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# REGULATORY BARRIERS TO A NATIONAL ELECTRICITY GRID

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CENTER FOR ENERGY POLICY AND THE ENVIRONMENT  
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Policy makers and energy analysts agree: America's electric grid is inadequate to service our twenty-first century power needs. Despite this consensus, formidable obstacles stand in the way of a national transmission grid capable of delivering power over long distances and across state lines. These obstacles are not technological. They are regulatory.

Today, state and local regulatory entities possess the authority to block urgently needed transmission projects, often for purely parochial reasons. Frustrated by a costly and unpredictable approval process, some transmission firms have simply walked away from plans to extend and upgrade our aging electric grid.

For the United States to remain economically competitive, electricity must remain cheap, abundant, and reliable. Creating a resilient and robust national electricity grid will require federal authorities, in some cases, to supersede the authority of local, state, or regional entities.

Specifically, this paper recommends:

- Giving the Federal Energy Regulatory Commission's (FERC) "backstop" authority to approve the siting of high-voltage transmission facilities within so-called National Interest Electric Transmission Corridors, after state and local authorities are given a chance to make their concerns known;
- Increasing the number and reach of such corridors, which now number only two;
- Establishing a system whereby types of energy are developed and transmitted strictly on the basis of their cost, not their favored status.

At the same time, states and localities have a very real role to play in ensuring that the advancement of national policies and interests does not needlessly trample on legitimate local sensitivities and concerns. Accordingly:

- States should retain jurisdiction over lower-voltage interstate lines, intrastate transmission, and local distribution;
- States and localities should have a right to participate in proceedings examining siting, cost-allocation, and other issues in which they may indicate ways the project under consideration can be made minimally burdensome to the surrounding community and the environment.

If a national grid is to become a reality, private investors in new transmission will need stronger financial incentives and more consistent methods of transmission-cost recovery. However, there is, and should be, no one-size-fits-all method of cost-allocation. Each project should craft its own cost-allocation system, whether it is producer-based, consumer-based, some hybrid of the two, or some as-yet-unforeseen approach, with FERC standing ready to step in if a particular system is discriminatory or sets rates that are not "just and reasonable." In the interest of flexibility and efficiency, FERC should encourage interregional cost-sharing agreements.

## ABOUT THE AUTHOR

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# REGULATORY BARRIERS TO A NATIONAL ELECTRICITY GRID

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Drew Thornley INTRODUCTION

In 2003, the National Academy of Engineering, a division of the National Academy of Sciences, ranked electrification as the single greatest engineering achievement of the twentieth century, ahead of things such as the airplane, the automobile, air conditioning, and refrigeration. By “electrification,” the National Academy meant the development of a system of generation, transmission, and distribution of electric power to virtually every corner of the United States. In effect, the National Academy said that the nation’s electric grid was the supreme engineering achievement of the twentieth century.

Today, there is a growing consensus that the grid that served the American economy so well during the twentieth century is inadequate to service the new century’s needs. The U.S. Energy Information Administration forecasts growing electricity demand over the next several decades, as the population grows and as the U.S. economy continues its steady, long-term trend of electrification (particularly in the transportation sector). Already, electricity congestion and bottlenecks in heavily populated areas such as downstate New York and Southern California have threatened reliability while increasing costs. Consequently, renewable forms of energy such as wind and solar, as well as conventional forms such as coal and nuclear, also originating far from population centers and industry, must be allowed to contribute a larger share of the nation’s energy mix. Presidents

George W. Bush and Barack Obama, as well as academics, government scientists, and representatives of industry, have highlighted the need to upgrade and extend the grid.

A report issued by the Edison Electric Institute in February 2010 reveals the scope of the problem.<sup>1</sup> According to EEI's members, 10,000 circuit miles of large interstate transmission lines, involving numerous entities and representing a \$39 billion (nominal dollars) investment, are needed over the next ten years. Meanwhile, the projects needed to integrate renewable resources would add or upgrade nearly 12,900 circuit miles of transmission, at a cost of approximately \$37 billion (nominal dollars). In 2008, the Brattle Group estimated that some \$298 billion of new transmission investment would be needed between 2010 and 2030 if grid reliability is to be maintained.<sup>2</sup> By comparison, the Federal Energy Regulatory Commission (FERC) identified a mere 682 miles of interstate lines of 345 kV and above that were actually built between 2000 and 2009.

A transcontinental backbone grid that was built with state-of-the-art high-voltage technology and integrated into the current grid system, as outlined by Peter Huber in his 2008 Manhattan Institute paper "The Million-Volt Answer to Oil," could move a quarter of America's power over very long distances at a cost of less than 0.5 cents per kilowatt-hour moved. Since peak wholesale prices can vary by as much as three cents per kilowatt-hour, the efficiencies attainable in a long-distance system that could cheaply transport power to far-flung markets (or, conversely, connect stranded power sources to thirsty urban centers) should more than offset the cost of expanding capacity.

An analogy could be drawn to the federal highway system. Just as it was connected to the existing network of county and interstate roads in the 1950s, '60s, and '70s, bringing isolated areas into the stream of commerce, long segments of extra-high-voltage transmission lines would be integrated into the present network of local, lower-voltage lines, with the federal government setting goals and standards and exercising the right of final approval, while states and their instruments do most of the detailed planning.<sup>3</sup>

The vision is enticing, but, says EEI, "The task of actually getting a project planned, approved, permitted, and financed remains daunting. For utilities, transmission development remains an area that competes for investment with distribution investments (which, regulated at the state level, often carry a higher rate of return than those allowed at the interstate level by the Federal Energy Regulatory Commission). Often, given that transmission projects require the expenditure of substantial amounts of political capital, these projects lose the internal battle for funding."<sup>4</sup>

No one would deny the critical importance to this country of its interstate oil and natural gas pipelines. But unlike its modern incarnation, whose rates and siting a New Deal law placed under the exclusive jurisdiction of the predecessor agency to FERC,<sup>5</sup> its electrical counterpart confronts a myriad of political and regulatory hurdles. They range from local NIMBY opposition to a fragmented and inefficient skein of state and regional regulatory entities that oversee the siting and financing of new power lines. Add in the vagaries of the tax code, and the challenge becomes even more formidable.

Creating a resilient and robust national electricity grid will require federal authorities, in some cases, to supersede the authority of local, state, or regional entities. Given the growing distrust of the federal government and the commensurate appeal of local control, the authority created must show reasonable deference to local awareness of the issues and local sensitivities. Still, the fact remains that electricity is the commodity most essential to our way of life. For the United States to remain competitive in the twenty-first century, it must upgrade its antiquated electric grid so that electricity remains cheap, abundant, and reliable. This paper will discuss some of the regulatory barriers standing in the way of creating that grid.

## THE DEVELOPMENT OF THE GRID AND ITS INADEQUACIES

The system that the National Academy of Engineering described as the supreme engineering achievement of the last century was

not overseen by a single governmental authority, as the interstate highway system was during the Eisenhower administration. It was not created or designed by any of the men we recognize as giants in the field of electricity, such as Edison, Tesla, Insull, or Westinghouse. It is not a singular, defined, completed structure like the Hoover Dam or the Golden Gate Bridge. Strictly speaking, the grid is not even a single entity.

Instead, it is a sprawling and ever-growing network of technology that has developed organically, in bits and pieces, over decades. Broadly speaking, there are actually three distinct major independent power networks, or grids, in the United States: an eastern interconnection, a western interconnection, and a third interconnection comprising most of the state of Texas. The three interconnections are electrically independent of one another except for a few small direct-current (DC) links. Within each interconnection, electricity flows from generators to loads over virtually every transmission line and is used the instant that it is produced.

Within these three grids are many smaller, regional ones that branch out from power plants built to serve nearby urban load centers. Throughout most of the twentieth century, power plants were built to serve their own localized grids corresponding to the footprint of the local utility. Distribution systems were designed to move power from power plant to end user. These systems were usually overseen by state regulatory authorities, whose principal concerns, quite naturally, were—and are—parochial in nature. Like the grid itself, the regulatory apparatus to deal with it grew up largely organically, with local authorities overseeing generation and transmission.

Over time, power plants grew larger and more efficient, permitting them to be located farther away from load centers. Electricity generators increasingly came to rely upon improved high-voltage lines to transmit power to increasingly distant markets.<sup>6</sup>

As they stretched out these grids over hundreds of miles, operators realized that the reliability of their own systems could be enhanced by linking their wires to those of nearby systems. In time, these linked-up local grids grew into multistate ones connecting entire

regions. Yet the regulatory structure governing the grid remained fragmentary.

In the 1990s, restructuring and deregulation encouraged the sale of power across state lines. Utilities split themselves into transmission companies and generation companies. Because their rates, unlike those of generation companies, were still strictly regulated by state authorities, which were often strongly pro-consumer, transmission companies chose not to invest in the upkeep and upgrade of their wires, knowing that they would not be compensated for doing so. That is one reason that “electrical generation is growing four times faster than transmission, according to federal figures.”<sup>7</sup>

Even so, we have today an electricity transmission and delivery system that the Electric Power Research Institute has valued at some \$358 billion. Clark Gellings and Richard Jordan of the Electric Power Research Institute contend that “with its millions of transformers, circuit breakers, and other components, it is the most complex machine ever invented.”<sup>8</sup> Perhaps the biggest, as well: after the nation’s system of highways and roads, it is the largest physical structure in the United States. And like the road and highway system, it serves virtually every American.

For all its marvels, the current limitations of the grid are apparent: built to transmit and distribute power a relatively short distance, from source to nearby user, existing systems are simply too modest to handle the large amounts of power needed to travel long distances—say, from West Virginia to the East Coast, as American Electric Power (AEP) and Allegheny Energy, Inc. would like their proposed Potomac-Appalachian Transmission Highline, a 275-mile, 765 kV project, to do. A more technologically robust system than the present one would be better able to handle periods of peak demand, thereby reducing the risk of power outages. And that leads to an essential point: new generating capacity, for which there is no shortage of investment capital, will not be developed if the generators cannot efficiently ship their power to the marketplace.

A lack of technology is not the obstacle to surmounting these difficulties. Rather, the obstacle

is regulatory—both the actual regulations governing the planning, siting, and financing of infrastructure, and the highly fragmented nature of the regulatory regime. A remnant of the days when state public utilities commissions oversaw a single, vertically integrated industry, a structure of fifty distinct public utilities commissions (one for each state) has survived the industry’s functional and geographical disaggregation. These bodies still decide where generating plants and transmission lines will go and the rates per kilowatt that end users will be charged. However, in states such as Illinois and New York, such decisions are delegated to the localities for which the structures have been proposed.<sup>9</sup> Compounding the system’s complexity is the advent of grid operators, such as the Electric Reliability Council of Texas and the California Independent System Operator, some of which now participate in activities, such as planning future capacity, traditionally assumed by the public utilities commissions (PUCs). In some states, there are agencies with policy mandates such as the development of alternative energy sources that conflict with the typical economic calculations of PUCs.

## THE TRANSMISSION-SITING CONUNDRUM

The present balkanized system of electricity distribution, with regulatory authority vested in fifty state capitals, by its very nature impedes the development of a high-voltage backbone transmission system that spans the nation. The problem of needing multiple sign-offs begins with the siting of an interstate transmission project.<sup>10</sup> State utility regulators, legislators, and power generators themselves will often oppose high-voltage interstate lines because they bring in power from lower-cost, out-of-state generators. If a line were proposed that traversed a state without offloading power, that state’s officials would see little reason to favor its construction. As such, “Some state siting laws require that the benefits of a proposed transmission facility accrue to the individual state, resulting in the rejection of transmission proposals that benefit an entire region, rather than a single state.”<sup>11</sup>

States and localities have legitimate interests to protect and can be expected to do so. But such parochialism can delay and even doom urgently needed transmission projects that are broadly regional or national in scope. This attention to regional rather than national interests can be seen in the May 2009 letter sent to congressional leaders by ten East Coast governors. The letter objected to the development of transmission lines that the governors said could jeopardize the development of offshore wind projects in the Northeast. When it comes to expanding and improving the electric grid, “Congress should focus its attention on regional solutions,” the governors declared.<sup>12</sup>

While the development of offshore wind may or may not occur, there are many other examples of regional (or local) interests impeding the continued build-out of the transmission grid. For example, in 1990, American Electric Power proposed a ninety-mile project connecting Wyoming County, West Virginia, and Jacksons Ferry, Virginia.<sup>13</sup> Working around localities’ objections to particular sites for towers or rights-of-way took thirteen years,<sup>14</sup> while actually constructing the line, which cost \$306 million, took less than three.

More recently, regulatory barriers caused Southern California Edison (SCE) to walk away from plans that it had made to build a 230-mile power line from California to Arizona. The project was approved by the California Public Utilities Commission but was rejected by the Arizona Corporation Commission in 2007. SCE withdrew plans for this project, known as Devers-Palo Verde No. 2,<sup>15</sup> “because a study said it wasn’t economically feasible to build it given the changes SCE would have to make to get it approved by the Arizona Corporation Commission.”<sup>16</sup>

American Transmission Company’s Arrowhead-Weston project was completed, but only after a long delay. The construction phase of the 220-mile line between Wausau, Wisconsin, and Duluth, Minnesota, lasted only two years, but obtaining the necessary permits took eight. According to José M. Delgado, ATC’s president and chief executive, because the line was supposed to cross a wild river, the U.S. Department of the Interior was able to extract a \$5 million contribution to a national park, and the one-year delay that resulted

raised costs by about \$12 million.<sup>17</sup> Added costs like these are ultimately passed on to utility shareholders and/or electric ratepayers.

In addition to gaining transmission-rate approval from FERC, transmission firms need to obtain siting approval not only from state public-utility regulators but from the appropriate wholesale-market operator; from federal agencies like the National Park Service and the U.S. Fish and Wildlife Service<sup>18</sup> with jurisdiction over natural resources that might be affected by a project; and from state and local agencies with jurisdiction over the property at issue.<sup>19</sup> Such a multiplicity of approvals required for each project makes a unified grid linking them, at least within a reasonable time frame, a dim prospect.

In addition to these approvals, transmission-line expansion projects are drawing increasing resistance from citizen and environmental groups. For instance, in upstate New York, a private investment group called New York Regional Interconnect, Inc. has been trying for years to build some 200 miles of transmission lines that would carry electricity from the northern part of the state to customers farther south. But the line is opposed by local groups that don't want the lines to cross over their communities.<sup>20</sup>

In July 2009, a coalition of environmental groups, including the Sierra Club, the Natural Resources Defense Council, and the Wilderness Society, filed a lawsuit against several federal agencies in an effort to force them to change the routes of a number of planned transmission lines. The suit, which names the departments of Interior, Energy, and Agriculture as well as the Bureau of Land Management and the Forest Service as defendants, claims that the federal government has created 6,000 miles of rights-of-way in the western states without considering all the environmental impacts of the transmission corridors.<sup>21</sup> The suit invokes a variety of federal laws, including the Endangered Species Act, and asks the court to “declare unlawful and set aside” the power-transmission corridors laid out by the federal government.<sup>22</sup>

In mid-2009, the Lower Colorado River Authority announced plans for 600 miles of transmission lines

to carry wind power from west Texas to customers in the central part of the state.<sup>23</sup> The project has garnered opposition from landowners and local citizens who contend that the lines will hurt their property values.<sup>24</sup>

## BETTER WAYS FORWARD

Can legitimate local interests be respected without thwarting national energy policy? One path would be to strengthen FERC's “backstop” siting authority, as set out in Section 216 the Energy Policy Act of 2005 (EPACT). Section 216 grants FERC the right to approve the siting of a transmission facility within a so-called National Interest Electric Transmission Corridor (NIETC), if a state fails within a certain period to act on an application to do so.<sup>25</sup>

Though the Department of Energy contends that FERC's backstop siting authority in an NIETC does not imply states' uncooperativeness,<sup>26</sup> proponents of expanded FERC authority see the necessity for legal mechanisms capable of dealing with the possibility of obstructionism by the states or their indifference to important national interests. Even if under the act, FERC is able to overcome states' negligent or intransigent nonperformance, the law nonetheless permits even the most minor local concerns to stand in the way of realizing vitally important national policy goals. In essence, states possess veto power over projects that offer net benefits to the region or the nation.

In fact, just two National Interest corridors have been designated since EPACT went into effect,<sup>27</sup> and a legal challenge to the law recently resulted in a ruling supporting states' siting authority. In January, the Fourth U.S. Court of Appeals held that the limited backstop authority granted by Congress to FERC is unavailable when a state regulator rejects a transmission project, as distinct from failing to rule on a project within one year.<sup>28</sup> On January 19, 2010, the U.S. Supreme Court denied<sup>29</sup> certiorari, permitting the Fourth Circuit's decision to stand uncontradicted.

The Court denied a hearing even though four former FERC chairmen—Joseph Kelliher, Elizabeth Moler,

Patrick Wood, and James Hoecker—advised the Court that the Fourth Circuit’s decision “nullifies the intent of Congress to strengthen the interstate electric transmission system.”<sup>30</sup> If they are correct—and there is strong reason to think that they are—Congress would do well to enact those parts of the American Clean Energy Leadership Act of 2009, introduced by Senator Jeff Bingaman (D-N.M.), that would preclude wrong-headed guessing by the courts. (Other parts of the bill, unfortunately, split authority between FERC and the Department of the Interior, mandating the latter to develop the record of a siting application and the former to make a siting decision based on that record. Such an approach is a recipe for inaction.)<sup>31</sup>

The two aforementioned corridors are much too limited geographically to bring us close to the goal of a unified national grid. Moreover, they extend only into areas in need of congestion relief—that is, those paying higher costs than they would if cheaper power from farther away were transmissible—and not all such areas, at that.

The key challenge in creating a national electricity grid is adding enough transmission capacity to enhance reliability and increase the grid’s ability to draw upon a wider range of energy sources. Consequently, it is apparent that the federal government needs more than just backstop authority. FERC or another federal body should be given reviewing authority and, in unresolved cases, substitute siting authority for the grid’s key element—extra-high-voltage (EHV) interstate transmission facilities—while continuing to reserve to the states jurisdiction over lower-voltage interstate lines, intrastate transmission, and local distribution. In short, there would be two systems working in tandem: regional/state transmission lines subject to the current siting regime; and new, high-voltage or extra-high-voltage interstate lines, subject ultimately to federal siting authority. In essence, siting authority for conventional transmission capacity would continue under the current regime, while determination of the need for new EHV interstate transmission (that is, above 345 kV, as specified in the Bingaman bill) and ultimate approval of any plan would come under the authority of a central body like FERC.

There is ample legal justification for such authority. The U.S. Constitution (Article 1, Section 8, Clause 3) grants Congress the authority to regulate commerce between and among states, and this authority properly extends to the interstate transmission of electricity. The movement of electrons across state lines for the sake of enhancing our comforts and invigorating our economy is exactly the kind of activity that the Commerce Clause contemplates.

While states retain a significant role in regulating electric utilities under current federal statutes and regulations,<sup>32</sup> there is little doubt that under the U.S. Supreme Court’s modern constitutional jurisprudence, Congress could choose to preempt all state regulatory authority in the electricity sector.<sup>33</sup> But without some new federal authority to override local or state objections, albeit after taking them seriously into account (per FERC Order 890), it is obvious that the current system of siting and financing new high-voltage interstate power lines will continue to be hampered by delays, cost overruns, underinvestment, stranded investment, and fragmentation. Former FERC chairman Joseph Kelliher summed up the problem: “Without that [increased] authority, we are actually not going to develop a grid that this country needs to ensure reliability.”<sup>34</sup>

While federal authority is needed, local interests must also be protected. Without such safeguards, enhanced federal authority is, politically speaking, a nonstarter, as evidenced by the slow progress of the Bingaman bill, which was introduced in July 2009. First, any project that a state, county, or locality is asked to evaluate must further a legitimate national or multistate purpose—namely, the filling out, extension, and/or modernization of the current grid structure in furtherance of its reliability or ability to integrate new energy sources, including renewable energy sources (as encouraged—and, in limited cases, mandated—by the Energy Policy Act of 2005). Second, states and localities must have the right to insist that the project is minimally burdensome to the surrounding communities and the environment.

In procedural terms, FERC would make a preliminary determination of the need for a project in a given

area. Such a determination could be triggered by an application from a developer. Local utilities, in combination with the transmission developer, regional transmission organizations/independent system operators (RTOs/ISOs),<sup>35</sup> and any other regional entity, would put together a plan of the broadest feasible geographical scope. The plan would deal with siting as well as cost-allocation issues. The parties would then submit the plan to the interested PUCs, or their equivalent, or their multistate counterpart for approval. The PUCs would conduct hearings, receive documents, and otherwise compile a record in the case. (For expediency's sake, they would presumably perform these activities jointly.) On the basis of the record compiled, they could ask for modifications to the plan. If the reviewing bodies approved the plan, it would be forwarded to FERC for its approval.

In its review, FERC would be confined to determining whether the state-approved plan failed to advance at least one of the three goals of grid build-out. If it did not, FERC could demand modifications. FERC also enters into the process if the local or regional body or bodies fail within two years to approve or agree on the plan submitted. (Such a deadline is neither arbitrary nor unreasonable: after two years, the facts on the ground are likely to be so changed that a whole new plan would be required.) In that event, FERC would be required to rely on the locally compiled record in reviewing—and, where necessary, modifying—the submission on an expedited basis. Such an approach approximates that set out in the Bingaman bill.

Alternatively, states could be made parties to a federal planning process, enjoying the functional status of a federal agency with jurisdiction over some aspect of the plan, as the Environmental Protection Agency or the National Park Service might have, in some circumstances. States would always be able to invoke environmental or other laws to delay or force revisions to the plan.

Should the responsible federal body be FERC,<sup>36</sup> which has extensive experience siting nonfederal hydropower projects and interstate gas pipelines,<sup>37</sup> as well as authority in the area of electricity cost allocation? Or should it be assigned to some newly created body?

FERC's authority under the NGA<sup>38</sup> is probably the most appropriate basis for granting similar authority for siting electric transmission, inasmuch as the NGA was created to address an identical issue: resources located far away from customers.

Given its long history of dealing with siting issues, granting more authority to FERC would make sense. But a new federal entity, perhaps a commission that includes a substantial minority of state regulators, could be equally effective.

Until such time as federal siting authority is asserted beyond the two already-established corridors, it might make sense to establish panels created by compacts between or among contiguous states, after authorization by federal legislation, as required under Article I, section 10 of the U.S. Constitution. With compacts, multistate bodies would be formed to make binding siting decisions that could balance local property interests and residents' sensitivities against broader national energy needs. Such an approach might lack the efficiency of a federally dominated regime; or, it might not, if councils comprising peers reduced the odds of protracted litigation against what was perceived to be a heedless central authority. Given the inevitably incremental nature of this national grid's construction, however, such authority would itself have to proceed region by region, perhaps more slowly than regional councils because of the greater opposition that they would incite. Of course, the passage of federal enabling legislation would face political resistance of its own, and there remains the risk that any regional bodies that emerged would not sufficiently account for national goals.

Wherever authority is finally vested, it should have the following six characteristics if it is to be efficient and effective.<sup>39</sup>

- Before an application is filed, all stakeholders, in consultation with the relevant federal and state agencies, should develop a generally acceptable plan that is least likely to encounter environmental or other regulatory objections.
- A lead agency should be designated to determine whether the project serves a public interest. The lead agency should neither usurp

the roles of other interested agencies nor allow them to usurp one another's. The lead agency should have final authority for siting.

- The federal agency overseeing the project should establish a series of strict deadlines for issuing permits for the project's various stages. The various interested agencies should proceed concurrently, not sequentially.
- The lead agency should have responsibility for creating a single record for the proposed project, to which the other interested agencies contribute concurrently.
- All challenges to approved plans or portions of plans should be heard by a single tribunal—namely, the federal appeals court sitting in the circuit where the project is to be located.
- The lead agency should be granted eminent domain powers, to be exercised, if necessary, upon the project's final approval.

Siting authority should also be evenhanded, with no preference shown for particular fuel sources.<sup>40</sup> Devoting EHV lines primarily to renewable-energy sources would produce an extensive system of underutilized lines, given the intermittent nature of renewables like wind and solar and the current absence of commercial-scale electricity storage. Moreover, restricting the reach of federal authority to alternative-energy sources would effectively discriminate against energy sources that do not require massive subsidies, as we already see in the tax code's favoritism toward wind and solar energy.<sup>41</sup>

According to the U.S. Energy Information Administration, renewable energies received subsidies amounting to \$4.9 billion in fiscal year 2007. By contrast, coal received \$932 million. As for net electric generation: in FY 2007, non-hydropower renewables (e.g., wind, solar, biomass, and geothermal) generated 87 billion kilowatt-hours; coal generated 1,946 billion kilowatt-hours.<sup>42</sup> Taken together, the data reveal that coal received 44 cents in subsidies per megawatt-hour of electricity generated, which is less than what hydropower and non-hydro renewable power received. Wind's subsidy was \$23.37

per megawatt-hour, while solar energy received \$24.34 per megawatt-hour.<sup>43</sup>

If a producer can put electricity onto EHV wires, the wires should be able to accept such power, regardless of the source. The result: improved efficiency (both in time and cost) for the transmission system as a whole and for fuel markets generally.<sup>44</sup>

## COST ALLOCATION

To create a national grid, private investors in new transmission will need stronger financial incentives and more consistent methods of transmission-cost recovery.<sup>45</sup> Varying methods of cost allocation exist from region to region and state to state, with only general guidance from FERC on transmission rates subject to its jurisdiction.

Historically, FERC's role in cost-allocation decision making amounted to the basic guidance that it offered planners, pursuant to section 824(d) of the U.S. Code of Federal Regulations,<sup>46</sup> which states that all rates subject to FERC's jurisdiction "shall be just and reasonable" and shall not discriminate against any person or class of persons. Should FERC find that any rate is unjust, unreasonable, or unduly discriminatory or preferential, it may replace the rate with another rate that is just and reasonable.

More guidance appeared in February 2007, with FERC's announcement of Order 890, which laid out general cost-allocation principles for transmission planners and developers. Order 890 stated that, when reviewing a dispute over a particular cost-allocation plan, FERC would consider three factors: (1) whether a cost-allocation proposal fairly assigns costs among participants, including those who cause them to be incurred and those who otherwise benefit from them; (2) whether a cost-allocation proposal provides adequate incentives to construct new transmission; and (3) whether the proposal is generally supported by state authorities and participants across the region. Transmission planning and cost allocation, however, remain primarily in the hands of the planners, not FERC. A notice of proposed rulemaking (NOPR) released on June 17,

2010, builds on Order 890.<sup>47</sup> It asks transmission providers to establish methods of allocating costs to beneficiaries of new transmission facilities.<sup>48</sup>

One of the main reasons that investment in new transmission lags is inconsistent regional transmission pricing, making it difficult for investors to know in advance how they will recoup their investment and what rate of return they can reasonably expect. States believing that they will benefit less from expanded access to power than other states are unlikely to approve an assumption of equivalent costs. As WIRES, a nonprofit electric-transmission working group, states, “Regional transmission plans typically include hundreds of individual projects, and transmission owners and interested stakeholders will be unable to achieve the needed added investment in the transmission grid if cost allocation decisions continue to be made on a project-by-project basis.”<sup>49</sup>

According to Edison Electric Institute, “the clear need for an increase in transmission investment exists in an investment climate that remains fragmented by different procedures, incentives, and constraints from region to region.”<sup>50</sup> As is the case with planning and siting regulations that vary from state to state and region to region, inconsistent pricing mechanisms diminish the certainty that developers and investors seek when making investment decisions.

For example, though most regional transmission organizations (RTOs) charge transmission costs to load (those who consume the power), others assign some of the costs to generators. (These generators, in turn, pass their costs through to load.) And even where costs are directly charged to load, the “manner in which load is allocated cost and the rate design for cost recovery differ across RTOs.”<sup>51</sup> Large segments of the transmission industry experience these inconsistencies and uncertainties as significant regulatory barriers to the build-out of transmission.<sup>52</sup>

Some in the transmission industry disagree. In response to FERC’s October 8, 2009, request for comments<sup>53</sup> on cost allocation, Southern Company, a utility operating in the Southeast, commented that transmission expansion is not being hindered by

inconsistent cost-allocation regimes but rather by the lack of economic viability of some of the generation projects being proposed. Southern alleges that the “misconception [is] being promoted” by backers of renewable resources seeking subsidies.<sup>54</sup>

Myriad options exist to encourage transmission investment—as evidenced by the range of cost-allocation schemes that RTOs and utilities submitted to FERC, pursuant to Order 890.<sup>55</sup> Should costs be recovered only from those who benefit from the transmission service, or should costs be spread (i.e., socialized) across the region served?

If, by analogy, we all pay for the interstate highway system, even if we never travel certain parts of it, because we all benefit from a system of national roads that facilitates the distribution of goods and services, then shouldn’t the cost of building out transmission be shared if the electricity that everyone receives becomes more reliable as a result?

However, in cases where transmissions projects are undertaken to connect new generating sources to remote markets, socializing costs is more controversial. (On June 17, 2010, FERC approved the Highway-Byway method of cost allocation in the Southwest Power Pool, which includes all or part of eight states, including Arkansas and Texas. It essentially involves socializing the cost of long-distance high-voltage lines, on the theory that the beneficiaries are numerous and widespread, while assigning a higher proportion of the costs of more local, lower-voltage lines to the utility that directly benefits from them.) First, what will be the constraint on superfluous projects, wastefully carried out, if the costs are so dispersed that no party feels the financial pain? Second, the assurance of a large base of compulsory ratepayers increases the likelihood that decisions to launch projects may be made for political reasons that smack of favoritism.<sup>56</sup>

In such instances, the fairest path for allocating transmission costs is to allow transmission developers to recover their costs, plus reasonable profits, from those that can best be determined to benefit directly from their service: the utilities that put power on the lines, because it is transmission capacity that makes

such projects economically viable, as well as the ratepayers and the utilities that purchase power from them, because it is now cheaper. These ratepayers will cover the transmission costs that the generators have passed along to them. It should be mentioned that over a long time horizon, during which transmission lines will connect to new power sources, the degree to which various parties benefit will change. Allocations should therefore change as well.

Cost allocations should continue to be subject to FERC's review, but regional flexibility should be preserved. There is, and should be, no one-size-fits-all method of transmission-cost recovery; rather, each transmission project should craft its own cost-allocation system, whether it is producer-based, consumer-based, some hybrid of the two, or some as-yet-unforeseen approach, with FERC standing ready to step in, if a particular system fails to comport with FERC's insistence that all systems and rates be just and reasonable. To encourage flexibility and efficiency, FERC could encourage interregional cost-sharing agreements.

Whatever route is followed, it should be one that permits transmission developers to recover their legitimate fixed and variable costs and earn reasonable returns on their investment.<sup>57</sup> Otherwise, we cannot expect the financing needed for modernizing the grid to materialize.

## THE TAX CODE'S BIAS AGAINST TRANSMISSION

The federal tax code discriminates against transmission investment. One measure of such discrimination is the effective tax rate, "the total effect of the tax code on investors trying to decide into which part of the energy industry to put an additional dollar." As Tufts University economics professor Gilbert Metcalf explains, "The statutory tax rate simply measures the tax bracket of a firm or an individual. The effective tax rate, on the other hand, takes into account the various deductions and credits that influence the after-tax cash flow of a project."<sup>58</sup>

Metcalf's effective-tax-rate analysis suggests that "investments in the transmission grid receive among

the least favorable treatments of all energy capital."<sup>59</sup> For example, according to Metcalf's figures, federal law currently taxes transmission and distribution lines at rates of 34 percent and 38.5 percent, respectively, while gathering pipelines for natural gas are taxed at a rate of 15.4 percent, wind power at a rate of -163.8 percent, and solar-thermal power at a rate of -244.7% (the latter two rates on account of the subsidies received).

Commenting on the country's growing demand for electricity, Metcalf writes that "significant new investment will be needed to upgrade the nation's transmission and distribution network."<sup>60</sup> However, says Metcalf, "the code continues to tax income realized from investments in high-voltage power transmission lines more heavily than capital gains or most ordinary income" and "despite the urgent need to upgrade and expand the electricity transmission network, there is a lack of investment incentives that would encourage the flow of financial capital to this asset."<sup>61</sup> This lack, combined with the regional pricing differences discussed above, adds yet more urgency to the need for reform.

## CONCLUSION

Realizing the extra-high-voltage interstate electric grid that is necessary to support our energy needs and power our economy in the future is no small task. We possess the technology, and we know how to build the infrastructure. But significant legal and regulatory (not to mention political) barriers stand in the way of creating a technologically up-to-date grid.

Whether it be planning new transmission, deciding where to place it, or determining who will pay for it, layers of local, state, regional, and federal consultation and review must be engaged. At each of them, inherent biases must be put aside, at least to some extent, and parochial and national concerns weighed against each other.

To wit, the various state utility commissions or other designated municipal and regional authorities should assume responsibility for the siting of transmission lines crossing their jurisdictions that modernize and extend

the grid. At the same time, some agency or body, optimally FERC, would initially determine or declare the regional or national interest that the proposed project serves, and then rule on the acceptability of the locally generated plan.

With regard to allocating the costs of new transmission investments, regional preferences should continue to be respected, as FERC itself has acknowledged. Interested parties should craft cost-allocation plans that locate the cost burden where the benefit lies, and distribute those costs proportionally, while providing investors the revenues and certainty that they need.

Finally, a consistent policy of energy neutrality should be inscribed in law and enforced. Devoting new transmission solely to certain energy sources—such as wind—would leave expensive new transmission lines underutilized and discourage the building of other forms of power generation that are indispensable elements of the overall energy equation. By the same token, the wide disparities in the tax treatment of investments in various energy sources should be narrowed.

The U.S. electricity grid is the single greatest engineering achievement of the twentieth century. It is time to remake that grid for the twenty-first century.

## ENDNOTES

1. EEI, "Transmission Projects: At a Glance" (February 2010), <http://www.eei.org/ourissues/ElectricityTransmission/Pages/TransmissionProjectsAt.aspx>.
2. Brattle Group, for the Edison Foundation, "Transforming America's Power Industry" (November 2008), p. 33:  
Estimating future transmission capital requirements over a multi-decade horizon is extremely difficult. This is due to the variety of objectives and unique circumstances that motivate transmission investment, as well as the fact that the data available on announced projects, current transmission expenditures, and unit-level costs are neither comprehensive nor always reliable. It is particularly difficult to predict the timing or cost of major transmission additions—they are lumpy and frequently delayed or rerouted. Furthermore, proposed transmission developments exhibit a wide range of costs due to varying types of transmission lines (e.g., underground or overhead), the inclusion of different numbers of substations, the terrain crossed, and the cost of land. Finally, the recent historical pattern of new generating plants built at locations needing minimal grid build-out is shifting toward new plants in more distant, resource-rich areas. This phenomenon could considerably boost transmission miles built per installed megawatt (MW) of generation capacity, though we cannot reliably predict the magnitude of this effect.  
([http://www.eei.org/ourissues/finance/Documents/Transforming\\_Americas\\_Power\\_Industry.pdf](http://www.eei.org/ourissues/finance/Documents/Transforming_Americas_Power_Industry.pdf))
3. See *Public Roads* 69, no. 5 (March–April 2006), <http://www.fhwa.dot.gov/publications/publicroads/06mar/07.cfm>.
4. EEI, "Meeting U.S. Transmission Needs" (July 2005), p. v, [http://www.eei.org/ourissues/ElectricityTransmission/Documents/meeting\\_trans\\_needs.pdf](http://www.eei.org/ourissues/ElectricityTransmission/Documents/meeting_trans_needs.pdf)
5. The Natural Gas Act of 1938. In addition, buried gas pipelines may meet with less public resistance than overhead electrical transmission lines because they are less obvious and intrusive. See also n. 38 below.
6. Peter Huber and Mark Mills note a curious efficiency made possible by this stretching out of the grid: "Though their electrical resistance does cause some losses, longer wires create an additional efficiency as well. Local demand for electricity varies a lot by time of day. When wires are long enough, the same power plant can accommodate a peak demand at 4:00 PM in New York, and then a second time an hour later in Chicago, one time zone to the west. With lots of plants knitted together in a huge grid, all can operate at closer to full capacity for more hours of the day, which keeps things hotter [and thus more efficient] still." Peter W. Huber and Mark P. Mills, *The Bottomless Well: The Twilight of Fuel, the Virtue of Waste, and Why We Will Never Run Out of Fuel* (New York: Basic Books, 2005), p. 60.
7. Matthew Wald, "The Energy Challenge: Wind Energy Bumps into Power Grid's Limits," *New York Times*, August 26, 2008, <http://www.nytimes.com/2008/08/27/business/27grid.html>.
8. Clark W. Gellings and Richard L. Jordan, "The Power Delivery System of the Future," *The Electricity Journal* (January–February 2004): [p. no. of quotation].
9. See [http://www.eei.org/ourissues/ElectricityTransmission/Documents/State\\_Generation\\_Transmission\\_Siting\\_Directory.pdf](http://www.eei.org/ourissues/ElectricityTransmission/Documents/State_Generation_Transmission_Siting_Directory.pdf).
10. International Transmission Company, "ITC's Vision for America's Transmission Infrastructure": "Siting is regulated by individual states that naturally are focused on benefits to their respective state, not the region or the nation. For this reason, the building of significant regional transmission lines is virtually impossible. In many cases, transmission projects are delayed for years through cumbersome state siting processes" ([http://www.modernizethegrid.com/documents/ITC\\_Solutions\\_1-Pager\\_FINAL.pdf](http://www.modernizethegrid.com/documents/ITC_Solutions_1-Pager_FINAL.pdf)).
11. National Energy Policy Group, *America's Energy Infrastructure: A Comprehensive Delivery System* (2001), p. 7-7, <http://www.ne.doe.gov/pdfFiles/nationalEnergyPolicy.pdf>.
12. See <http://www.pecva.org/anx/ass/library/96/east-coast-govs-transmission-ltr.pdf>.
13. See [http://www.aep.com/about/transmission/Wyoming-Jacksons\\_Ferry.aspx](http://www.aep.com/about/transmission/Wyoming-Jacksons_Ferry.aspx).

14. "The Wyoming-Jacksons Ferry project was approved by state commissions in Virginia and West Virginia in May 2001 and March 2002, respectively. In addition, the project crosses federal land. In the fall of 2003 the US Forest Service issued a special use permit allowing the project to cross 11 miles of federal land. Appalachian Power began clearing rights of way for the project in late 2003, and started construction in April 2004. The last of 333 towers was erected in October 2005 and the line was energized in June 2006" ([http://www.aep.com/about/transmission/Wyoming-Jacksons\\_Ferry.aspx](http://www.aep.com/about/transmission/Wyoming-Jacksons_Ferry.aspx)). For a complete chronology of the project, see [http://www.aep.com/about/transmission/wj\\_chronology.aspx](http://www.aep.com/about/transmission/wj_chronology.aspx).
15. See [http://www.sce.com/NR/rdonlyres/0A5F8FEB-5357-4C11-BD93-07387DE4B2C1/0/090515\\_DPv2ProjectUpdate\\_May2009.pdf](http://www.sce.com/NR/rdonlyres/0A5F8FEB-5357-4C11-BD93-07387DE4B2C1/0/090515_DPv2ProjectUpdate_May2009.pdf).
16. Patrick O'Grady, "Southern California Edison Pulls Plug on Devers–Palo Verde No. 2 Power Line," *Phoenix Business Journal*, May 15, 2009, <http://phoenix.bizjournals.com/phoenix/stories/2009/05/11/daily87.html>.
17. Matthew L. Wald, "Hurdles (Not Financial Ones) Await Electric Grid Update," *New York Times*, February 6, 2009, [http://www.nytimes.com/2009/02/07/science/earth/07grid.html?\\_r=1](http://www.nytimes.com/2009/02/07/science/earth/07grid.html?_r=1).
18. See U.S. Department of Energy, "National Electric Transmission Congestion Report and Final National Corridor Designations," Frequently Asked Questions (October 2, 2007):  

If FERC were to issue a permit for a proposed transmission facility that would cross Federal or State property, the permit holder would still need to obtain a right-of-way across that property. Inclusion of Federal or State property in a National Corridor does nothing to change the process for obtaining such a right-of-way. With or without a National Corridor designation, a developer seeking to build a transmission facility on Federal or State property would need to obtain the permission of the Federal or State agency responsible for managing that property. Further, neither a National Corridor designation nor the issuance of a FERC permit controls a Federal or State land managing agency's decision whether to grant or deny a right-of-way.

([http://nietc.anl.gov/documents/docs/FAQs\\_re\\_National\\_Corridors\\_10\\_02\\_07.pdf](http://nietc.anl.gov/documents/docs/FAQs_re_National_Corridors_10_02_07.pdf), p. 7)
19. For AEP's interstate project, "Approval will come from PJM [a regional transmission organization covering all or part of thirteen states and the District of Columbia], and the regulatory commissions of states that the line crosses. In addition, approvals from other federal, state and local authorities may be required to the extent that the line is subject to their jurisdictions." American Electric Power, "I-765 Frequently Asked Questions," <http://www.aep.com/about/i765project/faqs.aspx#15>.
20. See, e.g., <http://NYRI.us>. See also Elizabeth Cooper, "NYRI Not Giving Up on Power Line, Seeks Court Review," *Utica Observer-Dispatch*, January 8, 2010, <http://www.uticaod.com/business/x1793478924/NYRI-not-giving-up-on-power-line>.
21. Kate Galbraith, "Environmentalists Sue Over Energy Transmission across Federal Lands," *New York Times*, July 8, 2009, <http://greeninc.blogs.nytimes.com/2009/07/08/environmentalists-sue-over-energy-transmission-across-federal-lands/?hp>.
22. Earthjustice.org has the entire July 7, 2009, complaint, [http://www.earthjustice.org/library/legal\\_docs/final-complaint-energy-corridors.pdf](http://www.earthjustice.org/library/legal_docs/final-complaint-energy-corridors.pdf).
23. Map of project from LCRA, <http://www.statesman.com/news/content/news/stories/local/2009/07/22/WEB0722lcrapowerlinesfinal3.html>.
24. Asher Price, "In the Line of Ire," *Austin American-Statesman*, July 22, 2009, <http://www.statesman.com/news/content/news/stories/local/2009/07/22/0722wind.html>.
25. U.S. Department of Energy, "National Electric Transmission Congestion Report and Final National Corridor Designations, Frequently Asked Questions" (2007), p. 1:  

Section 216(a) of the Federal Power Act (created by section 1221(a) of the Energy Policy Act of 2005) directs DOE to identify transmission congestion and constraint problems. In addition, section 216(a) authorizes the Secretary, in his discretion, to designate geographic areas where transmission congestion or constraints adversely affect consumers as National Interest Electric Transmission Corridors (National Corridors).

A National Corridor designation itself does not preempt State authority or any State actions. The designation does not constitute a determination that transmission must, or even should, be built; it is not a proposal to build a transmission facility and it does not direct anyone to make a proposal to build additional transmission facilities. Furthermore, a National Corridor is not a siting decision, nor does it dictate the route of a proposed transmission project. The National Corridor designation serves to spotlight the congestion or constraint problems adversely affecting consumers in the area and under certain circumstances could provide FERC with limited siting authority pursuant to FPA 216(b).

([http://nietc.anl.gov/documents/docs/FAQs\\_re\\_National\\_Corridors\\_10\\_02\\_07.pdf](http://nietc.anl.gov/documents/docs/FAQs_re_National_Corridors_10_02_07.pdf))

26. *Ibid.*, p. 8:

The Department does not believe that designation of a National Corridor will disrupt ongoing State or regional planning processes. A National Corridor designation itself does not preempt State authority or any State actions. Thus, States retain the authority to work together to address aggressively the congestion problems confronting their region. Further, we expect utilities within a National Corridor to continue to work cooperatively with State and local authorities. We note that FERC has indicated that it will consider any allegations that an applicant has acted in bad faith in State proceedings when it reviews permit applications under FPA section 216(b)(1)(C)(i).

State and regional efforts may well resolve the congestion problems afflicting the congestion areas without any invocation of Federal review. Given the increasingly interconnected nature of the transmission grid and wholesale power markets, however, siting of electricity infrastructure poses increasingly complex questions about how to balance competing interests equitably. Tensions can exist between what is perceived to be best for a region as a whole versus what is perceived to be best for an individual State or an individual portion of one State. National Corridor designation provides, in a defined set of circumstances, a potential mechanism for analyzing the need for transmission from a national, rather than State or local, perspective.

27. Mid-Atlantic Area National Corridor (includes some or all counties in Delaware, Ohio, Maryland, New Jersey, New York, Pennsylvania, Virginia, West Virginia, and Washington, D.C.) and Southwest Area National Corridor (seven counties in Southern California and three counties in western Arizona). See <http://nietc.anl.gov/nationalcorridor/index.cfm>.

28. See *Piedmont Environmental Council v. FERC*, 558 F.3d 304 (4th Cir. 2009), [http://www.ferc.gov/legal/court-cases/opinions/2009/07\\_1651.P\\_opinion.pdf](http://www.ferc.gov/legal/court-cases/opinions/2009/07_1651.P_opinion.pdf).

The Commission's existing transmission siting authority is limited. The Energy Policy Act of 2005 gave the Commission authority to site and permit interstate electric transmission facilities to relieve congestion under limited circumstances and only within geographic areas designated by the Secretary of Energy as national interest electric transmission corridors. However, the United States Court of Appeals for the Fourth Circuit has recently held that the limited authority granted by Congress to the Commission to review and site facilities needed to transmit electric energy in interstate commerce is not available in situations where a state agency has timely denied an application for a proposed project, regardless of how important the project may be in relieving congestion on the interstate grid. The court's ruling is a significant constraint on the Commission's already-limited ability to site appropriate projects to transmit electricity in interstate commerce. To date, no applicant has sought Commission authority to site transmission facilities under this law.

(Wellinghoff testimony, [http://energycommerce.house.gov/Press\\_111/20090612/testimony\\_wellinghoff.pdf](http://energycommerce.house.gov/Press_111/20090612/testimony_wellinghoff.pdf), p. 5)

29. S. 1462.

30. See brief of amici curiae, no. 09-343, Joseph T. Kelliher, Counsel of Record, October 21, 2009, [http://www.scotusblog.com/wp-content/uploads/2010/01/09-343\\_amicus-of-individuals-Kelliher-Moler-et-al.pdf](http://www.scotusblog.com/wp-content/uploads/2010/01/09-343_amicus-of-individuals-Kelliher-Moler-et-al.pdf).

31. Like H.R. 2454—the American Clean Energy and Security Act of 2009, with Henry Waxman (D-Calif.) and Edward Markey (D-Mass.) as sponsors—S. 1462, or the Bingaman bill, mandates increased utilization of renewable energy and adoption of a system of capping carbon emissions and trading emission credits.

32. See *Arkansas Elec. Co-op. Corp. v. Arkansas Public Service Comm'n*, 461 U.S. 375, 383–89 (1983), finding that neither the Federal Power Act nor the Rural Electrification Act preempts state regulation of rural power cooperatives.

In *Public Utilities Comm'n of R.I. v. Attleboro Steam & Elec. Co.*, 273 U.S. 83, 89–90 (1927), abrogated in part by *Arkansas Elec. Co-op. Corp.*, 461 U.S. at 393, the Supreme Court held that state regulation of wholesale electric utility sales was unconstitutionally in violation of the “dormant” or “negative” Commerce Clause; cf. *Gibbons v. Ogden*, 22 U.S. 1, 189 (1824) (Marshall, C.J.), arguing that Congress’s enumerated powers “can never be exercised by the people themselves, but must be placed in the hands of agents, or lie dormant.” To fill the regulatory gap, Congress passed the Federal Power Act of 1935 (16 U.S.C. § 791 *et seq.*), which granted the Federal Power Commission (now the Federal Energy Regulatory Commission) “exclusive authority to regulate the transmission and sale at wholesale of electric energy in interstate commerce, without regard to the source of production.” *New England Power Co. v. N.H.*, 455 U.S. 331, 340 (1982), citing *United States v. Public Utilities Comm'n of Cal.*, 345 U.S. 295 (1953).

33. See *Jersey Central Power & Light Co. v. Federal Power Comm'n*, 319 U.S. 61, 70 (1943), noting that plaintiffs “rightly” conceded “that power rests in Congress to regulate such a flow of energy . . . [as] affects commerce,” citing *Wickard v. Filburn*, 317 U.S. 111, 118, 125 (1942), holding that extension of “federal regulation to production not intended in any part for commerce but wholly for consumption” is a constitutional exercise of congressional power if the regulated activity “exerts a substantial economic effect on interstate commerce”; cf. *Gonzales v. Raich*, 545 U.S. 1, 17–22 (2005), applying *Wickard* to hold that Congress could criminalize intrastate possession of locally grown marijuana notwithstanding contrary state medical exception.
34. See <http://www.eenews.net/public/Greenwire/2008/11/07/2>. It is worth noting that some analysts have doubts about the security of a national grid, which could make a more attractive target for terrorists than the present, fragmented one. For more on this, see Jude Clemente, “The Security Vulnerabilities of Smart Grid,” *Journal of Energy Security* (June 18, 2009), [http://www.ensec.org/index.php?option=com\\_content&view=article&id=198:the-security-vulnerabilities-of-smart-grid&catid=96:content&Itemid=345](http://www.ensec.org/index.php?option=com_content&view=article&id=198:the-security-vulnerabilities-of-smart-grid&catid=96:content&Itemid=345).
35. RTOs are bodies that have responsibility for moving electricity over large multistate areas. ISOs are their intrastate counterparts.
36. According to FERC, its process for siting transmission lines is open and transparent, allowing for input from a range of interested parties:
  - FERC regulations require an extensive pre-filing process to facilitate issue identification and resolution, to facilitate maximum participation from all stakeholders, and to provide all interested entities with timely and accurate project information to base their comments and recommendations.
  - This process provides for openness and transparency throughout the permitting process.
  - This process provides for preparation of one National Environmental Policy Act (NEPA) document for all Federal actions and the setting of binding intermediate milestones and ultimate deadlines (consistent with existing law) for actions by other agencies issuing permits under Federal law.
  - This process provides for numerous opportunities throughout the process for input from: States, Tribes, Regional planning agencies, Other permitting entities, Land owners, and The public.(<http://www.ferc.gov/industries/electric/indus-act/siting.asp>)
37. Since 1920, the Commission has been charged with licensing and overseeing the operation of the Nation’s non-federal hydropower projects. Using existing authority under Part I of the Federal Power Act, the Commission has sited thousands of miles of electric transmission lines related to these projects that have delivered this power to the Nation’s consumers. Likewise, under the Natural Gas Act, the Commission has authorized the construction of natural gas pipelines for over 65 years. Under the Commission’s oversight, the country has developed a robust, comprehensive pipeline grid that moves natural gas supplies from distant producing areas to consuming regions. Based on its decades of experience in siting natural gas pipelines and in siting hydropower projects and associated transmission lines, the Commission has developed comprehensive, efficient processes that provide for public notice and extensive public participation, including participation by affected states.  
(Wellinghoff testimony, [http://energycommerce.house.gov/Press\\_111/20090612/testimony\\_wellinghoff.pdf](http://energycommerce.house.gov/Press_111/20090612/testimony_wellinghoff.pdf))  
See also <http://www.ferc.gov/industries/hydropower.asp>, [http://www.ferc.gov/industries/hydropower/gen-info/handbooks/licensing\\_handbook.pdf](http://www.ferc.gov/industries/hydropower/gen-info/handbooks/licensing_handbook.pdf), and <http://www.ferc.gov/industries/gas.asp>).

38. U.S. Energy Information Administration, “Natural Gas Act of 1938”:

The Natural Gas Act (NGA) of 1938 was the first instance of direct Federal regulation of the natural gas industry. Concern about the exercise of market power by interstate pipeline companies prompted the NGA, which gave the Federal Power Commission (FPC) (subsequently the Federal Energy Regulatory Commission [FERC]) the authority to set ‘just and reasonable rates’ for the transmission or sale of natural gas in interstate commerce. It also gave FPC the authority to grant certificates allowing construction and operation of facilities used in interstate gas transmission and authorizing the provision of services. A ‘certificate of public convenience and necessity’ is issued under Section 7 of the NGA, and permits pipeline companies to charge customers for some of the expenses incurred in pipeline construction and operation. The NGA also requires Commission approval prior to abandonment of any pipeline facility or services.

([http://www.eia.doe.gov/oil\\_gas/natural\\_gas/analysis\\_publications/ngmajorleg/ngact1938.html](http://www.eia.doe.gov/oil_gas/natural_gas/analysis_publications/ngmajorleg/ngact1938.html))

For text of the NGA, see <http://www.law.cornell.edu/uscode/15/ch15B.html>.

39. Internal memorandum, JMR Energy Infra, LLC.

40. “Federal siting authority would be helpful even if limited only to transmission facilities needed to reliably meet renewable energy goals and only in those cases where the states have had an opportunity to address a proposal in the first instance. It is clear, however, that without some broader federal siting authority, it is unlikely that the Nation will be able to achieve its renewable energy goals” (Wellinghoff testimony, [http://energycommerce.house.gov/Press\\_111/20090612/testimony\\_wellinghoff.pdf](http://energycommerce.house.gov/Press_111/20090612/testimony_wellinghoff.pdf)).

41. See Gilbert E. Metcalf, “Taxing Energy in the United States: Which Fuels Does the Tax Code Favor?,” Manhattan Institute (January 2009), [http://www.manhattan-institute.org/html/eper\\_04.htm](http://www.manhattan-institute.org/html/eper_04.htm).

42. Refined coal generated 72 billion kilowatt-hours ([http://tonto.eia.doe.gov/energy\\_in\\_brief/energy\\_subsidies.cfm](http://tonto.eia.doe.gov/energy_in_brief/energy_subsidies.cfm)).

43. Ibid.

44. PJM, “A Survey of Transmission Cost Allocation Issues, Methods and Practices” (March 10, 2010), p. 13: “Another cited potential benefit from transmission expansion is fuel diversity and mitigating price increases in fuel markets. Fuel diversity can provide risk mitigation related to price spikes in fuel markets, such as the natural gas market, by diversifying the portfolio of resources and reducing dependence on any one fuel. Transmission that accesses lower-cost resources, such as coal or wind power resources, can smooth out spikes in prices for peaking fuels, such as natural gas, and reduce overall production costs” (<http://www.pjm.com/~media/documents/reports/20100310-transmission-allocation-cost-web.ashx>).

45. Regulatory clarity is a prerequisite for attracting transmission investment. Vague or inconsistent cost-allocation schemes often lead to litigation and transmission delays while allocation is adjudicated.

46. Historical authority found in sections 205 and 206 of the Federal Power Act.

47. Docket No. RM10-23-000.

48. The June 17, 2010, NOPR also asks transmission planners in neighboring regions to improve their coordination of facilities construction. It also, regrettably, asks transmission planners to take into account not only the cost of energy from a given source but whether the energy to be generated is renewable. More commendably, the NOPR calls for the elimination of tariffs or agreements that favor incumbent developers and disfavor newcomers interested in building transmission facilities in a particular area.

49. See <http://www.wiresgroup.com/ourprinciples/costallocation.html>.

50. EEI, “Meeting U.S. Transmission Needs” (2005), p. vi, [http://www.eei.org/ourissues/ElectricityTransmission/Documents/meeting\\_trans\\_needs.pdf](http://www.eei.org/ourissues/ElectricityTransmission/Documents/meeting_trans_needs.pdf).

51. PJM, “A Survey of Transmission Cost Allocation Issues,” p. 23.

52. WIRES has pointed out the long-term inadequacy of approaching cost-allocation fixes from a regional perspective:
- While the acceptance of different regional approaches is understandable from a pragmatic point of view because such settlement processes often allow issues to be resolved with less contentiousness, that approach is inadequate to the task of creating a sustainable and viable environment for continuing attraction of capital into transmission projects. Indeed, it is unlikely that the widely divergent methods proposed and accepted for allocating transmission costs can produce a body of policies that together both meet the legal standard of just and reasonable results and also prove to be the foundation for sustainable investment for the long term, particularly when these allocations interact across regional boundaries.
- ("A National Perspective on Allocating the Costs of New Transmission Investment: Practice and Principles" [2007], pp. 1–2, [http://www.wiresgroup.com/images/Blue\\_Ribbon\\_Panel\\_-\\_Final\\_Report.pdf](http://www.wiresgroup.com/images/Blue_Ribbon_Panel_-_Final_Report.pdf))
53. FERC received more than 100 sets of comments, which covered a "wide range of opinions" on how FERC should handle the issue of cost allocation and other planning issues. See Congressional Research Service, "Electricity Transmission Cost Allocation" (April 19, 2010), [http://www.wiresgroup.com/images/WIRES\\_Report\\_CostAlloc\\_041910.pdf](http://www.wiresgroup.com/images/WIRES_Report_CostAlloc_041910.pdf).
54. Ibid.
55. Ibid.
56. The "Corker Amendment" to S. 1462, the American Clean Energy Leadership Act, was reported out of committee on June 17, 2009 (no action has been taken on it since). The Corker Amendment provides that "costs shall not be allocated to a region, or sub-region, unless the costs are reasonably proportionate to measurable economic and reliability benefits." See *ibid.*, p. 10.
57. Edison Electric Institute has laid out nine principles under "Eliminating Impediments, Providing Regulatory Certainty and Cost Recovery, and Facilitating Transmission Investment," in "EEL Principles on Transmission Investment" (2005), [http://www.eei.org/ourissues/ElectricityTransmission/Documents/eei\\_tranmission\\_principles\\_5\\_10.pdf](http://www.eei.org/ourissues/ElectricityTransmission/Documents/eei_tranmission_principles_5_10.pdf). Moreover, FERC should encourage, and reduce any barriers to entry by, merchant-transmission companies, which do not have a captive group of electricity customers from which to recoup costs. The same eminent-domain authority that many states afford their utilities should be extended to merchant generators, provided that their projects are approved by all the relevant siting authorities. For testimony touting the market-based virtues of merchant generation, see <http://www.wiresgroup.com/images/McCoy-FERC-Statement-081014.pdf>.
58. See Metcalf, "Taxing Energy in the United States," p. 1.
59. *Ibid.*, p. 3 (and see Table 2, p. 5).
60. *Ibid.*, p. 2.
61. *Ibid.*, executive summary and p. 13. "Generous production and investment tax incentives for renewable energy are undermined to the extent that the domestic electricity transmission network cannot move this new power over the grid" (p. 13).



## FELLOWS

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The **Center for Energy Policy and the Environment** advances ideas about the practical application of free-market economic principles to address today's energy issues. It challenges conventional wisdom about energy supply, production, and consumption, and examines the intersection of energy, the environment, and economic and national security.

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