

**Before the  
United States Department of Energy  
Office of Electric Transmission and Distribution**

**Designation of National Interest Electric Transmission Bottlenecks**

**Comment of the  
Federal Trade Commission**

September 20, 2004

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**I. INTRODUCTION AND SUMMARY**

The Federal Trade Commission (FTC) appreciates this opportunity to present its views concerning designation of National Interest Electric Transmission Bottlenecks (NIETBs).<sup>1</sup> The Department of Energy’s Electricity Advisory Board (EAB) recommended in its 2002 Transmission Grid Solutions Report that DOE initiate a process to identify NIETBs to improve the physical and financial state of the Nation’s transmission infrastructure.<sup>2</sup> In addition, economic analyses of private investment in electricity transmission have found actual or potential underprovision of transmission investment.<sup>3</sup> This proceeding is DOE’s initial step to identify and designate NIETBs to “help mitigate transmission bottlenecks that are a significant

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<sup>1</sup> 69 Fed. Reg. 43833 (July 22, 2004).

<sup>2</sup> Electricity Advisory Board, “Transmission Grid Solutions Report” (Sept. 2002), *available at* <<http://www.eab.doe.gov/Documents/TGSReport1-10.pdf>>.

<sup>3</sup> *See, e.g.*, Paul Joskow and Jean Tirole, “Merchant Transmission Investment,” NBER Working Paper 9534 (Feb. 2003); Thomas-Olivier Leautier, “Transmission Constraints and Imperfect Markets for Power,” 19 J. Reg. Econ. 27 (Jan. 2001); S. Auerbach, M. Crew, and P. Kleindorfer, “Transmission—Enabler of Wholesale Competition,” in Expanding Competition in Regulated Industries (M. Crew, ed., 2000). The Federal Energy Regulatory Commission (FERC) has testified before Congress that transmission investment has not kept pace with electricity consumption. *See* Testimony of Pat Wood, III, Chairman, Federal Energy Regulatory Commission, before the Subcommittee on Energy and Air Quality of the Committee on Energy and Commerce, United States House of Representatives, May 19, 2004, *available at* <<http://www.ferc.gov/EventCalendar/Files/200405191157713/wood-05-17-04.pdf>>.

barrier to the efficient operation of regional electricity markets, threaten the safe and reliable operation of the electric system, and/or impair national security.”<sup>4</sup>

Before designating a particular area of transmission congestion as a NIETB, DOE may wish to require that (1) there is compelling evidence that the benefits of alleviating the congestion exceed the costs and (2) the market is unlikely to provide an efficient level of investment in a reasonable time frame. NIETB designations are more likely to benefit consumers in areas that do not have processes to identify and – where efficient – to alleviate transmission congestion.<sup>5</sup> DOE also may wish to include sensitivity analysis and contingent designations in its NIETB process because NIETB designations are likely to change with changes in underlying market conditions, such as changes in relative fuel prices or in U.S. energy policies.

The FTC is an independent agency responsible for maintaining competition and safeguarding the interests of consumers through enforcement of the antitrust and consumer protection laws and through competition advocacy. In the electric power industry, the FTC often analyzes regulatory or legislative proposals that may affect competition or the efficiency of resource allocation and reviews proposed mergers involving electric and gas utility companies. In the course of this work, as well as in antitrust research, investigations, and litigation, the FTC

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<sup>4</sup> 69 Fed. Reg. at 43833. DOE has stated that the NIETB designation process may also serve as a preliminary step toward implementation of “backstop” transmission siting authority that is proposed for DOE in some versions of the pending energy legislation before Congress. *Id.* at 43834. “Backstop” provisions would provide DOE with transmission siting authority if an NIETB designation occurred and the affected states did not grant siting permits or develop an alternative approach to alleviate the associated transmission congestion.

<sup>5</sup> Where the costs of alleviating transmission congestion exceed the benefits, congestion is consistent with efficient operation of the grid.

applies established legal and economic principles and recent developments in economic theory and empirical analysis to competition issues. As part of its competition advocacy program, the FTC has released two Staff Reports on electric power industry restructuring issues at the wholesale and retail levels.<sup>6</sup> The FTC and its staff have also filed numerous competition advocacy comments on electricity restructuring efforts with FERC, the states, and international competition organizations.<sup>7</sup>

## **II. SOME TRANSMISSION CONGESTION CONDITIONS MAY WARRANT A NIETB DESIGNATION, BUT NOT ALL**

Generally, profit incentives motivate investments by private parties in a market economy, and these investments often result in benefits for consumers in the form of lower prices, higher quality, and an increased pace of innovation. Current economic incentives to invest in transmission capacity, however, may be insufficient. Regulatory problems – such as regulatory approval of inefficient pricing of transmission congestion, local government impediments to

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<sup>6</sup> FTC Staff Report: Competition and Consumer Protection Perspectives on Electric Power Regulatory Reform (July 2000), *available at* <<http://www.ftc.gov/be/v000009.htm>> (this report compiles previous comments that the FTC staff provided to various state and federal agencies); FTC Staff Report: Competition and Consumer Protection Perspectives on Electric Power Regulatory Reform, Focus on Retail Competition (Sept. 2001), *available at* <<http://www.ftc.gov/reports/elec/electricityreport.pdf>>.

<sup>7</sup> Related comments include Comment of the Staff of FTC's Bureau of Economics and the Office of the General Counsel, In the Matter of Standards of Conduct for Transmission Providers, FERC, Docket No. RM01-10-000 (Dec. 20, 2001); Comment of the Staff of the FTC Bureau of Economics, In the Matter of Deployment of Wireless Services Offering Advanced Telecommunication Capability, Federal Communications Commission, Docket No. 98-147 (Sept. 25, 1998); Comments of the Staff of the Bureau of Economics, In the Matter of Procedures for Consideration of Contract Rules, Postal Rate Commission, Docket No. RM89-5 (Feb. 20, 1990); Statement of the United States Federal Trade Commission Staff, In the Matter of Inquiry into Alleged Anticompetitive Practices Related to Marketing Affiliates of Interstate Pipelines, FERC, Docket No. RM87-5-000 (Jan. 29, 1987).

entry of new generators or transmission projects, long litigation delays in reaching siting decisions, or other factors<sup>8</sup> – may cause socially suboptimal investment in transmission.

Despite these known and potential problems, DOE should not assume that all transmission congestion is a result of socially suboptimal transmission investment. Where there is transmission congestion, transmission service should be priced to take account of its scarcity.<sup>9</sup> If transmission capacity expansion and its substitutes are costly, then some level of congestion (during at least some time periods or conditions) is efficient, even in long-run equilibrium. Absent lumpiness in investments to reduce transmission congestion, it is inefficient to expand transmission capacity (or substitute investments such as generation located within a transmission constraint) so much that all congestion is eliminated. An investment to relieve transmission congestion may not be efficient and economically attractive to investors, for example, when the associated transmission congestion is expected to be temporary and, therefore, the project's expected cost is greater than the expected profits from the investment. A variety of events could cause transmission congestion to be short-lived.<sup>10</sup> These include, for example, generation

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<sup>8</sup> Other causes for socially suboptimal private investment may include incentives of vertically integrated utilities to discriminate in granting transmission access to independent generators that compete with the generation assets of the utility (*see* FERC Orders No. 888 and 2000), or incentives to cross-subsidize affiliated generators when the regulated utility has unexercised market power. *See* FTC Comment in the Matter of Solicitation Processes for Public Utilities Acquisition and Disposition of Merchant Generation Assets by Public Utilities, FERC Docket Nos. PL04-6-000 and PL04-9-000 (July 14, 2004), *available at* <<http://www.ftc.gov/os/comments/ferc/v040022.pdf>>.

<sup>9</sup> Efficient transmission pricing also may provide the market with efficient signals for investment to reduce transmission congestion.

<sup>10</sup> Transmission investments are just one of a portfolio of approaches to reduce transmission congestion. As DOE explained in its National Transmission Grid Study, better grid operations, introduction of advanced transmission system technologies, or improved security can also increase transmission capacity on a particular transmission path. U.S. Dept. of Energy,

investment inside the transmission constraint,<sup>11</sup> programs to promote price-responsive demand for electricity,<sup>12</sup> shifts in geographic patterns of growth in demand,<sup>13</sup> changes in relative fuel prices,<sup>14</sup> or transmission investments in other locations.<sup>15</sup>

Because transmission congestion may reflect efficient investment decisions, there is a risk that NIETB designations could distort efficient investments rather than steer them toward the socially optimal level. Consumers could be harmed by a suboptimal level of investment that

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“National Transmission Grid Study” (May 2002), *available at* <[http://www.eh.doe.gov/ntgs/gridstudy/main\\_screen.pdf](http://www.eh.doe.gov/ntgs/gridstudy/main_screen.pdf)>. Better grid operations include consideration of alternative ownership and management arrangements. Shmuel Oren, George Gross, and Fernando Alvarado, “Alternative Business Models for Transmission Investment and Operation,” Attachment C to the National Transmission Grid Study. Advanced transmission technologies include ultra-high-voltage transmission lines, high-voltage direct current transmission lines, energy storage devices, distributed generation, and enhanced power device monitoring. National Transmission Grid Study at 62.

<sup>11</sup> Generation investment inside the transmission constraint can supply an additional portion of the demand in the area and, therefore, reduce the amount that must be transmitted into the area to meet demand.

<sup>12</sup> An increase in the price-responsiveness of demand generally will reduce consumption during high price periods and, therefore, may reduce the amount that must be transmitted into the area.

<sup>13</sup> Shifts in relative economic growth in one area can result in changes in transmission patterns and generation investment patterns that can reduce (or increase) transmission congestion in other areas.

<sup>14</sup> Short-term changes in relative fuel prices will change the dispatch order of generators, and this may directly reduce (or increase) transmission congestion. Non-transitory changes in relative fuel prices may create incentives for new generation that will relieve transmission congestion (or, in rarer cases, increase it).

<sup>15</sup> Because electric power flows over the path of least resistance, transmission investments in one part of the grid may relieve congestion in other parts of the grid. In more unusual circumstances, transmission investment in one part of the grid may increase transmission congestion in other parts of the grid because of loop flows. Steven Stoft, Power System Economics: Designing Markets for Electricity 397 (2002).

wastes resources and results in higher electricity prices caused by more transmission congestion in other areas of the transmission grid. To avoid this outcome, DOE may wish to focus its NIETB designation program on transmission congestion areas exhibiting robust indications of a suboptimal level of investment to alleviate the congestion. The NIETB designation program is less likely to improve social welfare where (1) high-quality data are available to identify congestion bottlenecks so that private investors can accurately compare investment opportunities or (2) a functioning Regional Transmission Organization, with sufficient geographic scope to internalize transmission congestion issues such as loop flows, has a process to identify and alleviate congestion (where it is efficient to do so) even if private incentives to invest are insufficient to achieve an efficient level of investment.

### **III. DOE MAY WISH TO DESIGNATE CONTINGENT NIETBS BASED ON THE SENSITIVITY OF ITS NIETB ANALYSIS**

Market conditions highly influence when and where transmission congestion occurs. The previous section of this comment discussed conditions that could reduce congestion over time in a given area. Other conditions may lead to increases in congestion. Examples include growth in local demand relative to supply and complex transmission loop flows caused by demand, generation, or transmission changes in other areas. If NIETB designations lead to inefficient investments and if the economic conditions warranting the investments are transitory, the NIETB program may reduce economic efficiency rather than improve it.

One approach to minimize this potential harm to consumers is to utilize sensitivity analysis when making NIETB designations and to publicize the results of these analyses. For example, DOE may wish to separate NIETB designations that are robust from those that are contingent on one or more prospective conditions (such as changes in relative fuel prices or in

U.S. energy policies).

DOE and FERC have already been presented with an example of how NIETB designations may vary based on prospective changes in U.S. energy policy and relative fuel prices. The 2003 report of the Seams Steering Group-Western Interconnect examined prospective transmission congestion patterns projected for 2013 and transmission investments to alleviate the projected congestion.<sup>16</sup> These transmission congestion areas might well be prospective NIETB designations in the West. In the study, congestion patterns and associated transmission projects to alleviate the congestion were developed for three different scenarios about the fuel sources for new generation in the West. The first scenario assumed that natural gas prices were relatively low, leading to use of natural gas to fuel 86% of new generation added between 2008 and 2013. This capacity was assumed to be sited close to load centers. The second scenario assumed that coal prices were relatively low, leading to use of coal to fuel 66% of new capacity in the period. The third scenario assumed that security concerns prompted policies resulting in 72% of new generation coming from renewables (largely wind generation).

The results of these transmission simulations are directly relevant and important for DOE's NIETB designation process. The simulations reveal that the prospective NIETB designations under the three scenarios are substantially different. A few individual prospective NIETBs are common to all three scenarios, but most are contingent upon changes in relative fuel

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<sup>16</sup> Steve Waddington (PacifiCorp), "Western Perspective," presentation at the DOE Workshop on Designation of NIETBs (Salt Lake City, July 14, 2004), *available at* <[http://electricity.doe.gov/documents/nietb\\_workshop/waddington.pdf](http://electricity.doe.gov/documents/nietb_workshop/waddington.pdf)>; Seams Steering Group-Western Interconnection, "Framework for Expansion of the Western Interconnection Transmission System" (Oct. 2003), *available at* <[http://www.ssg-wi.com/documents/316-FERC\\_Filing\\_103103\\_Final\\_TransmissionReport.pdf](http://www.ssg-wi.com/documents/316-FERC_Filing_103103_Final_TransmissionReport.pdf)>.



prices or in U.S. energy policy. The NIETB designations common to all three scenarios are likely to be robust, while the others are best categorized – and should be recognized – as contingent NIETB designations.

A contingent designation has implications for the process DOE uses to designate NIETBs. DOE has proposed that NIETB designations be initiated by private applications. For two reasons, DOE may wish to retain the ability to designate these conditions and not rely solely on private applications. First, DOE may be better situated than private applicants to identify these alternative scenarios. Second, contingent NIETB designations are unlikely to attract private applications.

#### **IV. CONCLUSION**

DOE's proposed program to designate NIETBs may provide a mechanism to identify and publicize actual and prospective transmission congestion areas where investment levels are suboptimal. DOE's NIETB designation efforts are most likely to benefit consumers in areas where (1) investors do not already have the data to identify attractive investments to relieve transmission congestion and (2) no mechanisms are present to alleviate congestion in instances where private incentives are unlikely to result in an efficient level of investment. DOE's NIETB designation efforts also are more likely to benefit consumers if designations that are contingent upon specific economic and policy scenarios are distinguished from those that are robust to changes in economic conditions and energy policies.