



# Regulatory Incentives for Electricity Transmissions—Issues and Cost Concerns

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## Summary

Following the August 14, 2003, electric grid blackout which affected large portions of the Northeast United States and Ontario, Canada, Congress acted to promote investment in the nation's electrical grid to increase the system's capacity and efficiency. Inadequacies of an antiquated transmission system were blamed for the 2003 blackout. The Energy Policy Act of 2005 (P.L. 109-58) (EPACT) directed the Federal Energy Regulatory Commission (FERC) to hold a rulemaking on incentive rates for construction of critical electric transmission infrastructure "for the purpose of benefitting consumers by ensuring reliability and reducing the cost of delivered power by reducing transmission congestion." The Final Rule was issued in July 2006 with FERC Order No. 679, "Promoting Transmission Investment through Pricing Reform." EPACT Section 219 stipulates that "all rates, charges, terms, and conditions be just and reasonable, and not unduly discriminatory or preferential." FERC reviews the requested incentives under Section 219 to ensure that these are matched to risks and challenges of the proposed investment.

On May 19, 2011, FERC released a Notice of Inquiry (NOI) on the "scope and implementation of its transmission incentives regulations and policies" in Order No. 679. In the NOI, FERC notes that there have been "significant changes in the electric industry," and it now seeks comments regarding the scope and implementation of its incentives program. FERC states in the NOI that more than 75 FERC applications have been received since the Final Rule was issued, with over \$50 billion in proposed investments. As comments by some FERC Commissioners note, increases in transmission rates are "sometimes perceived" to be caused by return-on-equity (ROE) incentive adders. However, FERC's codification of Section 219(a) changes EPACT's language to "either ensure reliability or reduce the cost" which can potentially lead to cost increases (especially for reliability-specific projects).

FERC is not required to track or report to Congress on the status of transmission incentives, nor is FERC required to make any determination of the "effectiveness" of these incentives to cause the construction of new transmission facilities. Such a determination is thus beyond the scope of the NOI. In comments submitted to the NOI, the Edison Electric Institute (EEI) stated its opinion that Order No. 679 transmission incentives will provide "regulatory certainty," and are "supporting the development of transmission." EEI further notes that while not conclusive, industry data suggest that Order No. 679 incentives have had a "positive impact" on transmission investment in many regions. However, EEI's own analysis arguably shows a decade-long trend of increasing transmission investment by the industry may have occurred without Order No. 679's transmission incentives.

Going forward, FERC appears to have regulatory discretion with regard to establishing criteria for project approvals, but has declined to do so on the grounds "that to do so now would limit the flexibility of the Rule." FERC may or may not revisit this decision as a result of its consideration of comments submitted to the NOI. Expectations have been raised as to the large dollar investment possible over the next two decades in transmission systems alone, with one estimate from the electricity industry suggesting \$298 billion will be required to meet future electricity demand. However, with the concerns raised over the effects of transmission incentives on consumer rates (especially incentives granting higher ROE incentives to applicants), implications of related federal policies on the electric power sector, additional FERC regulatory policies for transmission, and the aging of electricity infrastructure among key issues, the need for continuing transmission incentives may be a matter for Congress to consider.

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## Introduction

Following the August 14, 2003, electric grid blackout which affected large portions of the Northeast United States and Ontario, Canada, Congress acted to promote investment in the nation's electrical grid to increase the system's capacity and efficiency. Inadequacies of an antiquated transmission system were blamed for the 2003 blackout, as a simple fault led to a cascading, widespread outage. At that time, investment in new U.S. electricity transmission infrastructure had been declining for decades, and the task force report<sup>1</sup> investigating the blackout's causes made 46 recommendations to correct system deficiencies. Prominently mentioned in the report was the following recommendation:

- Clarify that prudent expenditures and investments for bulk system reliability (including investments in new technologies) will be recoverable through transmission rates.

Thus, upgrading the reliability and modernization of the grid was a clear priority. The Energy Policy Act of 2005 (P.L. 109-58) (EPACT) directed the Federal Energy Regulatory Commission (FERC) to hold a rulemaking on incentive rates for construction of critical electric transmission infrastructure “for the purpose of benefitting consumers by ensuring reliability and reducing the cost of delivered power by reducing transmission congestion.”<sup>2</sup> The Final Rule was issued in July 2006 with FERC Order No. 679, “Promoting Transmission Investment through Pricing Reform.”<sup>3</sup>

Citing what it describes as “significant changes in the electric industry,” FERC recently opened an investigation into the “scope and implementation of its transmission incentives regulations and policies” in Order No. 679. As of May 2011, FERC reported it received 75 applications for incentive rate treatment of transmission projects with over \$50 billion in proposed investments. Concerns have been raised as to the impact of the magnitude of these transmission incentives on consumer rates in various regions, especially incentives granting higher returns on equity to applicants.

This report will focus on issues related to the need for transmission incentives, and consumer cost concerns related to these incentives. Given the changes that FERC cites in the electric industry, the question arises as to whether the need for transmission incentives continues. FERC is bound by EPACT to make incentives available, and is not proposing to end the incentives. However, with concerns raised over the effects of transmission incentives on consumer rates, implications of related federal policies on the electric power sector, additional FERC regulatory policies for transmission, and the aging of electricity infrastructure among key issues, the need for continuing transmission incentives may be a matter for Congress to consider.

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<sup>1</sup> U.S.-Canada Power System Outage Task Force, *Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations*, April 2004, <https://reports.energy.gov/>.

<sup>2</sup> See the **Appendix**.

<sup>3</sup> 116 FERC ¶ 61,057.

## Background

In August 2003, the biggest electrical blackout to yet hit the United States occurred in northeastern and Midwestern states, and stretched into Canada. This was a cascading failure, whereby power plants shut down to avoid sending power into the grid when it has nowhere to go. The failure of one high-voltage line overloaded other power lines causing them to overheat. The power grid in the Northeast United States especially was beset with inadequate transmission capacity and bottlenecks which limited how much power could be shifted across the grid. Power plants which have shut down can take hours to return to service as they must be checked to ensure the plant's equipment is functioning properly before going back on line. It was widely believed that additional, modernized transmission capacity could have absorbed the load and prevented the failure from spreading. However, obtaining financing for a major transmission line was considered very difficult at the time.<sup>4</sup>

Reacting to the 2003 electricity blackout and influenced by an earlier 1965 regional power failure, Congress acted to promote investment in the nation's electrical grid with the intention of increasing the system's capacity and efficiency. **Figure 1** illustrates the long relative decline in transmission investment (in 2003 dollars) from 1975 to 1998, and is taken from a survey developed by the Edison Electric Institute<sup>5</sup> (EEI) after the 2003 blackout. EEI used company-specific information to augment data from public sources to determine "historical capital investment" in transmission infrastructure. At the same time as this decline in infrastructure investment, the electric load using the nation's electric grid more than doubled.<sup>6</sup>

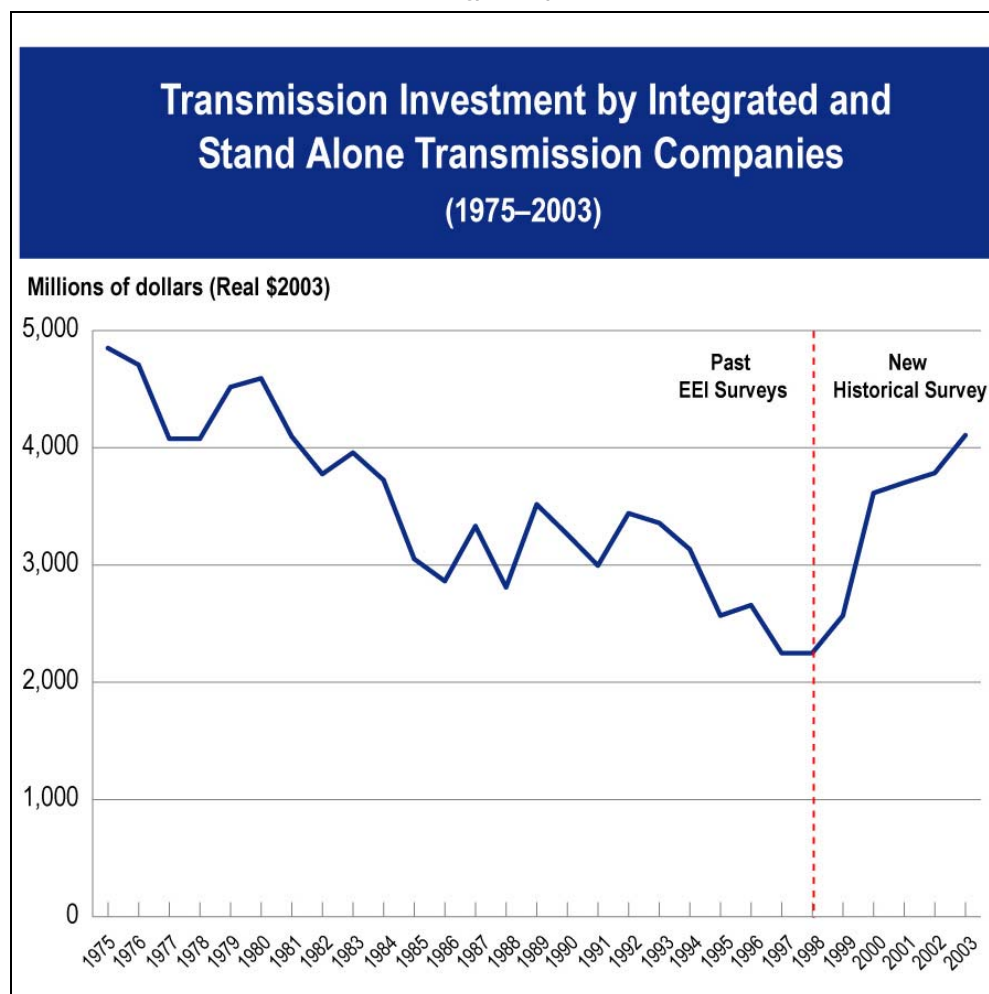
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<sup>4</sup> U.S.-Canada Power System Outage Task Force, *Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations*, April 2004, <https://reports.energy.gov/>.

<sup>5</sup> EEI is the trade association of shareholder or investor-owned utilities (IOUs). See <http://www.eei.org/Pages/default.aspx>.

<sup>6</sup> Brendan Kirby, U.S. Department of Energy, Oak Ridge National Laboratory, *Barriers to Transmission Investment, Presentation*, April 22, 2005, Technical Conference, Transmission Independence and Investment, Docket No. AD05-5-000, April 22, 2005.

**Figure 1. Historical and Planned Transmission Investment**  
Prior to Energy Policy Act of 2005



**Source:** Edison Electric Institute, Survey of Transmission Investment. May 2005.

**Notes:** See [http://www.eei.org/ourissues/ElectricityTransmission/Documents/Trans\\_Survey\\_Web.pdf](http://www.eei.org/ourissues/ElectricityTransmission/Documents/Trans_Survey_Web.pdf). Data sources for annual transmission investments varied. Prior to 1998, data was from EEI's Uniform Statistical Report. For 1998 data was from EEI's Annual Construction Expenditures Survey, FERC Form 1s, and company 10-Ks. For years 1999-2003 data were from EEI's Annual Property & Plant Capital Investment Survey and FERC Form 1s.

While EEI's data in **Figure 1** shows an increase in transmission investment was beginning to occur before the 2003 blackout, EPACT added Section 219 to the Federal Power Act of 1935<sup>7</sup> (FPA) to cause the Federal Energy Regulatory Commission to establish incentive-based (including performance-based) rates for electric power transmission investment. Accordingly, FERC opened a rulemaking on incentive rates to promote construction of critical electric transmission infrastructure. The Final Rule, Order No. 679,<sup>8</sup> "Promoting Transmission Investment through Pricing Reform," was issued in 2006. FERC states in the order that the "issue of whether

<sup>7</sup> 16 U.S.C. §791 et seq.

<sup>8</sup> 116 FERC ¶ 61,057.

there is a need for new transmission investment that is sufficient to justify transmission incentives was put to rest by Section 219.”<sup>9</sup>

## Order No. 679

FERC’s Final Rule for Order No. 679 does not grant incentives to any public utility but permits an applicant for incentive rates to tailor its proposed incentives to the type of transmission investments being made, and to demonstrate that its proposal meets the requirements of Section 219. FERC states in the docket that it will permit incentives only if the incentive package as a whole results in a just and reasonable rate. FERC also states in the Final Rule that the incentives are for the construction of new transmission infrastructure, and that Section 219(a) intends for consumers to benefit from added reliability and reduced costs of delivered power resulting from reduced transmission congestion.

The Final Rule recognizes that a balance would need to be struck between incentive levels ensuring that investors are “properly compensated” to encourage new transmission construction, and to ensure that consumers are protected against “excessive” rates. Specifically, the potential incentives are as follows (emphasis added):<sup>10</sup>

(d) Incentive-based rate treatments for transmission infrastructure investment. The Commission will authorize any incentive-based rate treatment, as discussed in this paragraph (d), for transmission infrastructure investment, provided that the proposed incentive-based rate treatment is just and reasonable and not unduly discriminatory or preferential. A public utility’s request for one or more incentive-based rate treatments, to be made in a filing pursuant to section 205 of the Federal Power Act, or in a petition for a declaratory order that precedes a filing pursuant to section 205, must include a detailed explanation of how the proposed rate treatment complies with the requirements of section 219 of the Federal Power Act and a demonstration that the proposed rate treatment is just, reasonable, and not unduly discriminatory or preferential. **The applicant must demonstrate that the facilities for which it seeks incentives either ensure reliability or reduce the cost of delivered power by reducing transmission congestion consistent with the requirements of section 219, that the total package of incentives is tailored to address the demonstrable risks or challenges faced by the applicant in undertaking the project, and that resulting rates are just and reasonable.** For purposes of this paragraph (d), incentive-based rate treatment means any of the following:

- (1) For purposes of this paragraph (d), incentive-based rate treatment means any of the following:
  - (i) A rate of return on equity sufficient to attract new investment in transmission facilities;
  - (ii) 100 percent of prudently incurred Construction Work in Progress in rate base;
  - (iii) Recovery of prudently incurred pre-commercial operations costs;
  - (iv) Hypothetical capital structure;

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<sup>9</sup> Order No. 679, page 10.

<sup>10</sup> 18 C.F.R. §35.35.

- (v) Accelerated depreciation used for rate recovery;
- (vi) Recovery of 100 percent of prudently incurred costs of transmission facilities that are cancelled or abandoned due to factors beyond the control of the public utility;
- (vii) Deferred cost recovery; and
- (viii) Any other incentives approved by the Commission, pursuant to the requirements of this paragraph, that are determined to be just and reasonable and not unduly discriminatory or preferential.

Thus, at least seven different types of incentives are available, and can be packaged together in an application for incentive rate treatment of a project. Not every incentive would necessarily be available for a project. The actual incentives approved would be decided by FERC on a case-by-case basis, according to the type of project and the associated risks<sup>11</sup> of the project. A FERC-approved stand-alone transmission company (i.e., a Transco) is eligible for additional incentives, and incentives are added for public utilities that join a transmission organization.<sup>12</sup> However, it should be noted that FERC's codification of Section 219 changes EPACK's language to "either ensure reliability *or* reduce the cost of delivered power."<sup>13</sup>

## **Qualification for Incentives**

Under Order No. 679, FERC requires applicants for incentive rates to pass two tests. The applicant must first satisfy the threshold requirement of FPA Section 219(a) by proving the project will ensure reliability or reduce the cost of power. Then, the project must next demonstrate that there is a "nexus" between the incentive(s) requested, and the investment being made. FERC states in the Order that each incentive "will be applied in a manner that is rationally tailored to the risks and challenges faced in constructing new transmission."<sup>14</sup>

In Order No. 679, FERC has established "rebuttable presumptions" to help determine if the proposed facilities either ensure reliability or reduce the cost of delivered power by reducing congestion. To qualify, the transmission project must meet either of two criteria:

- the project resulted from a fair and open regional planning process that considers and evaluates projects for reliability and/or congestion and is found to be acceptable to the Commission; or
- the project received construction approval from an appropriate state commission or state siting authority.

If a proposed project does not meet the criteria for either rebuttable presumption, the applicant must then show how the project is eligible for incentives under the section.

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<sup>11</sup> Risks mentioned in the Final Rule include permitting, technology obsolescence, delays in rate recovery, and termination or failure of the project.

<sup>12</sup> 18 C.F.R. §35.35.

<sup>13</sup> Ibid.

<sup>14</sup> Order No. 679, page 16.



FERC states in Order No. 679 that the rebuttable presumptions and the nexus test are intended to be applied on a case-by-case basis, and that the best candidates for incentives are new transmission projects with special risks or challenges, and not routine investments made to expand the system to provide safe and reliable transmission service.

## **Notice of Inquiry on Transmission Incentives<sup>15</sup>**

On May 19, 2011, FERC released a Notice of Inquiry (NOI) on the “scope and implementation of its transmission incentives regulations and policies” in Order No. 679. FERC states in the NOI that more than 75 FERC applications have been received since the Final Rule was issued, with over \$50 billion in proposed investments. In the NOI, FERC notes that there have been “significant changes in the electric industry,”<sup>16</sup> and, given its experience in applying Order No. 679, it now seeks comments regarding the scope and implementation of its incentives program. FERC asks 74 specific questions in the NOI, grouped according to topics related to the implementation of the transmission incentives program. Generally, the topics focus on the following questions:

- What factors should the Commission consider in evaluating an application for incentives?
- What obstacles are faced by transmission developers and what incentives are best suited to addressing those obstacles?
- How should the Commission consider changes in cost estimates?
- What other factors should the Commission consider in implementing the law?

## **Cost Issues and Concerns**

As comments by FERC Commissioners<sup>17</sup> note, increases in transmission rates are “sometimes perceived” to be caused by the return-on-equity (ROE) adders. With some transmission line costs

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<sup>15</sup> FERC Docket No. RM11-26-000. See <http://www.ferc.gov/whats-new/comm-meet/2011/051911/E-9.pdf>.

<sup>16</sup> FERC elaborates on these changes in the NOI as follows: “In the past five years, the electric industry has experienced significant changes. Among others, such changes include the implementation of Order No. 890 transmission planning processes; adoption of mandatory and enforceable reliability standards; increasing diversity of the generation fleet; and increasing investment in the development of smart grid technologies.”

<sup>17</sup> “I believe the increase in transmission rates as a whole is often perceived to be caused by ROE incentive adders and costs for building transmission that exceed the estimates provided to and utilized in the planning process. I am hopeful the NOI will also better inform the Commission and the public on the relationship between the overall increase in transmission costs and the share of those cost increases represented by incentive rates and cost overruns.” Statement by FERC Commissioner Norris at <http://www.ferc.gov/media/statements-speeches/norris/2011/05-19-11-norris-E-9.asp>.

“I understand that some stakeholders have criticized our incentive program for having been unreasonably generous in the incentives we have granted. Given the obligation Congress imposed on us and the continuing need for transmission, we need not apologize for our orders on incentives requests. But if we have an opportunity after several years of experience acting on incentive filings to do a better job in balancing the interests while providing some clarity to the industry on how we will grant transmission incentives, we should be highly attentive to responses to this NOI.” Statement by FERC Commissioner Spitzer at <http://www.ferc.gov/media/statements-speeches/spitzer/2011/05-19-11-spitzer-E-9.asp>.

exceeding estimates provided in the planning and approval processes, some state regulators have posed similar questions as to the rate implications of FERC transmission incentives.<sup>18, 19</sup>

Most of the incentives applied for under the Final Rule are “front-end” incentives to reduce risk, potentially lowering the cost of borrowing. Basis point adders<sup>20</sup> to set attractive ROEs were the most frequently requested transmission incentive, and were applied for in almost one-half of all the applications. ROE adders granted by FERC ranged from 50 basis points to 150 basis points, and ran the gamut of incentives from simple adders to ROE, to adders for advanced transmission technologies, Transco formation, and membership in regional transmission organizations. The highest single ROE adder of 250 basis points was granted by FERC for a proposed transmission line to connect offshore wind projects,<sup>21</sup> which seems to reflect the FERC’s risk-reward nexus. Other incentives approved by FERC included the allowance of prudently incurred construction-work-in-progress<sup>22</sup> (CWIP) in rate base, and costs of transmission project cancellation or abandonment due to factors beyond the control of the applicant. While Section 219 specifically includes performance-based incentive rates, no instances of applications for such regulatory treatment were found in the applications to FERC.<sup>23</sup> It is noted that CWIP and other accelerated cost recovery methods usually increase consumer rates in the short-term.

In the NOI, FERC seeks comment on the effects of its incentives decisions, and whether the incentives granted have been overly generous in providing a ROE to attract investment to transmission projects:

- What have been the effects of the incentives policies adopted in Order No. 679 with respect to the goals set forth in Section 219?
- Are the Commission’s incentives policies appropriately promoting investment in transmission infrastructure in accordance with Section 219?
- How should the Commission best balance the promotion of transmission investment with the assurance of just and reasonable rates?

The NOI states that FERC does not seek to overturn the need for balance between consumer and investor interests:

In Order No. 679, the Commission stated that the purpose of the incentives policy “is to benefit customers by providing real incentives to encourage new infrastructure, not simply

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<sup>18</sup> R. Mihai Cosman, *FERC and the Recent ROE Giveaway*, California Public Utility Commission—Energy Division, November 1, 2008, <http://www.narucmeetings.org/Presentations/ROE%20slides.pdf>.

<sup>19</sup> “The rules for awarding incentive rates should be more goal-specific and more narrowly tailored to projects that meet specific criteria—such as projects that need incentive funds to support project economics, projects that use improved and innovative technologies, and projects that will provide substantial economic, electricity reliability and other benefits to consumers.” Statement by Kevin DelGobbo, Connecticut Public Utilities Regulatory Authority at [http://www.ct.gov/ag/lib/ag/press\\_releases/2011/091511ferccomments.pdf](http://www.ct.gov/ag/lib/ag/press_releases/2011/091511ferccomments.pdf).

<sup>20</sup> A 1% increase (or decrease) in the ROE is the same as adding (or subtracting) 100 basis points. Therefore, one basis point is equal to 0.01%.

<sup>21</sup> AWC Companies state that the Project will include four 320 kV direct current cables (two circuits of 1,000 MW each) that will run parallel to the Mid-Atlantic coast approximately 20 miles offshore for 250 miles, interconnecting with the existing land-based transmission system in New Jersey, Delaware, Maryland, and Virginia. See <http://www.ferc.gov/whats-new/comm-meet/2011/051911/E-7.pdf>.

<sup>22</sup> The balance shown on a utility’s balance sheet for construction work not yet completed but in process.

<sup>23</sup> See *Orders* at <http://www.ferc.gov/industries/electric/indus-act/trans-invest.asp>.

increasing rates in a manner that has no correlation to encouraging new investment.” We will continue to balance the interests of consumers and investors and ensure that our implementation of section 219 provides incentives to encourage new infrastructure as we evaluate future requests for incentives for investment in transmission infrastructure.

Increasing investment in transmission lines, FERC believes, ultimately benefits consumers by increasing avenues for transport of power, and thereby increasing competition.

FERC issued a clarification of which projects would be eligible for incentives under the Final Rule,<sup>24</sup> stating that the “most compelling case” for ROE incentives is for a new project with special risks or challenges, and not routine investments made in the ordinary course of expanding the transmission system to provide safe and reliable service. FERC also affirmed that incentives for reliability projects would be based on a case-by-case evaluation of the challenges and risks of the project, stating that long-term, high-cost reliability projects with siting issues may justify a higher incentive than a small scale, maintenance reliability projects which could be completed within a year.

FERC’s change of EPACT Section 219(a) statutory language from “for the purpose of benefitting consumers by ensuring reliability *and* reducing the cost of delivered power by reducing transmission congestion,” to the codified version under the Final Rule<sup>25</sup> which states “incentives *either* ensure reliability *or* reduce the cost of delivered power by reducing transmission congestion consistent with the requirements of section 219” can potentially increase consumer electric costs (especially for reliability-specific projects).

The Department of Energy (DOE) provided an example of a specific case illustrating the effects of transmission congestion on consumer prices in a recent Congressional hearing, stating that the lack of transmission infrastructure cost customers over \$1.4 billion in 2010 alone.<sup>26</sup> As of 2010, DOE estimates that transmission costs represent on average about 8% of a U.S. electricity consumer’s bill.<sup>27</sup> This compares with 7% in 2008, but it is noted that the cost component of transmission appears to have been in the 7% to 8% range since at least 2003.<sup>28</sup> However, DOE’s reference case forecast has the price component of transmission rising to an average 9% component in the period from 2015 to 2025.<sup>29</sup>

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<sup>24</sup> 119 FERC ¶ 61,062.

<sup>25</sup> 18 C.F.R. §35.35.

<sup>26</sup> Peter Behr, *House hearing looks inside new federal transmission policy and finds the economy*, E&E Publishing, ClimateWire, October 14, 2011, <http://www.eenews.net/climatewire/2011/10/14/2>.

<sup>27</sup> See graphic “Major Components of U.S. Average Electric Price, 2010” at [http://www.eia.gov/energyexplained/index.cfm?page=electricity\\_factors\\_affecting\\_prices](http://www.eia.gov/energyexplained/index.cfm?page=electricity_factors_affecting_prices).

<sup>28</sup> See U.S. Energy Information Administration, Annual Energy Outlook (AEO), 2006, 2009, 2010, Reference Case. Table A8:Electrical Supply, Disposition, Prices, and Emissions. Prices by Service Category.

<sup>29</sup> AEO 2011.

## Necessity of Continuing Incentives for Transmission

Expectations have been raised as to the large dollar investment possible over the next few decades in generation, transmission and distribution systems, given public policies, system requirements, and the aging of the electric power infrastructure<sup>30</sup> in the United States. A 2008 study commissioned by the Edison Foundation estimates that \$298 billion in transmission investment will be required over the next 20 years to meet future electricity demand, even considering improvements in energy efficiency and demand response programs in the period.<sup>31</sup> In addition, a 2011 report from the Electric Power Research Institute estimates that smart grid investments alone may require \$82 billion to \$90 billion in transmission and substation improvements over the next two decades.<sup>32</sup>

According to the report “Employment and Economic Benefits of Transmission Infrastructure Investment in the U.S. and Canada,” transmission investment by investor-owned utilities (IOUs) has “quadrupled from approximately \$2 billion per year in the 1990s to between \$8 billion to \$9 billion per year during 2008 and 2009 (in nominal dollars).”<sup>33</sup> The report lists reliability needs and generator interconnection as the major historical drivers of transmission investment, and expects reliability needs, economic needs (i.e., congestion relief), and renewable generation integration as future drivers.<sup>34</sup> The report estimates that almost 50% of the projected construction of 22,669 circuit miles transmission lines from 2011-2015 will be to address reliability needs. Another 40% of this projected construction will be to address transmission congestion, or to integrate renewable energy generation. The report projects that transmission construction may result in an annual investment of between \$12 billion and \$16 billion per year (in 2011 dollars) over the period from 2011 to 2015, assuming “current barriers to planning, permitting, and cost recovery of regional transmission projects can be overcome.” Notably, FERC’s transmission incentives are not listed as a driver of transmission investment in the report.

While acknowledging that the recent trend towards increased investment in transmission is largely driven by reliability and generator interconnection needs, EEI reports that increased transmission investment is also partly due to federal and state policies affecting transmission infrastructure such as EPACT, state renewable portfolio standards, and federal transmission policies such as FERC transmission pricing incentives.<sup>35</sup> **Figure 2** illustrates a trend of recent increases in transmission investment by EEI’s member companies.

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<sup>30</sup> The average age of power plants is now over 30 years; most of these facilities were originally designed to last 40 years. Electric transmission and distribution system components are similarly aging, with power transformers averaging over 40 years of age, and 70% of transmission lines being 25 years or older. CRS Report R41886, *The Smart Grid and Cybersecurity—Regulatory Policy and Issues*, by Richard J. Campbell.

<sup>31</sup> Edison Foundation, *Transforming America’s Power Industry: The Investment Challenge 2010-2030*, November 2008, [http://www.eei.org/ourissues/finance/Documents/Transforming\\_Americas\\_Power\\_Industry.pdf](http://www.eei.org/ourissues/finance/Documents/Transforming_Americas_Power_Industry.pdf).

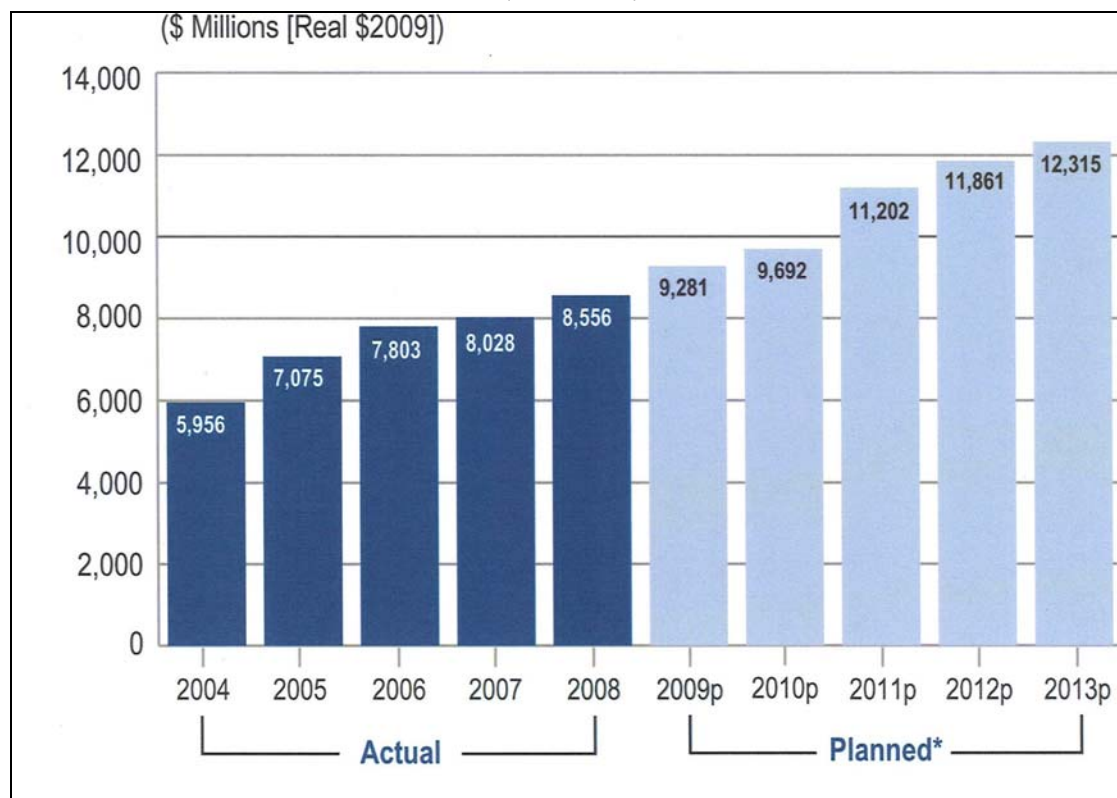
<sup>32</sup> Electric Power Research Institute, *Estimating the Costs and Benefits of the Smart Grid- A Preliminary Estimate of the Investment Requirements and the Resultant Benefits of a Fully Functioning Smart Grid*, Technical Report, 2011.

<sup>33</sup> WIRES/Brattle Group, *Employment and Economic Benefits of Transmission Infrastructure Investment in the U.S. and Canada*, Working Group for Investment in Reliable and Economic electric Systems (WIRES), May 2011, p. 3, [http://www.wiresgroup.com/images/Brattle-WIRES\\_Jobs\\_Study\\_May2011.pdf](http://www.wiresgroup.com/images/Brattle-WIRES_Jobs_Study_May2011.pdf).

<sup>34</sup> *Ibid.*, p. 4.

<sup>35</sup> Edison Electric Institute, *Transmission Projects: At a Glance*, March 2011, <http://www.eei.org/ourissues/> (continued...)

**Figure 2. Actual and Planned Transmission Investment by Investor-Owned Utilities**  
(2004 -2013)



**Source:** Edison Electric Institute, 2010. See [http://www.eei.org/ourissues/ElectricityTransmission/Documents/bar\\_Transmission\\_Investment.pdf](http://www.eei.org/ourissues/ElectricityTransmission/Documents/bar_Transmission_Investment.pdf).

**Notes:** \* p = preliminary

In comments filed for the NOI, EEI states its belief that “the current incentive rate policy is effectively supporting the development of needed transmission in many regions where public utilities have sought incentives for their projects. As the regions consider grid changes to address additional transmission needs, grid modernization, and Order No. 1000 compliance,<sup>36</sup> the challenges increase for all projects. Continued applicability of the incentives rate policy will be beneficial to many in addressing these challenges.”<sup>37</sup>

EEI further estimates that total transmission investment is on average 19% higher than would have been expected in the years 2006 to 2010 without Order No. 679 as illustrated by the 2000 – 2005 trend line in **Figure 3**. The figure shows a divergence of actual investment from investments predicted by the trend line beginning in 2004-2005, roughly coincident with the passage of EPACT in 2005.

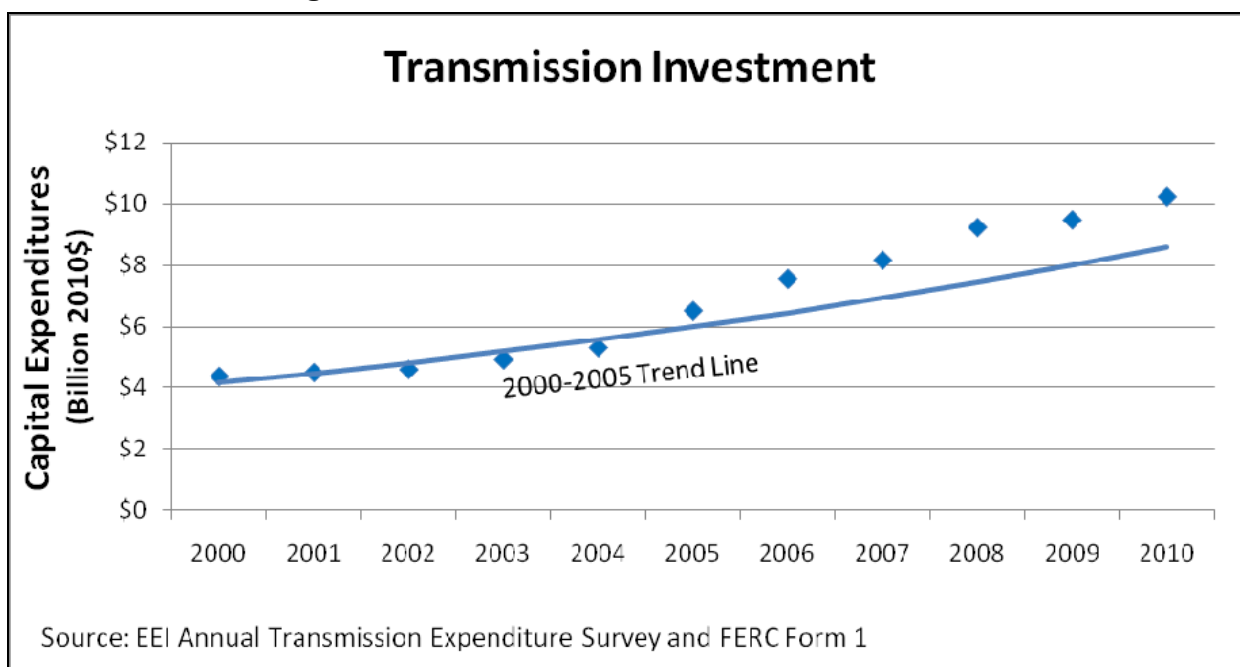
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[ElectricityTransmission/Documents/Trans\\_Project\\_lowres.pdf](http://www.eei.org/ourissues/ElectricityTransmission/Documents/Trans_Project_lowres.pdf).

<sup>36</sup> CRS Report R41193, *Electricity Transmission Cost Allocation*, by Richard J. Campbell and Adam Vann.

<sup>37</sup> Edison Electric Institute, *Comments of Edison Electric Institute, Promoting Transmission Investment Through Pricing Reforms*, Docket No. RM 11-26-000, September 12, 2011, <http://www.eei.org/whatwedo/PublicPolicyAdvocacy/TFB%20Documents/110912OwensFercTransmissionInvestmentNoi.pdf>. (EEI Comments).

Figure 3. Transmission Investment 2000-2010



**Notes:** Edison Electric Institute, *Comments of Edison Electric Institute, Promoting Transmission Investment Through Pricing Reforms*, Docket No. RM 11-26-000, September 12, 2011.

## Observations

Traditionally, approval of electric infrastructure investment is based upon a perceived need as illustrated by integrated resource plans or similar tools used by state and regional authorities. Such plans are often reviewed periodically so that needs for new electricity infrastructure can be weighed against alternative choices, and the investment planned for. Once a decision is made to invest, a utility would apply for cost recovery in rates from electricity consumers. Thus, the utility has the opportunity to be compensated for its investment, whether it is a public or a privately owned utility. The ratemaking process also generally allows a utility to receive a limited return on equity for its investment in plant. Book depreciation rates are also authorized by state or federal regulatory bodies to allow recovery of capitalized investments over an asset's useful service life. Transmission projects have been described as driven mostly by reliability and economic concerns, but FERC Order No. 1000 intends to make public policy goals (such as meeting state renewable portfolio standard requirements) a factor to be considered alongside reliability or economic considerations in electricity transmission planning decisions.

A positive, incremental impact of EPACT and FERC Order No. 679 on transmission investments would not be wholly unexpected. However, **Figure 1**, **Figure 2**, and **Figure 3** arguably show how the positive, increasing trend in transmission investment may have continued without Order No. 679 incentives, given EPACT's added focus on reliability, and other transmission drivers. The continued need for incentives to ensure transmission investment then may come into question.

For its part, EEI sees Order No. 679 as providing “regulatory certainty”<sup>38</sup> which will encourage continuing transmission investment for projects meeting the requirements.

Congress has established through EPACT a statutory requirement for FERC to make available transmission incentives for projects satisfying the provisions of FPA Section 219. FERC’s 2011 annual performance report states that:

Since the issuance of Order No. 679 in 2006, the Commission has approved 51 proposals for incentive rate treatment for 56 projects to build over 10,700 miles of transmission lines, at a total cost of approximately \$44.8 billion.<sup>39</sup>

Proposed transmission projects under the Final Rule must benefit consumers by *either* ensuring reliability<sup>40</sup> *or* reducing costs due to congestion. EPACT Section 219 does not give FERC much additional discretion on the granting of transmission incentives beyond the stipulation that “all rates, charges, terms, and conditions be just and reasonable and not unduly discriminatory or preferential.” FERC reviews the requested incentives to ensure that these are matched to risks and challenges of the proposed investment. Once these incentives have been granted, recipients are required to make annual reports to FERC of spending on the transmission project, and provide details of the project’s capital spending, status of completion, and any reasons for project delays (if applicable).<sup>41</sup>

FERC is not required to track or report to Congress on the status of transmission incentives, nor is FERC required to make any determination of the “effectiveness” of these incentives to cause the construction of new transmission facilities. Such a determination is thus beyond the scope of the NOI.

As previously mentioned in this report, EEI’s NOI comments state its opinion that Order No. 679 transmission incentives will provide “regulatory certainty,” and are “supporting the development of transmission.” EEI further notes:

“While not conclusive, industry data suggest that the incentive policies adopted in Order No. 679 has had a tangible, positive impact on transmission structure infrastructure investment in many regions.”<sup>42</sup>

Going forward, FERC appears to have regulatory discretion with regard to establishing criteria for project approvals, but has declined to do so on the grounds “that to do so now would limit the flexibility of the Rule.”<sup>43</sup> Given cost concerns expressed by some FERC Commissioners and others, FERC may or may not revisit this decision as a result of its consideration of comments submitted to the NOI.<sup>44</sup>

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<sup>38</sup> EEI Comments, p. 5, op. cit.

<sup>39</sup> Federal Energy Regulatory Commission, *Congressional Performance Budget Request—Fiscal Year 2011*, 2010, <http://www.ferc.gov/about/strat-docs/FY11-budg.pdf>.

<sup>40</sup> It is possible that projects improving reliability may actually increase consumers electricity costs.

<sup>41</sup> See §35.35 (h).

<sup>42</sup> EEI Comments, p. 7, op. cit.

<sup>43</sup> Docket No. RM11-26-000, p. 4.

<sup>44</sup> The comment (and reply-comment) period has closed for the NOI. Whether or not FERC will pursue any next steps (e.g., a technical conference or other rulemaking) is unknown at this time.

Under Order No. 679, FERC reviews incentives requested to ensure that there is a nexus between the incentive and the risks of the project. FERC may grant, deny, or modify incentives requested by applicants under sect. 219. However, it is not clear if, under these regulations,<sup>45</sup> FERC may be able to further modify transmission incentive applications to impose specific incentives not originally proposed by applicants.

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<sup>45</sup> 18 C.F.R. §35.35.



## **Appendix. Text of the Energy Policy Act of 2005, Section 219**

### **Energy Policy Act of 2005**

#### **SEC. 219. TRANSMISSION INFRASTRUCTURE INVESTMENT.**

(a) **RULEMAKING REQUIREMENT.**—Not later than 1 year after the date of enactment of this section, the Commission shall establish, by rule, incentive-based (including performance-based) rate treatments for the transmission of electric energy in interstate commerce by public utilities for the purpose of benefitting consumers by ensuring reliability and reducing the cost of delivered power by reducing transmission congestion.

(b) **CONTENTS.**—The rule shall—

(1) promote reliable and economically efficient transmission and generation of electricity by promoting capital investment in the enlargement, improvement, maintenance, and operation of all facilities for the transmission of electric energy in interstate commerce, regardless of the ownership of the facilities;

(2) provide a return on equity that attracts new investment in transmission facilities (including related transmission technologies);

(3) encourage deployment of transmission technologies and other measures to increase the capacity and efficiency of existing transmission facilities and improve the operation of the facilities; and

(4) allow recovery of—

(A) all prudently incurred costs necessary to comply with mandatory reliability standards issued pursuant to Section 215; and

(B) all prudently incurred costs related to transmission infrastructure development pursuant to Section 216.

(c) **INCENTIVES.**—In the rule issued under this section, the Commission shall, to the extent within its jurisdiction, provide for incentives to each transmitting utility or electric utility that joins a Transmission Organization. The Commission shall ensure that any costs recoverable pursuant to this subsection may be recovered by such utility through the transmission rates charged by such utility or through the transmission rates charged by the Transmission Organization that provides transmission service to such utility.

(d) **JUST AND REASONABLE RATES.**—All rates approved under the rules adopted pursuant to this section, including any revisions to the rules, are subject to the requirements of Sections 205 and 206 that all rates, charges, terms, and conditions be just and reasonable and not unduly discriminatory or preferential.

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