produced two staff reports on electric power industry restructuring issues at the wholesale and retail levels.[5] FTC and FERC staff (along with others) were members of the Electric Energy Market Competition Task Force, which issued a *Report to Congress* in 2007.[6] In addition, the FTC has held public conferences on energy topics, including *Energy Markets in the 21st Century* (April 10-12, 2007)[7] and *Carbon Offsets & Renewable Energy Certificates* (January 8, 2008).[8]

The FTC and its staff have filed numerous competition advocacy comments with FERC and participated in FERC technical conferences on market power issues. For example, in March 2007, the Deputy Director for Antitrust in the FTC's Bureau of Economics served as a panelist for a technical conference on FERC's merger and acquisition review standards under Federal Power Act (FPA) Section 203 (Docket No. AD07-2-000). The FTC submitted comments in July 2004 and January 2006 in FERC's proceeding on its FPA Section 205 standards for market-based rates (Docket No. RM04-7-000). The FTC also has commented on FERC's initiatives to promote wholesale electricity competition and on various state issues associated with restructuring the electric power industry.[9]

**Background**

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The Notice reflects FERC's concern that the transmission grid was not configured or developed to perform functions that it currently performs or is likely to perform soon.[10] Most of the existing transmission system was built to move power from central generating stations to major cities within self-sufficient, vertically-integrated monopoly utilities. Transmission ties between utilities generally were designed for relatively small, short-term flows of power to supplement a utility's own generation or to assist neighboring utilities facing minor generation shortfalls.

Over the past 15 years, however, FERC policies and legislation promoting wholesale competition among generators have changed the power sector dramatically.[11] Lower-cost generators, as well as generators that use renewable sources of energy, have increased output and served more distant customers, and thus have increased transmission substantially.[12] Consequently, the demand for transmission has increased, as has the volume of power transmitted.

Nevertheless, transmission investment has lagged, resulting in significant congestion in some areas. This congestion limits competition and increases power costs and prices, to the detriment of consumers. Incentives to reduce transmission congestion may be muted for some transmission owners. For example, a firm that owns both transmission and generation in the same region may profit when congestion prevents outsiders from competing with the firm's generation. This diminished competition also can harm consumers. Notwithstanding FERC transmission policies that have sought to blunt these anti-consumer incentives – and despite recent increases in transmission investment – consumers likely would benefit from further transmission investment.

Looking toward the future, several states have required that an increasing proportion of electricity be generated from renewable sources. Many of the best sites for wind and solar generation, however, are in remote areas that are not well connected to the existing transmission

[10] Notice. The issues associated with lagging investment and the legacy aspects of the transmission grid are discussed in more detail in the Electric Energy Market Competition Task Force's *Report to Congress on Competition in Wholesale and Retail Markets for Electric Energy*, *supra* note 6, at 36-37 (and, in general, in Chs. I-III).

[11] *See*, *e.g.*, Harry Singh, "Transmission Markets, Congestion Management, and Investment," in Fereidoon Sioshansi (ed.), *Competitive Electricity Markets: Design, Implementation, Performance*, Ch. 4 (2008).

grid. Improvements in regional transmission planning, together with the resolution of disputes

flows along the path (or paths) of least resistance within each Interconnection. This means that demand and supply conditions in one location can change power flows and the capacity to trade power elsewhere in that Interconnection.[14] Unusual local power flows can create transmission difficulties in other areas of an Interconnection and, in sevudq.ases,s cansevn give rise( to )Tj-19.025 -1.325 TD.

minute to achieve the greatest efficiency.[17] As FERC has observed, cooperation and coordination with state regulators can facilitate and expedite efficient decision-making that considers options, including local and regional approaches on both the demand and supply sides.[18] FERC – and the FTC, in prior comments[19] – have observed that a lack of demand response to changes in wholesale prices harms consumers by raising the electric system's costs, reducing its reliability, and impeding innovation. The increased use of dynamic retail pricing will sometimes be more cost-effective than transmission or generation investments as a way to ensure that a region can meet its peak demand and manage equipment failures. In other cases, transmission investments that connect intermittent wind and solar generators to more customers on dynamic pricing will let customers save by shifting their consumption to inexpensive windy or sunny periods, while increasing the intermittent generators' profits. Such a scenario might justify a connection that would not make sense under the traditional assumption that only generators – but not retail customers – will respond to demand and supply fluctuations.

Both transmission investment that increases competition among generators and improved retail pricing that increases demand elasticity can curb generator market power. Moreover, increased competition in the electric power industry has reduced pollution in most areas by increasing production efficiency and shifting production to newer generation sources, which generally have lower emissions.[20]

**Allocating the Cost of Transmission**

facilities.[21] Major threshold questions for transmission investors are how, and from whom, the costs of a project will be recovered. Established economic analysis demonstrates that it is

Advances in smart grid technology (in addition to smart meters) likely will support and expand these trends.[25] (These trends also strengthen the above-described case for the integration of local and regional transmission and resource planning.)

Similarly, in a system with extensive distributed resources, such resources in one area may be used to supply other areas if strong transmission ties link the areas. In such a system, substantial network economies may be present and should be accounted for in an assessment of the beneficiaries of transmission investment. In general, network economies arise when the connection of additional customers to the network increases the social value of the network to its members. In this example, network economies arise because each additional customer with demand resources is a potential supplier for other customers whose supply activities may reduce power costs and prices, improve reliability, and reduce environmental harm.

Another, non-traditional role for transmission links is to curb the cost of integrating wind farms with intermittent output. For example:

- Transmission can reduce the cost of integrating wind generation by linking wind farms to a larger set of customers on dynamic pricing (or other demand response) programs that can partially synchronize their demand with wind speeds.

- Transmission investments can reduce the cost of managing intermittent wind generation by linking wind farms to a broader set of flexible generators and to other wind farms that may be experiencing uncorrelated changes in output.

FERC should develop a sound, coherent, and comprehensive methodology to estimate benefits, including reduced costs and improved reliability.[26] This methodology should account

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Demand response gives consumption the flexibility to offset some of the increased volatility from intermittent generators. Power from local distribution networks may play an increasing role in the Interconnection's operation as demand response, renewable distributed generation, and energy storage technology (suc

for the way in which smart grid technology and intermittent generation will alter investments' costs and benefits. Experience to date suggests that the benefits of a particular transmission investment can be sensitive to many variables and can fluctuate widely over time (as evidenced by, *e.g.*, the volatility of natural gas prices, policies to encourage wind generation, and locational marginal prices).[27] The process of ascertaining who will benefit from a specific transmission