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Challenges to the Development of Wind Power

Monica Rizo

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CHALLENGES TO THE DEVELOPMENT OF WIND POWER

ABSTRACT

This paper will discuss several issues currently being debated by various industry and governmental advocates of the development of wind power in the U.S., specifically, the issues of the planning, siting and cost allocation of transmission lines.
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I. INTRODUCTION

The need for developing wind power

The need to combat global warming and increasing concerns about dependence on foreign oil are among the issues that have triggered a national interest in developing renewable sources of energy in the U.S.\textsuperscript{1}

In his inaugural speech, President Obama gave a strong indication of the position of the current administration toward developing non-fossil sources of energy when he promised to “harness the sun and the wind and the soil to fuel our cars and run our factories.”

Sources of renewable energy are divided in cool and hot sources. Solar, wind, subterranean (geothermal) and deepwater energy, which do not require combustion to produce energy, are some examples of cool sources.\textsuperscript{2} Biomass sources, such as wood or waste materials, are examples of hot sources which require combustion to produce energy.\textsuperscript{3}

According to the 2009 Annual Energy Review of the U.S. Energy Information Administration, renewable sources of energy make up 7.76 per cent of all energy sources in the U.S.\textsuperscript{4} Wind power makes up nine percent of all renewable energy sources.\textsuperscript{5}

According to a study by the American Wind Energy Association, the installed capacity of wind power in the United States was just over 40,000 (MW), at the end of 2010.\textsuperscript{6} In 2008 the U.S. Department of Energy (DOE) released a report in which it projected a goal of producing twenty per cent of the national energy demand through wind power by 2030. The report indicated that a key step towards the achievement of
this goal would be the building of new transmission lines for wind energy and their integration into the U.S. national electrical grid.  

**Current issues related to transmission lines**

This paper will discuss several issues currently being debated by various industry and governmental advocates of the development of wind power in the U.S., specifically, the issues of the planning, siting and cost allocation of transmission lines. The term "planning" refers to the administrative process of setting goals, developing strategies, and outlining tasks and schedules to accomplish the goals; "siting" refers to the physical location of transmission lines for the development of wind power projects; and "cost allocation" refers to the assignment of the cost of building the transmission lines.
II. BACKGROUND

The current state of wind power development in the U.S.

On its web page for the Wind and Water Power Program, DOE gives this description of wind power: “simply stated, a wind turbine works the opposite of a fan. Instead of using electricity to make wind, like a fan, wind turbines use wind to make electricity. The wind turns the blades, which spin a shaft, which connects to a generator and makes electricity.”

According to the Global Wind Energy Council, U.S. ranked first in the world wide cumulative installed capacity by 2009 (see figure 1).

Figure 1

TOP 10 CUMULATIVE INSTALLED CAPACITY 2009

<table>
<thead>
<tr>
<th>Country</th>
<th>MW</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>35,064</td>
<td>22.1</td>
</tr>
<tr>
<td>PR China</td>
<td>25,805</td>
<td>16.3</td>
</tr>
<tr>
<td>Germany</td>
<td>25,777</td>
<td>16.3</td>
</tr>
<tr>
<td>Spain</td>
<td>19,149</td>
<td>12.1</td>
</tr>
<tr>
<td>India</td>
<td>10,926</td>
<td>6.9</td>
</tr>
<tr>
<td>Italy</td>
<td>4,850</td>
<td>3.1</td>
</tr>
<tr>
<td>France</td>
<td>4,492</td>
<td>2.8</td>
</tr>
<tr>
<td>UK</td>
<td>4,051</td>
<td>2.6</td>
</tr>
<tr>
<td>Portugal</td>
<td>3,535</td>
<td>2.2</td>
</tr>
<tr>
<td>Denmark</td>
<td>3,465</td>
<td>2.2</td>
</tr>
<tr>
<td>Rest of world</td>
<td>21,391</td>
<td>13.5</td>
</tr>
<tr>
<td>Total top 10</td>
<td>137,114</td>
<td>86.5</td>
</tr>
<tr>
<td>World total</td>
<td>158,505</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Figure 2 shows that wind power was a 9% of the 8% percentage that all the renewable sources of energy make in the total U.S. energy consumption by 2009.9

Figure 2

![Diagram of U.S. Energy Consumption by Energy Source, 2009](image)

Note: Sum of components may not equal 100% due to independent rounding.

In 2008 DOE published its report “20% Wind Energy by 2030”, which explains the technical feasibility of producing 20% of the U.S. demand of electricity by wind power.11
This report found that cost allocation and siting among the most important issues to be resolved in order to reach the twenty per cent goal.12
III. PLANNING ISSUES

Transmission Planning

The development of wind power in the U.S. involves the construction of transmission lines in order to transport wind energy from the generation utilities to the population centers, which might be located at a great distance from each other. In order to start new generation projects, the generation companies seek assurances that transmission will be available. Simultaneously, transmission developers want to be certain that “generator interconnection requests have been filed”. Thus there is a need for collaboration between generation and transmission entities.

These two sectors of the energy industry were separated by the Order No. 888 of 1998 of the Federal Energy Regulatory Commission (FERC). FERC Order No. 890, issued in 2007, was designed to minimize problems that resulted from that separation by encouraging “open, transparent transmission planning processes.” However, in order to develop the wind power generation in the U.S., a common plan is needed. FERC has advocated regional planning, arguing that users could gain more benefits by pooling resources and finding solutions to their needs within a single more effective regional plan. This joint planning approach was advanced by the Order 890. FERC has noted that success depends “on collaborative follow-through at the regional level.”

Regulation of Transmission Planning

FERC Order 888

FERC Order 888 and its accompanying pro forma, Open Access Transmission Tariff (OATT), “implemented open access to transmission facilities owned, operated, or controlled by a public utility.” The OATT outlined a series of issues that had to be
addressed in a document that transmission providers would file with FERC to gain approval for proposed tariffs. Included in this document was the requirement that public utility transmission providers account for the needs of their network customers in their transmission planning activities on the same basis that it provides for its own needs.18

FERC Order 890

FERC Order 890, issued on February 16, 2007, reformed the OATT created by FERC Order 888.19

This order required each public utility transmission provider to have a coordinated, open, and transparent regional transmission planning process.20 This reform of Order 888 was the result of a conclusion reached by FERC that “OATT obligations related to transmission planning were insufficient to eliminate opportunities for undue discrimination in the provision of transmission service.”21

In the effort to remedy potential undue discrimination, Order 890 required public utility transmission providers, including regional transmission organizations (RTOs) and independent system operators (ISOs), to develop a transmission planning process fulfilling nine 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.22

FERC Notice of Proposed Rulemaking E-9

On June 17, 2010 FERC published the Notice of Proposed Rulemaking E-9, “Transmission Planning and Cost Allocation by Transmission Owning and Operating
Public Utilities”, which proposed a number of reforms in transmission planning, including: participation by FERC in the regional planning process, a requirement that RTOs design new projects in compliance with public policy (especially in regards to states’ renewable portfolio standards), a series of changes to the regional planning process in order to eliminate the advantage of incumbent transmission developers over nonincumbent developers, and requirements to increase collaborative planning among the public utilities of neighboring regions.23

**Proposed Legislation on Transmission Planning**

**House of Representatives proposal**

The House of Representatives passed the American Clean Energy and Securities Act of 2009 on June 26, 2009. One of the main objectives of this bill was “to create clean energy jobs, achieve energy independence, reduce global warming pollution and transition to a clean energy economy.”24

This bill intended to amend the Federal Power Act by submitting electric grid planning to a federal policy and authorizing FERC to support, coordinate, and integrate regional planning efforts.25

This bill did not pass the Senate.

**Senate proposal**

On June 17, 2009, the Senate Committee on Energy and Natural Resources voted to approve the American Clean Energy Leadership Act of 2009. With similar objectives
than the H.R. version, this proposed bill seeks to create a planning system for a nationwide transmission grid, and requires FERC “to coordinate development of an interconnection-wide plan that achieves the policy goals, from plans developed by current planning entities.”

This bill likewise did not pass the Senate.

**Transmission Planning - conclusions**

FERC currently has authority over interstate transmission planning. There were two legislative proposals that intended to provide FERC with increased authority in order to coordinate a nationwide transmission plan, however, neither of them received sufficient votes to become law. This is unfortunate because providing FERC with that authority would benefit the development of wind power which is currently is dependent on the initiative of different RTOs which do not all share the same interest in promoting the use of this renewable resource. Giving planning power to a federal authority helps to eliminate the pitfalls of a system in which each state or region is vying to secure benefits for its own local industry and residents.
IV. SITING ISSUES

Transmission Siting

In order to develop the wind power industry, an enormous amount of transmission lines must be built.

Wind energy development requires two types of transmission. Trunk-line transmission runs from areas with high-quality wind resources and often carries a high proportion of energy from wind and other renewable sources. Backbone high-voltage transmission runs across long distances to deliver energy from production areas to load centers. These superhighways mix power from many generating areas, sources, and shippers—just as a highway carries all types of vehicles traveling a range of distances.27

FERC lacks jurisdiction to authorize transmission line construction.28 In 2005 Congress passed the Energy Policy Act (EPAct), which established a “backstop” transmission siting authority in favor of FERC, encouraging authorizations of interstate projects of transmission lines in spite of whether or not they benefitted intrastate residents.29

The section 216 of the FPA authorized the FERC to issue permits to construct transmission lines in National Interest Electric Transmission Corridors (NIETCs) under certain conditions as follows:

(b) Construction permit

Except as provided in subsection (i) of this section, the Commission may, after notice and an opportunity for hearing, issue one or more permits for the construction or modification of electric transmission facilities in a national interest electric transmission corridor designated by the Secretary under subsection (a) of this section if the Commission finds that--

(I)(A) a State in which the transmission facilities are to be constructed or modified does not have authority to--

(i) approve the siting of the facilities; or
(ii) consider the interstate benefits expected to be achieved by the proposed construction or modification of transmission facilities in the State;
(B) the applicant for a permit is a transmitting utility under this chapter but does not qualify to apply for a permit or siting approval for the proposed project in a State because the applicant does not serve end-use customers in the State; or
(C) a State commission or other entity that has authority to approve the siting of the facilities has--

(i) withheld approval for more than 1 year after the filing of an application seeking approval pursuant to applicable law or 1 year after the designation of the relevant national interest electric transmission corridor, whichever is later; or
conditioned its approval in such a manner that the proposed construction or modification will not significantly reduce transmission congestion in interstate commerce or is not economically feasible;
(2) the facilities to be authorized by the permit will be used for the transmission of electric energy in interstate commerce;
(3) the proposed construction or modification is consistent with the public interest;
(4) the proposed construction or modification will significantly reduce transmission congestion in interstate commerce and protects or benefits consumers;
(5) the proposed construction or modification is consistent with sound national energy policy and will enhance energy independence; and
(6) the proposed modification will maximize, to the extent reasonable and economical, the transmission capabilities of existing towers or structures.30

This Act amended section 216 to the Federal Power Act (FPA), which authorized DOE to designate the NIETCs.

Section 216 of the FPA authorized the Secretary of Energy to designate National Interest Electric Transmission Corridors as follows:

(a) Designation of national interest electric transmission corridors
(1) Not later than 1 year after August 8, 2005, and every 3 years thereafter, the Secretary of Energy (referred to in this section as the “Secretary”), in consultation with affected States, shall conduct a study of electric transmission congestion.
(2) After considering alternatives and recommendations from interested parties (including an opportunity for comment from affected States), the Secretary shall issue a report, based on the study, which may designate any geographic area experiencing electric energy transmission capacity constraints or congestion that adversely affects consumers as a national interest electric transmission corridor.
(3) The Secretary shall conduct the study and issue the report in consultation with any appropriate regional entity referred to in section 824o of this title.
(4) In determining whether to designate a national interest electric transmission corridor under paragraph (2), the Secretary may consider whether--
(A) the economic vitality and development of the corridor, or the end markets served by the corridor, may be constrained by lack of adequate or reasonably priced electricity;
(B)(i) economic growth in the corridor, or the end markets served by the corridor, may be jeopardized by reliance on limited sources of energy; and
(ii) a diversification of supply is warranted;
(C) the energy independence of the United States would be served by the designation;
(D) the designation would be in the interest of national energy policy; and
(E) the designation would enhance national defense and homeland security.31

FERC has the authority to license construction of transmission facilities located in NIETCs if the state authority has “withheld approval for more than one year.”32
Case Law on Transmission Siting

Challenges to DOE authority to designate NIETCs

On February 01, 2011, the United States Court of Appeals for the Fourth Circuit decided the case California Wilderness Coal. v. U.S. Department of Energy, where the petitioners raised thirteen reviews of the DOE’s designation of two national interest electric transmission corridors (NIETCs), based on section 824(p) of the FPA. The DOE order that was challenged designated two corridors: the Mid-Atlantic Area National Interest Electric Transmission Corridor (the “Mid-Atlantic Corridor”) and the Southwest Area National Interest Electric Transmission Corridor (the “Southwest Corridor”).

The court held:

a) the requirement under Energy Policy Act for DOE to undertake study of electric transmission congestion “in consultation with affected States” meant that DOE had to confer with affected States before it completed study;
b) the consultation requirement had not been met;
c) the failure of DOE to consult with affected States regarding study of electric transmission congestion was not harmless error;
d) the entire study had to be vacated;
e) the designation of NIETCs were final agency actions that constituted major federal action under National Environmental Policy Act;
f) the formal environmental assessment (EA) was required; and
g) the failure to undertake study of environmental impacts of designating NIETCs was not harmless error.

The first part of the decision mandates that DOE’s designation of NIETCs is contingent upon its “consultation” of its study of electric transmission congestion with state authorities. There was one dissent by Judge Ikuta, with whom the author is in agreement. Ikuta argued that DOE’s failure to consult with the affected states is not so harmful that it should invalidate the entire process of designation. Ikuta’s dissent will be discussed below.
Challenges to FERC Jurisdiction to License Transmission Lines

On February 18, 2009, the United States Court of Appeals for the Fourth Circuit decided the case *Piedmont Environmental Council v. FERC*, where two state utilities commissions and two community interest organizations petitioned for judicial review of rulemaking decisions made by FERC when implementing section 216 (b)(1)(C)(1) of the FPA. The provision in question was the one in which FERC was given jurisdiction in certain circumstances to issue permits for the construction or modification of electric transmission facilities in areas designated NIETCs by the Secretary of Energy. FERC’s final rule is called “Regulations for Filing Applications for Permits to Site Interstate Electric Transmission Facilities”.

The court decided:

a) the section 216 (b)(1)(C)(1) of the FPA does not give FERC permitting authority when state authority has affirmatively denied permit application within one-year deadline;
b) the National Environmental Policy Act (NEPA) did not require FERC to prepare environmental assessment (EA) or environmental impact statement (EIS) in connection with its issuance of regulations;
c) FERC violated the regulation of Council on Environmental Quality (CEQ) by revising its regulations implementing NEPA without first consulting with CEQ; and
d) the challenges raised to amended FERC’s regulations implementing NEPA were not ready for review because the regulation was remanded.

The first part of the decision denies FERC the authority to license the construction of transmission lines in NIETCs. The basis of this decision is that Congress’ intention was not to take that authority away from the states.

There was one dissent by Judge Traxler, with whom the author agrees. Traxler argues that, with the passage of the 2005 EPAct, Congress clearly intended to provide FERC with the authority to override states' decisions regarding the licensing of constructing transmission lines in NIETCs. Traxler's dissent will be discussed below.
In summary, the federal authority to designate NIETCs and license the construction of transmission lines was revoked in federal courts, reducing the federal government's ability to plan and regulate improvements in the current nationwide electricity transmission system. These circumstances have a direct impact on the development of the wind power industry in the U.S., since a substantial upgrade of the national transmission system is necessary to connect distantly located wind power sources with the load centers. Such an upgrade is difficult to achieve without some aspect of nationwide control over licensing such as FERC exercised before its powers were revoked in the judicial decisions discussed above.

**Arguments Supporting State Authority for Licensing Transmission Lines**

There are two judicial decisions that support granting states the sole authority for decisions on transmission siting that are useful to review. The first of these decisions is *Piedmont v. FERC*.

Only the arguments of the decision related to the scope of FERC’s authority will be discussed. The environmental aspects of the decision will not be discussed as they are beyond the scope of this paper.

In *Piedmont v. FERC*, the court decided that the section 216(b)(1)(C)(i) of the Federal Power Act (FPA), that authorizes FERC to license construction or modification of transmission facilities in NIETCs if the state authority has “withheld approval for more than 1 year after the filing of [a permit] application”, did not give FERC that authority when a state has denied a permit within one year from the date of the application. The main arguments used to invalidate FERC's decision to authorize the construction of electric transmission facilities were as follows:
1) The word “withhold” has to be considered in the context in which it is used in the statute. Here, it means “that action has been held back continuously over a period of time (more than one year).” The permit denial is an action by the state which is different from the "holding back" of a permit, and therefore it interrupts the counting of time towards the period of one year after which FERC may assume transmission licensing authority from the state.

2) The remaining circumstances in which state authority to license siting can be overridden leave jurisdiction to FERC just when the state authority is “unable to act or acts inappropriately by including project-killing conditions in an approved permit.” Those restricted circumstances of jurisdiction mean that the intention of Congress was not to indicate to the state authorities that they would lose jurisdiction if they denied a permit. FERC’s interpretation of the law to say that it could issue licenses following a permit denial from the state authority contradicted the intentions of Congress.

In summary, FERC’s regulation was reversed because, according to the court, it was based on an incorrect interpretation of section 216(b)(1)(C)(i) of the FPA. First, the phrase “withheld approval” from that section of the law describes an absence of action. However, state denial of a permit is an action. Therefore, FERC cannot issue a license if the state has previously denied a permit. Second, the Congress’ intention was not to supersede the states’ power to license construction of transmission lines but rather to provide restricted auxiliary jurisdiction to FERC. In this case, FERC exceeded Congress’ mandate.
The second decision which supports granting states the sole authority for
decisions on transmission siting is *California Wilderness Coalition v. DOE*, decided on
February 1, 2011.

Only the arguments of the decision related to jurisdiction will be discussed.

In *California Wilderness Coalition v. DOE*, the court decided that section
824p(a)(1) of the 2005 Energy Power Act (EPAct 2005), that requires DOE to issue a
study of congestion in electric transmissions “in consultation with affected States” in
order to designate a NIETC, did not give DOE that authority unless the consultation with
the states consists of “more than responding to comments” and the states have had access
to the technical studies and data that are the “basis of the decision.”

The DOE had issued two invitations for comments from the affected states as well as an invitation to
attend a technical conference about the designation of the NIETCs. However, these
invitations were disregarded by the court.

The main arguments to vacate the DOE decision to designate two NIETCs were
as follows:

1) DOE did not consult with the affected states. According to the definition
of “consultation”, the DOE would have to have “to confer with the affected States before
it completed the study.” Congress’ intention was that “consultation” should include
more than merely responding to comments. The DOE interpretation of "consultation"
as merely meaning “an opportunity to comment” would render the language of section
824p(a)(1) of the EPAct 2005 unnecessary.
2) In the case law that defined “consultation,” Environmental Defense Center v. EPA, the same court approved of the manner that the Environmental Protection Agency (EPA) consulted with state authorities in the course of making a decision. In this instance, the EPA circulated a draft of its intended decision among the states, created a committee with representatives from the states, and provided states with access to the decision’s supporting data. DOE did not make any such efforts to consult with affected states. The Judges agreed with the court’s position in U.S. Steel Corp. v. United States, where the court decided that "consultation" is not only giving an "opportunity for comment", but should be interpreted to mean that “the agency must also give those comments meaningful consideration” and “must engage the Domestic Producers in good faith consultations, in a timely fashion.” Id. at 40.

3) DOE did not provide the states with modeling data, which made it impossible for the states to have a meaningful dialogue with the DOE. Not having access to that information resulted in the states' inability to “provide informed criticisms and comments." The State’s ability to “consult” was affected because they did not have access to “the basis of the decision.”

In summary, DOE’s rule was vacated because its interpretation of section 824p(a)(1) of the EPAct 2005 was incorrect. The phrase “in consultation with affected states” means that consultation is “more than responding to comments”, but, rather, “giving those comments meaningful consideration” and providing the states with access to “the basis of the decision.”
Arguments Supporting Federal Authority for Licensing Transmission Lines

While the court ruled against the federal authority in both of the cases mentioned above, there were also judges in both instances who dissented and gave arguments that defended FERC and the DOE’s actions.

In *Piedmont v. FERC*, Judge Traxler concurred in part and dissented in part. He argued as follows:

1) the EPAct 2005 was enacted in order

   to avoid future blackouts and provide our industry and consumers with the reliable electricity they need, we need to invest in critical transmission infrastructure; provide limited Federal siting authority of transmission lines to ensure the transmission of national interest lines, and avoid the most significant areas where we had gridlock; [and] streamline the permitting of siting for transmission lines to assure adequate transmission.... We need all these parts of the Energy bill. 150 Cong. Rec. S3732 (daily ed. April 5, 2004) (statement of Sen. Domenici). It was in this context that Congress enacted EPAct 2005.52

2) FERC’s interpretation of the statute is correct according to the plain meaning and context of the statute. The term “withhold” should be interpreted to mean “to keep back; decline to grant”. In addition, “the denial is merely one event that may occur during the more-than-one-year period in which approval is withheld.” 53 If the Congress had intended to provide the States the power to veto entire transmission facilities for their own reasons there would have been no reason to create these interstate compacts in the first place.54

3) The language contained in the statements of the House of Representatives, from the House Committee Report on bill H.R. 1640, describes the FERC as having siting authority “if, after one year, a state, or other approval authority is unable or refuses to site the line.”55 Representative Shays even asserted that the bill
authorized FERC to “to preempt state siting authorities when it is determined that a high-voltage power line is of ‘national significance.”

In summary, Traxler’s dissent says that FERC’s interpretation of the FPA is correct because the act was created to respond to the need for Federal siting authority. The reading of the word “withheld” in the context of this statute context refers to a situation where the state authority does not grant a permit within a year, and the legislative history of the Act explains that the Congress’ intent was “to provide FERC with the authority to grant permits in situations where States do not issue a permit.”

In *California Wilderness Coalition v. DOE*, Judge Ikuta dissented with the majority decision, arguing in defense of actions by the DOE, as follows:

1) Even though DOE failed to consult the affected states, its error is harmless. The petitioners did not prove that DOE’s error prevented them from making comments or that DOE’s final study would have been different without this error. In other words, the petitioners failed to prove prejudice.

2) Ordering DOE to do the entire process over again even though its consultation error is harmless and prejudice has not been proved, will cause real harm.

**Transmission Siting - conclusions**

The author is in favor of providing siting authority to the federal power.

The current transmission system must be improved in order to increase its reliability. A uniform system is necessary in order to improve the efficiency and efficacy of the grid. Such a system can be more easily achieved by restoring the siting authority to FERC and DOE that the two judicial decisions mentioned above have taken away.
These two decisions have weakened the EPAct 2005, which was intended to create uniformity in siting authority. As a result, the designation of NIETCs and the licensing of transmission facilities are decisions made at the state level rather than the federal level. It is the author's opinion that both decisions go against Congress' intention when enacting EPAct 2005.

Giving siting power to a federal authority helps to eliminate the pitfalls of a system in which each state or region is vying to secure benefits for its own local industry and residents.
V. COST ALLOCATION ISSUES

Transmission Cost Allocation

Wind power facilities are often located at a large distance from customer centers. In order to achieve the DOE’s stated goal of supplying twenty per cent of the U.S. energy demand through wind power by 2030, one crucial step is the construction of new transmission lines in order to connect distantly located wind farms with the national grid. According to the DOE report:

There are two separate and distinct power system challenges to obtaining 20% of U.S. electric energy from wind. One challenge lies in the need to reliably balance electrical generation and load over time when a large portion of energy is coming from a variable power source such as wind, which, unlike many traditional power sources, cannot be accessed on demand or is “nondispatchable.” The other challenge is to plan, build, and pay for the new transmission facilities that will be required to access remote wind resources.

There are currently two proposals for the financing of building transmission lines. One proposal, contained in the FERC NOPR E-9, issued on June 17, 2010, “Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities”, projects funding by collecting rates from all the ratepayers in an RTO. Another proposal is contained in the bill S.400, published February 17, 2011, “To amend the Federal Power Act to ensure that rates and charges for electric energy are assessed in proportion to measurable reliability or economic benefit, and for other purposes.”

As its name indicates, this bill intends to ensure that the cost of building new transmission lines will be paid for solely by the direct beneficiaries of the service. Each of these proposals is discussed in further detail below.
Broad Cost Allocation (FERC proposal)

On June 17, 2010, FERC published its Notice of Proposed Rulemaking (NOPR) “Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities”. In this NOPR, FERC proposed “to amend the transmission planning and cost allocation requirements established in Order No. 890.” In addition, the proposed rule intends to:

1. Provide that local and regional transmission planning processes account for transmission needs driven by public policy requirements established by state or federal laws or regulations; (2) improve coordination between neighboring transmission planning regions with respect to interregional facilities; and (3) remove from Commission-approved tariffs or agreements a right of first refusal created by those documents that provides an incumbent transmission provider with an undue advantage over a nonincumbent transmission developer.

The final rule has not yet been issued. The NOPR proposes a number of reforms in transmission cost allocation, both for intraregional and interregional transmission projects.

Intraregional cost allocation must comply the following principles:

1. The cost of transmission facilities must be allocated to those within the transmission planning region that benefit from those facilities in a manner that is at least roughly commensurate with estimated benefits. In determining the beneficiaries of transmission facilities, a regional transmission planning process may consider benefits including, but not limited to the extent to which transmission facilities, individually or in the aggregate, provide for maintaining reliability and sharing reserves, production cost savings and congestion relief, and/or meeting public policy requirements established by state or federal laws or regulations that may drive transmission needs.

2. Those that receive no benefit from transmission facilities, either at present or in a likely future scenario, must not be involuntarily allocated the costs of those facilities.

3. If a benefit to cost threshold is used to determine which facilities have sufficient net benefits to be included in a regional transmission plan for the purpose of cost allocation, it must not be so high that facilities with significant positive net benefits are excluded from cost allocation. A transmission planning region or public utility transmission provider may want to choose such a threshold to account for uncertainty in the calculation of benefits and costs. If adopted, such a threshold may not include a ratio of benefits to costs that exceeds 1.25 unless the transmission planning region or public utility transmission provider justifies and the Commission approves a greater ratio.

4. The allocation method for the cost of an intraregional facility must allocate costs solely within that transmission planning region unless another entity outside the region or another transmission planning region voluntarily agrees to assume a portion of those costs. However, the transmission planning process in the original region must identify
consequences for other transmission planning regions, such as upgrades that may be 
required in another region and, if there is an agreement for the original region to bear 
costs associated with such upgrades, then the original region’s cost allocation method or 
methods must include provisions for allocating the costs of the upgrades among the 
entities in the original region.

(5) The cost allocation method and data requirements for determining benefits and 
identifying beneficiaries for a transmission facility must be transparent with adequate 
documentation to allow a stakeholder to determine how they were applied to a proposed 
transmission facility.

(6) A transmission planning region may choose to use a different cost allocation method 
for different types of transmission facilities in the regional plan, such as transmission 
facilities needed for reliability, congestion relief, or to achieve public policy requirements 
established by state or federal laws or regulations. Each cost allocation method must be 
set out clearly and explained in detail in the compliance filing for this rule.53

Interregional cost allocation must comply the following principles:

(1) The costs of a new interregional facility must be allocated to each transmission 
planning region in which that facility is located in a manner that is at least roughly 
commensurate with the estimated benefits of that facility in each of the transmission 
planning regions. In determining the beneficiaries of interregional transmission facilities, 
transmission planning regions may consider benefits including, but not limited to, those 
associated with maintaining reliability and sharing reserves, production cost savings and 
congestion relief, and meeting public policy requirements established by state or federal 
laws or regulations that may drive transmission needs.

(2) A transmission planning region that receives no benefit from an interregional 
transmission facility that is located in that region, either at present or in a likely future 
scenario, must not be involuntarily allocated any of the costs of that facility.

(3) If a benefit-cost threshold ratio is used to determine whether an interregional 
transmission facility has sufficient net benefits to qualify for interregional cost allocation, 
this ratio must not be so large as to exclude a facility with significant positive net benefits 
from cost allocation. The public utility transmission providers located in the neighboring 
transmission planning regions may choose to use such a threshold to account for 
uncertainty in the calculation of benefits and costs. If adopted, such a threshold, may not 
include a ratio of benefits to costs that exceeds 1.25 unless the pair of regions justifies 
and the Commission approves a higher ratio.

(4) Costs allocated for an interregional facility must be assigned only to 
transmission planning regions in which the facility is located. Costs cannot be assigned involuntarily 
under this rule to a transmission planning region in which that facility is not located. 
However, the interregional planning process must identify consequences for other 
transmission planning regions, such as upgrades that may be required in a third 
transmission planning region and, if there is an agreement among the transmission 
providers in the regions in which the facility is located to bear costs associated with such 
upgrades, then the interregional cost allocation method must include provisions for 
allocating the costs of the upgrades within the transmission planning regions in which the 
facility is located.

(5) The cost allocation method and data requirements for determining benefits and 
identifying beneficiaries for an interregional facility must be transparent with adequate 
documentation to allow a stakeholder to determine how they were applied to a proposed 
transmission facility.

(6) The public utility transmission providers located in neighboring transmission planning 
regions may choose to use a different cost allocation method for different types of 
interregional facilities, such as transmission facilities needed for reliability, congestion
relief, or to achieve public policy requirements established by state or federal laws or regulations. Each cost allocation method must be set out and explained in detail in the compliance filing for this rule.64

According to FERC's proposal, requiring all members of a Regional Transmission Organization (RTO) to pay for new interregional facilities would increase reliability and cost-efficiency.

**Narrow Cost Allocation (proposed legislation)**

S.400, drafted by Senator Bob Corker of Tennessee, seeks to amend the section 824d of the Federal Power Act (16 U.S.C.). Currently, section 824d of the FPA states that FERC has the power to fix rates and charges, and address the determination of cost of production and transmission. It contains a number of provisions to that give FERC oversight over public utilities to ensure reasonableness of rates, equality of prices for different areas and services, proper procedures for changing rates and informing the public, among other questions.65

Corker's proposed bill intends to subject all the procedure for establishing rates to a new paragraph, which states:

No rate or charge for or in connection with the transmission of electric energy contained in any filing made under subsection (c) or any proceeding initiated under section 206(a) after June 17, 2010 shall be considered just and reasonable unless the rate or charge is based on an allocation of costs for new transmission facilities that is reasonably proportionate to measurable economic or reliability benefits projected, as determined by the Commission, to accrue to the 1 or more persons that pay the rate or charge.’’66

Contrary to the FERC proposal, S. 400 does not require all members of a RTO to pay for new interregional facilities. Instead, this bill seeks to establish a direct, proportional relationship between the causation of the service and its payment. In other words, only those ratepayers who are directly receiving the benefit of the service shall pay for it.
Case Law on Transmission Cost Allocation

Challenges to FERC jurisdiction to set prices

On August 6, 2009 the United States Court of Appeals, Seventh Circuit decided the case Illinois Commerce Commission v. FERC. In that case, the Illinois Commerce Commission, along with other petitioners, asked for a review of a FERC decision regarding reasonableness of electricity transmission rates charged by utilities within a regional transmission organization.

For the purpose of this paper, only issues in the following decision related to the financing of new facilities will be discussed.

Arguments in favor of narrow cost allocation

In Illinois Commerce Commission v. FERC, the court held:

1) FERC cannot reject a rate mechanism based on cost-causation

2) The disparity between benefit and cost is not reasonable.

FERC cannot approve prices which result in utilities paying for facilities that do not providing substantive benefits to their members “‘[A]ll approved rates [must] reflect to some degree the costs actually caused by the customer who must pay them.’”67

Arguments in favor of broad cost allocation

In Illinois Commerce Commission v. FERC, Judge Cudahy concurred in part and dissented in part with the majority decision. In the areas of the decision that he dissented, Cudahy argued as follows:
1) “Cost causation” principles for determining rates were not violated by FERC when it did not provide a “number that would represent the specific monetary benefits to each utility of a more reliable network. Cost causation requires that “approved rates reflect to some degree the costs actually caused by the customer who must pay them.” In Midwest ISO, the court declared that utilities benefiting from being part of a power pool should share in the overall costs of the power pool.

2) The benefits of having Independent System Operators (ISO) do not depend on them being used, just having access to a power pool is a benefit.

3) The aim of spreading the costs among participants in any given ISO is to generate efficient, high-capacity transfer capability, thus generally improving the reliability of the system.

4) FERC is in a better position than the court to implement policies aimed at improving the transmission grid.

Transmission Cost Allocation - Conclusions

The author is in favor of broad cost allocation because it includes a requirement that there be a regional process in which participating utilities will plan new projects in compliance with state renewable portfolio standards (renewable portfolio standards impose upon the states the responsibility to fulfill percentages of their electricity needs through the use of renewable sources of energy, including wind power).

Broad cost allocation can also help to improve the reliability and efficiency of the transmission grid insomuch as it spreads out costs, and this is how previous substantial improvements of the grids have been financed.
The construction of new transmission lines can improve the efficiency and reliability of current systems by providing access to new and more varied sources of energy. Spreading out the cost of these new transmission lines can open up increased opportunities for investment and financing of the projects. Narrow cost allocation, on the other hand, restricts investment opportunities and, consequently, delays the modernization of the existing transmission grid.

Those who have argued that the broad cost allocation of transmission lines is “unfair” only take into account the immediate benefits of using the energy being produced and transmitted. However, the overall reliability and efficiency of the grid are vitally important. A strong grid provides the benefit of dependability, the ability to have access to energy whenever it is needed.

FERC’s broad cost allocation approach also addresses the need to finance the development and use of renewable sources in the U.S., a political priority which has gained support across an increasingly broad political spectrum in recent years. An increase in the use of renewable resources can help to accomplish a number of important goals including the reduction of reliability on non-renewable energy sources, the reduction of greenhouse gas emissions, and the creation of jobs through the development of new industries. This larger picture must be taken into account when evaluating the benefits of different cost allocation methods.

The electricity transmission system in the U.S. is currently organized in such a way that generators are located close to population centers where the electricity is distributed. Optimal areas for wind power generation are very often located far from population or "load" centers. In order to develop wind power in the U.S., new
transmission lines have to be constructed in order to bring that wind power to the load centers. The construction of those new transmission lines requires funding which will be difficult to attain if investors feel uncertainty over the probability of recuperating their investments. That uncertainty could be eliminated if the cost of new projects was spread out to include not only the ratepayers that directly receive the wind power, but also the ratepayers that will benefit from having a larger, more reliable and efficient transmission grid, in other words, if cost allocation includes all the ratepayers in a RTO.
VI. CONCLUSION

On August 14, 2003, what should have been a minor power failure in the Northern Ohio triggered "a cascade of failures throughout southeastern Canada and eight northeastern states." In the end, "50 million people lost power for up to two days in the biggest blackout in North American history. The event contributed to at least 11 deaths and cost an estimated $6 billion."³³

The 2003 blackout was a sharp warning to policy makers of the urgent need to modernize the U.S. electricity transmission grid. As discussed here, Congress has since passed legislation giving additional powers to DOE and FERC with the aim of accomplishing this goal. However, both federal powers have been challenged in court and seen their authority reduced.

In February 2009, the United States Court of Appeals for the Fourth Circuit decided the case Piedmont Environmental Council v. FERC. The court ruled that section 216(b)(1)(C)(i) of the Federal Power Act (FPA), that authorizes FERC to license construction or modification of transmission facilities in NIETCs if the state authority has “withheld approval for more than 1 year after the filing of [a permit] application”, did not give FERC that authority when a state has denied a permit within one year from the date of the application. This decision sharply reduced FERC’s already very limited authority to license transmission projects.

In February 2011, the United States Court of Appeals for the Fourth Circuit decided the case California Wilderness Coal. v. U.S. Department of Energy, vacating DOE’s decision to designate two National Interest Electric Transmission Corridors (NIETCs), the Mid-Atlantic Area National Interest Electric Transmission Corridor and
the Southwest Area National Interest Electric Transmission Corridor. The court ruled that in order to designate an NIETC, DOE must consult with affected states when conducting the study that forms the basis of its decision. The consultation must consist of more than just giving states the "opportunity for comment", but by providing states with the technical data that forms the basis of its decision.

In August 2009, the United States Court of Appeals, Seventh Circuit decided the case *Illinois Commerce Commission v. FERC*. The court rejected a FERC decision regarding reasonableness of electricity transmission rates charged by utilities within a regional transmission organization. Further, the ruling barred FERC from approving prices that would result in utilities within a RTO from paying for services from which they do not benefit.

In addition to these court decisions weakening FERC and DOE powers, Congress failed to pass either the American Clean Energy and Securities Act of 2009 or the American Clean Energy Leadership Act of 2009, both of which intended to give FERC increased authority to coordinate regional transmission planning efforts in order to plan a nationwide electricity transmission grid and advance national energy priorities.

As discussed in the introduction to this paper, the use of wind power and other renewable resources has become increasingly attractive to policymakers in the U.S. as a way to combat global warming and reduce dependence on foreign oil. DOE has already projected a goal of meeting twenty percent of national energy demand through wind power by 2030. However, achieving this goal is not possible without the construction of new transmission lines and their integration into the national grid. The fact that the best source areas for wind power are not usually located near major population centers means that creative solutions are needed in order to license and finance new construction
projects to improve the transmission grid. There must be an understanding that the overall improvement of electricity production and transmission in the U.S. will ultimately benefit the entire population.

The challenges that DOE and FERC have faced in the courts underline the need for the federal powers to more closely coordinate their actions and take decisions in consultation with affected states. At the same time, it remains clear that if issues such as transmission line planning, siting and cost allocation are not addressed on a nationwide basis, the modernization of electricity production and transmission, including the further development and use of renewable resources such as wind power, will remain a distant goal. For these reasons, the author favors the restoration of federal powers to plan, license and set rates for future energy generation and transmission projects.
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