costs; (5) transparency is required in determining benefits and identifying beneficiaries; (6) different types of entities have the option to propose different cost allocation methods depending on whether the transmission project is associated with reliability, relieving congestion, or achieving public policy goals.<sup>64</sup> Through the first and second principles, FERC directs RTOs and ISOs under its jurisdiction to allocate costs for regional transmission facilities according to the “beneficiary pays” principle. This method of cost allocation requires that costs for new transmission facilities are allocated so that the costs are roughly commensurate with the estimated benefits.<sup>65</sup> The second principle, prohibiting the involuntary allocation of costs to non-beneficiaries, prevents ISOs from allocating costs of new regional transmission facilities to those who do not benefit from them.<sup>66</sup>

Order 1000’s prohibition of participant funding in the third **requirement** of the order, and endorsement of the “beneficiary pays” principle, in the first of the six regional cost

---

<sup>63</sup> *Id.*

<sup>64</sup> Order No. 1000, *supra* note 60, at ¶ 612-685.

<sup>65</sup> Order No. 1000, *supra* note 60, at ¶ 723.

<sup>66</sup> Briefing on Order No 1000 Presented by Federal Energy Regulatory Commission Staff, (last visited April 29, 2012), <http://www.ferc.gov/media/news-releases/2011/2011-3/07-21-11-E-6-presentation.pdf>, Slide 13 (explaining cost allocation principles).

allocation **principles** merits an explanation of these different cost allocation methods.<sup>67</sup>

*Participant funding* describes a method of cost allocation in which the immediate beneficiaries, or cost-causers, of a project are identified<sup>68</sup> and the costs of the project are allocated only to those beneficiaries.<sup>69</sup> At the other end of the spectrum is the method described as *socialization of funding*, in which costs are allocated using a pro-rata formula to all load users in a particular region.<sup>70</sup> In the context of a regional RTO or ISO, the *beneficiary pays* principle is a broader version of participant funding, in which costs are allocated to multiple utilities so that the costs are commensurate with the benefits, and the utility recovers those costs from its customers.<sup>71</sup> It is important to note that socialization is not necessarily antithetical to the *beneficiary pays* principle; rather, socialization is based on the recognition that the benefits of new transmission extend, to some extent, to all customers in a given region.<sup>72</sup> Although socialization of funding recognizes that all customers in a given region are beneficiaries, a key difference is that a pure socialization method does not seek to quantify benefits to different classes of beneficiaries that may not be susceptible of precise measurement.<sup>73</sup>

In its explanation of why FERC has decided to limit the use of participant funding by prohibiting its use as a regional cost allocation method, FERC describes the problems with both participant funding and socialization of funding. In Order 1000, FERC describes how reliance on participant funding can create a free rider problem, in which a utility that recognizes the need for a new transmission investment might decline to build new facilities because of the possibility

---

<sup>67</sup> A brief discussion of the spectrum of cost allocation methodologies will also inform the comparison of MISO and ERCOT continuing below.

<sup>68</sup> This party is often an independent generator or a utility who is seeking to build the new transmission facility. See Joe McGarvey, *Transmission Investment: A Primer*, Electricity J. Oct. 2006, at 71, 74.

<sup>69</sup> Ross Baldick, et al., *A National Perspective on Allocating the Costs of New Transmission Investment: Practice and Principles*, 23 (2007).

<sup>70</sup> See McGarvey, *supra* note 67, at 74.

<sup>71</sup> See Vaheesan, *supra* note 19, at 127.

<sup>72</sup> See Baldick, *supra* note 68, at 23-24.

<sup>73</sup> *Id.*

that another utility which is also experiencing the need for that transmission facility might value that new transmission facility enough to volunteer to build and bear the cost of that facility.<sup>74</sup>

While the free rider problem causes unnecessary delay in transmission investment, the socialization of costs can interfere with the planning of new transmission and prevent necessary transmission projects from being included in transmission plans. The problem with socialization is that transmission planning participants who perceive that they are non-beneficiaries of a proposed transmission facility whose costs are to be socialized will oppose the inclusion of that facility in the regional transmission plan.<sup>75</sup> These two threats are illustrative of the factors that motivated FERC to endorse the beneficiary pays principle in Order 1000.

The authority of FERC to exercise jurisdiction over cost allocation in ISOs comes from the statutory authority to approve rates for transmission of electricity in interstate commerce. The question of which form of transmission funding will be used for a transmission project, which determines the source of the initial investment for a transmission project, is closely tied to the issue of transmission pricing, which determines how the initial costs for the transmission investment will be recovered by the party who made the initial investment.<sup>76</sup> Because FERC approves the rates (transmission pricing) for transmission service in interstate commerce, FERC regulates how costs may be allocated and recovered through rates.

## V. NEW TRANSMISSION IN THE MISO MARKET

MISO manages the electric grid in all or most of North Dakota, South Dakota, Nebraska, Minnesota, Iowa, Wisconsin, Illinois, Indiana, Michigan, and parts of Montana, Missouri,

---

<sup>74</sup> Order No. 1000, *supra* note 60, at ¶ 723.

<sup>75</sup> *Id.*

<sup>76</sup> See McGarvey, *supra* note 67, at 75.

Kentucky, and Ohio.<sup>77</sup> MISO administers its FERC approved tariff, and complies with the planning principles promulgated by FERC in Order 890, for a regional process that is open, transparent, coordinated, and equitable.<sup>78</sup> Beginning in 2009, in recognition of the need to identify a set of value-based transmission projects that would enable utilities to meet their RPS mandates, MISO began developing a new cost allocation method to be used specifically for regionally beneficial transmission projects.<sup>79</sup> This new cost allocation method, which applies only to a special class of projects labeled “Multi-Value Projects” (MVPs), was approved by FERC in December 2010.<sup>80</sup> The comprehensive MISO planning process culminates in annually released Midwest ISO Transmission Expansion Plans (MTEPS), which identify candidate MVPs.<sup>81</sup> In order for a project to qualify as an MVP and to be eligible for the approved cost allocation system, one of the following three Tariff defined criteria must be met:

- [An MVP] must be developed through the transmission planning process to enable the transmission system to deliver energy reliably and economically in support of documented energy policy mandates or laws enacted or adopted through state or federal legislation or regulatory requirements. These laws must directly or indirectly govern the minimum or maximum amount of energy that can be generated. The MVP must be shown to enable the transmission system to deliver such energy in a manner that is more reliable and/or more economic than it otherwise would be without the transmission upgrade.
- [An MVP] must provide multiple types of economic value across multiple pricing zones with a total MVP benefit-to-cost ratio of 1.0 or higher, where the total MVP benefit to cost ratio is described in Section II.C.7 of the Attachment FF to the MISO Tariff. The reduction of production costs and the associated reduction of location marginal prices (LMPs) from a

---

<sup>77</sup> MISO: About US, (last visited April 29, 2012) <https://www.midwestiso.org/AboutUs/Pages/AboutUs.aspx>.

<sup>78</sup> MISO: Planning, (last visited April 29, 2012) <https://www.midwestiso.org/Planning/Pages/Planning.aspx>.

<sup>79</sup> Multi Value Project Portfolio: Results and Analyses, at 3 (Jan 10, 2012)

<https://www.midwestiso.org/Library/Repository/Study/Candidate%20MVP%20Analysis/MVP%20Portfolio%20Analysis%20Full%20Report.pdf>.

<sup>80</sup> Patrick L. Anderson et al., Michigan Unplugged? The Case for Shared Investment in Regional Transmission Projects 1 (Anderson Economic Group, LLC, June 13, 2011).

<sup>81</sup> MISO Transmission Expansion Planning, (last visited April 29, 2012)

<https://www.midwestiso.org/Planning/TransmissionExpansionPlanning/Pages/TransmissionExpansionPlanning.aspx>

transmission congestion relief project are not additive and are considered a single type of economic value.

- [An MVP] must address at least one transmission issue associated with a projected violation of a NERC or Regional Entity standard and at least one economic-based transmission issue that provides economic value across multiple pricing zones. The project must generate total financially quantifiable benefits, including quantifiable reliability benefits, in excess of the total project costs based on the definition of financial benefits and project costs.<sup>82</sup>

The first criterion in the list provides that a new transmission project that enables the transmission grid to deliver energy from renewable-generation assets required by a state RPS or similar program will qualify as an MVP.<sup>83</sup> Simply stated, “MVPs are projects designed to support energy policy imperatives while also providing reliability and economic benefits over multiple Midwest ISO zones.”<sup>84</sup>

The costs of MVPs are allocated on a system-wide basis using a “postage-stamp-to-load” cost allocation.<sup>85</sup> FERC accepted the tariff, which imposes the costs using this postage stamp allocation, in December 2010.<sup>86</sup> “Postage-stamp-to-load implies that the project costs will be spread evenly over the entire MISO user base (load), with the amount paid dependent on the amount of electricity used.”<sup>87</sup> The term ‘postage stamp’ tariff is used because one flat rate is applied for transmission of electricity within the region, regardless of the distance traveled. Although only two projects have been approved, the total cost of all 18 potential MVP projects is estimated to be \$4.68 billion.<sup>88</sup> A report by the Anderson Economic Group estimates that the

---

<sup>82</sup> MISO Transmission Cost Allocation Overview, (October 3, 2011) <https://www.midwestiso.org/Library/Repository/Communication%20Material/Key%20Presentations%20and%20Whitepapers/Transmission%20Cost%20Allocation%20Overview.pdf>.

<sup>83</sup> See Anderson et al., *supra* note 79, at 20.

<sup>84</sup> See S. Fink et. al., *supra* note 51, at 31.

<sup>85</sup> See Anderson et al., *supra* note 79, at 22.

<sup>86</sup> *Id.* at 4.

<sup>87</sup> *Id.* at 22.

<sup>88</sup> *Id.*

entire portfolio of MVP projects would cost the average MISO customer one tenth of a cent per kilowatt hour.<sup>89</sup> For the average residential customer, the report estimates that the cost of these MVP projects would be \$0.77 per month.<sup>90</sup>

Because the MVP tariff was approved by FERC before the issuance of Order 1000, and because compliance with Order 1000 is not required until October 2012, it is unclear whether the MVP cost allocation method satisfies the requirements of Order 1000. Critics of the MVP cost allocation method have labeled it as “socialization” of costs, and commented that because “there is no explicit connection to the degree of impact or the distribution of benefits” it cannot be consistent with Order 1000’s cost allocation principles.<sup>91</sup> Despite this potential conflict, MISO has posted on its website a fact sheet that states, “MISO is essentially compliant with many of the regional planning and cost allocation requirements” of FERC Order No. 1000.<sup>92</sup>

A challenge to the MVP cost allocation method alleging that it violates Order 1000 would focus on whether the first two of the six regional cost allocation principles have been violated. The two critical questions would be (1) whether the economic benefits of an MVP project extend to all MISO customers and (2) whether those benefits are commensurate with the costs for customers across the entire MISO region. The language of MISO’s MVP project criteria supports an inference that a project that qualifies as an MVP<sup>93</sup> would also satisfy Order 1000’s requirement that costs be allocated in a way that is roughly commensurate with benefits, and that there is no involuntary allocation of costs to non-beneficiaries. Beyond the language of the MVP

---

<sup>89</sup> *Id.* at 23.

<sup>90</sup> *Id.*

<sup>91</sup> William W. Hogan, Transmission Benefits and Cost Allocation, 22 (John F. Kennedy School of Government, May 31, 2011).

<sup>92</sup> MISO: FERC Order 1000, (last visited April 29, 2012) <https://www.midwestiso.org/Library/Repository/Communication%20Material/Power%20Up/FERCOrder1000.pdf>.

<sup>93</sup> In order to qualify as an MVP under the first criteria, the project must be shown to deliver energy from sources required by state or federal programs, and it must be shown to enable the transmission system to deliver that energy in a manner that is more reliable and/or more *economic* than it otherwise would be without the transmission upgrade.

project criteria, the MVP Portfolio Results and Analyses report provides analyses of the economic benefits of the portfolio of projects resulting from seven different measurable sources of economic benefit to the MISO region.<sup>94</sup> MISO estimates that the recommended portfolio of MVP projects will provide congestion and fuel savings throughout the MISO footprint of \$12.4 to \$91.7 billion in 20 to 40-year present value adjusted production cost benefits,<sup>95</sup> and operating reserve savings throughout the MISO region of \$28 to \$87 million in 20 to 40-year present value terms.<sup>96</sup> MISO estimates that the MVP portfolio of projects will provide similar economic benefits to the region through savings associated with system planning reserve margins,<sup>97</sup> transmission line losses,<sup>98</sup> wind turbine investment,<sup>99</sup> and transmission investment.<sup>100</sup> Given these extensive economic benefits to the entire MISO region and the fact that the entire portfolio of MVP projects will cost only one tenth of a cent per kilowatt hour to most customers across the MISO region, it is likely that MISO will be able to make a strong case that the costs are allocated so that they are “roughly commensurate with benefits” as required by Order 1000.

## VI. NEW TRANSMISSION IN THE ERCOT MARKET

ERCOT, the ISO within the State of Texas that is generally not within FERC jurisdiction,<sup>101</sup> has created a unique system for allocating the costs of new transmission projects within its footprint.<sup>102</sup> Generally, ERCOT’s jurisdictional independence is a result of the fact that Texas made a decision to isolate itself from interstate sales of electricity and thus avoid the

---

<sup>94</sup> Multi Value Project Portfolio: Results and Analyses, *supra* note 78, at 50-68.

<sup>95</sup> *Id.* at 50.

<sup>96</sup> *Id.* at 56.

<sup>97</sup> *Id.* at 58.

<sup>98</sup> *Id.* at 62.

<sup>99</sup> *Id.* at 65.

<sup>100</sup> *Id.* at 67.

<sup>101</sup> See Jared M. Fleisher, *ERCOT’s Jurisdictional Status: A Legal History and Contemporary Appraisal*, 3 Tex. J. Oil Gas & Energy L. 4, (2008).

<sup>102</sup> See generally Kathryn B. Daniel, *Competitive Renewable Energy Zones and the Emerging Regulatory Structure of Texas Wind Energy*, 42 Tex. Tech L. Rev. 157.

jurisdiction of the Federal Power Act.<sup>103</sup> Texas has an immense wind resource, which is primarily located in West Texas and the Panhandle region—“areas where the transmission lines lack the capacity to transfer significant amounts of electricity to the Dallas/Fort Worth metroplex, Houston, central Texas, and other high-population, high-use areas.”<sup>104</sup> After enacting a Renewable Portfolio Standard in 1999, wind energy generation in Texas was experiencing the chicken-or-egg problem, with the lack of transmission delaying investment in renewable electricity generation, and the lack of generation assets in place delaying the investment in new transmission.<sup>105</sup> In response to this problem, the Texas Legislature gave expanded powers to the Public Utilities Commission of Texas (PUC) with the passage of Senate Bill 20 in 2005, which granted PUC the authority to designate Competitive Renewable Energy Zones (CREZ).<sup>106</sup> CREZs are defined as “areas in which renewable energy resources and suitable land areas are sufficient to develop generating capacity from renewable energy technologies.”<sup>107</sup> In determining whether an area may be designated as a CREZ, the PUC uses the following criteria:

- Whether the renewable energy resources and suitable land areas are sufficient to develop generating capacity from renewable energy technologies;
- The level of financial commitments by generators; and
- Any other factors considered appropriate by the commission as provided by PURA [Texas Public Utility Regulatory Act], including but not limited to, the estimated cost of constructing transmission capacity necessary to deliver to electric customers the electric output from renewable energy resources in the candidate zone, and the estimated benefits of renewable energy produced in the candidate zone.<sup>108</sup>

---

<sup>103</sup> See Fleisher, *supra* note 100.

<sup>104</sup> See Ernest E. Smith & Becky H. Duffen, *Winds of Change: The Creation of Wind Law*, 5 Tex. J. Oil Gas & Energy L. 165, 167, 201 (2009-2010).

<sup>105</sup> See Smith & Dicken, *supra* note 103, at 201.

<sup>106</sup> Kathryn B. Daniel, *supra* note 101, at 163.

<sup>107</sup> See Tex. Util. Code Ann. §39.904.

<sup>108</sup> See 16 Tex. Administrative Code §25.174(a)(4)(2011)

Pursuant to a grant of authority by the PUCT, ERCOT generated a Transmission Optimization Study to determine the most cost-effective transmission investments to deliver electricity from the remote CREZs to the load centers in the major cities.<sup>109</sup> ERCOT established a series of proposals based on the conclusions of the Transmission Optimization Study, and the PUCT selected a plan that had an estimated cost of \$4.93 billion and would provide for 18,456 MW of total wind generation in CREZs.<sup>110</sup> The selected plan will involve building “2,334 miles of new 345-kilovolt transmission lines in over 100 separate transmission projects,” and will provide “for an estimated 64,031 gigawatt-hours of wind generation annually at an average fuel cost savings of \$38 per MW-hour.”<sup>111</sup> Transmission companies will bear the initial up-front costs for the transmission investments, but the funding for the projects will come from consumers who will pay through a cost socialization method applied across the entire ERCOT footprint.<sup>112</sup> These socialized costs will add an estimated \$4.04 to the monthly utility bill of customers throughout the ERCOT region.<sup>113</sup> The cost socialization is a key incentive for the utilities because it guarantees that the builder will recover the costs incurred in building the new transmission while eliminating the major risks involved.

The costs and benefits considered under the ERCOT CREZ regime are fundamentally different than those considered by the MISO region in MVP decisions. The PUCT is required to consider the cost of constructing transmission capacity and the benefits of renewable energy produced when it selects areas to be identified as CREZs, and ERCOT considered the costs and benefits of different transmission projects when it selected a transmission investment plan. The planners in Texas making these decisions, however, are not required to consider the costs and

---

<sup>109</sup> Kathryn B. Daniel, *supra* note 101, at 167.

<sup>110</sup> *Id.*

<sup>111</sup> See Smith & Dicken, *supra* note 103, at 231.

<sup>112</sup> Kathryn B. Daniel, *supra* note 101, at 169.

<sup>113</sup> *Id.*

benefits to all customers in the EROCT footprint. Moreover, they are neither required to adhere to the policy that costs be allocated commensurate with benefits, nor are they prohibited from allocating costs to parties who do not benefit from the transmission investment. The socialization of costs in Texas appears to be founded in an understanding that the benefits of wind energy can extend to all customers of the grid and in the recognition that the investment that is required to experience those benefits will not be made by any particular individual or entity.

## VII. COMPARISON

Both the *socialization* cost allocation method used in ERCOT for new transmission associated with CREZs and the *beneficiary pays* method used by MISO for MVPs ultimately have the same effect: costs are spread across the entire region based on load. The term ‘socialization’ is a loaded term, which is meant to draw attention to the idea that ratepayers who do *not* benefit from a transmission project might nevertheless bear the costs of that project. It may be useful to consider that these two methods of cost allocation are two points on a spectrum. The strict *participant pays* system, at one end of the spectrum, defines beneficiaries strictly based on the one or two entities that buy or sell power transmitted by a transmission line. The socialization method, at the other end of the spectrum, defines beneficiaries much more broadly as all the ratepayers within a region who depend on the efficient and reliable service of the transmission network. Somewhere between these two extremes is the *beneficiary pays* method, which does not assume that all ratepayers are beneficiaries but rather limits the class of beneficiaries to those for whom the benefits can be quantified and identified through economic analyses and projected savings.

Both the MISO MVP program and the ERCOT CREZ program have the ability to create more certainty for the financing of transmission for wind energy and to eliminate the “chicken and egg” problem. Both cost allocation methods account for the economic value resulting from reducing transmission congestion. Both methods account for other benefits associated with increasing fuel diversity and insulating consumers from fuel price volatility. The result is that the MISO cost allocation method, which is subject to FERC’s requirement that costs be allocated in proportion to benefits, assigns the costs of new transmission to consumers in a manner that looks very similar to the cost allocation by socialization in ERCOT.

Although effective in the unique market conditions existing in Texas, the cost socialization method used in Texas is not likely to be supported in a multi-state wholesale electricity market because utilities and state regulators in these regional markets would vigorously oppose the imposition of costs that do not have benefits within that state. This does not mean that the cost socialization method employed in Texas is without valuable lessons. It can be argued that the socialization of costs in Texas adheres to the *beneficiary pays* principle, and that ERCOT regulators consider that the benefits of new transmission from CREZs extend very broadly across the entire region. Socialization reflects an understanding that “the value of new transmission is inherently shared by everyone in a region, as it is the network itself that provides reliable service to all.”<sup>114</sup> If the motivation for increasing the generation of electricity by renewables is to prevent the emission of greenhouse gases, then socialization of the associated costs is justifiable because the beneficiaries of reducing greenhouse gases are not limited in any way to entities within state lines, or utility service areas. This is not to say that costs associated with air pollution and climate change cannot be translated into economic terms. Rather, the problem is that the cost of these harms and the benefits of avoiding them are experienced equally

---

<sup>114</sup> See FOX-PENNER, *supra* note 29, at 86.

by all. Although this argument might justify the socialization of costs in a region that happens to be encompassed by one state and one regulatory entity, the political realities of other regions would make socialization of costs without highly particularized sub-region by sub-region cost-benefit analysis unfeasible.

In markets such as MISO, which is characterized by a number of states with different resources and different policy objectives, the *beneficiary pays* principle endorsed by FERC Order 1000 is a strong tool for allocating costs across a multi-state region. The *beneficiary pays* principle is compatible with broad state policy programs intended to increase investment in transmission for renewable energy sources, such as wind energy, because it enables the allocation of costs between states that will seek to export wind energy and states that will seek to import wind energy. The *beneficiary pays* principle protects against the allocation of costs to customers who do not benefit from new transmission investments. For beneficiaries to which costs will be allocated, this method ensures that benefits are measurable in economic terms, and justified by economic analyses that are publicly available.

One weakness of the beneficiary pays principle is that the extensive economic analyses and projections that are used to justify the “benefits” serve as proxies for those benefits that cannot be economically quantified, or effectively divided among different classes of consumers. This weakness means that ratepayers who share equally in the benefits of reduced GHG emissions resulting from new transmission will not have to pay for that benefit if there are not other economic benefits that can more accurately be quantified. The socialization of costs in a system such as ERCOT assumes that all ratepayers in the region enjoy benefits such as these, and regulators do not require that such benefits be economically justified.

The most significant risk to the MISO MVP cost allocation scheme that is not suffered by the ERCOT system is the threat posed by a review hearing before FERC if a ratepayer alleges that it is paying a rate that is unjust or unreasonable. If costs for MVP projects were allocated to parties and a FERC proceeding determines that the benefits were unfounded, FERC could order retroactive repayment of costs.<sup>115</sup> The threat of a FERC review proceeding could create uncertainty for administrators and investors within the MISO system. This flaw presents the greatest strength of the ERCOT system, namely that regulators within the ERCOT jurisdiction can assign costs based on an understanding that the broad benefits of transmission do extend to all customers within the region without the need for specific analyses to prove the existence of those benefits.

MISO's *beneficiary pays* cost allocation system would be strengthened by protections intended to mitigate the threat posed by challenges to rates that question benefits after a finalized project does not deliver the value projected. Observers have recommended that FERC promulgate a rule that mandates that once costs for regional transmission projects have been allocated, that allocation should be left in place for an established period of time.<sup>116</sup> After being approved by FERC, cost allocation should be subject to review at long intervals "to determine whether beneficiaries from the investment have changed in any major ways that distort cost responsibility and appropriate pricing;" otherwise cost allocations should be protected by a strong presumption that they are just and reasonable.<sup>117</sup>

---

<sup>115</sup> See Anderson et al., *supra* note 9, at 21.

<sup>116</sup> MIT, *supra* note 12, at 93.

<sup>117</sup> See Baldick, et al., *supra* note 68, at 67-68.

## VIII. CONCLUSION

New investment in transmission for renewable energy, such as wind, is needed to reduce transmission congestion, alleviate price volatility by insulating ratepayers from fuel costs, and increase access to generators that do not emit air pollution. Both the socialization of costs within the ERCOT system and the *beneficiary pays* system used in MISO promise to deliver the benefits of new transmission projects widely throughout the regions in which they operate. Although the socialization of costs in the ERCOT region offers some strengths borne largely of increased simplicity, this system would not be feasible or allowable in a FERC-regulated jurisdiction. The *beneficiary pays* system used in the MISO region, which is subject to FERC jurisdiction, on the other hand, is an evolving system that incorporates very high levels of participation and transparency. This system involves vigorous analyses and projections of benefits, and does not assign any costs to ratepayers who do not benefit from a project. The MISO MVP system is a very promising mechanism for both planning and cost allocation within a multi-state region. The question that remains to be answered, however, is whether MISO's MVP cost allocation system is accepted by FERC as consistent with the requirement of Order 1000 that costs are commensurate with benefits.