Edison Electric INSTITUTE

Power by Association℠

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Mr. David Meyer, OE-20
Division of Transmission Permitting and
Technical Assistance
Office of Electricity
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Submitted electronically via email to: 2020congestionstudy@hq.doe.gov

Re: U.S. Department of Energy – National Electric Transmission Congestion Study, 85 Fed. Reg. 60151 (Sept. 24, 2020)

Dear Mr. Meyer:

## I. INTRODUCTION

The Edison Electric Institute (EEI) submits these comments in response to the Department of Energy (DOE) National Electric Transmission Congestion Study dated September 2020 (Congestion Study).[1] EEI is the association that represents all investor-owned electric companies in the United States. Our members provide electricity for more than 220 million Americans and operate in all fifty states and the District of Columbia. As a whole, the electric power industry supports more than seven million jobs in communities across the United States. EEI's members are committed to providing saw, affordable, reliable, and increasingly clean electricity to customers now and in the future.

[1] U.S. Department of Energy, National Electric Transmission Congestion Study, 85 Fed. Reg. 60151 (Sept. 24, 2020).

The electric grid efficiently delivers increasingly clean, affordable, reliable, and safe electricity to homes, businesses, and communities. Electric transmission is a critical part of the energy grid. EEI members own and operate transmission facilities and have the obligation to provide safe and reliable electricity to their customers. A robust transmission system helps improve the reliability and resilience of the grid; reduces congestion; enables the integration of renewable energy resources; facilitates the deployment of new technologies; and helps optimize the grid's performance. All of which help lower the cost of delivering clean energy to customers.[2]

Section 216 of the Federal Power Act (FPA), as amended by section 1221(a) of the Energy Policy Act of 2005 (EPAct 2005), directed DOE to conduct assessments of national transmission constraints and congestion one year after enactment of EPAct2005 and every three years thereafter.[3] EEI appreciates the issuance of these reports and has filed comments in response to previous studies.

In the Congestion Study, DOE assesses current transmission constraints and congestion to better understand the nature of challenges to the nation's electric transmission grid. While DOE acknowledges transmission congestion data is useful in measuring transmission needs, the Congestion Study also recognizes that the most critical issues facing the electric transmission grid today go beyond congestion. The evolution of

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[2] *See* Edison Electric Institute, *America's Electric Companies: Service Our Customers and Planning for the Energy Grid of the Future with Electric Transmission Technologies and Innovation* (Aug. 2020), https://www.eei.org/issuesandpolicy/transmission/Documents/Investing%20in%20Transmission%202020.pdf; *Investing in Transmission to Enhance the Reliability and Resilience of the Energy Grid* (Feb. 2020), https://www.eei.org/issuesandpolicy/transmission/Documents/Value%20of%20Transmission%20-%20Resilience%202020.pdf; *Smarter Energy Infrastructure: The Critical Role and Value of Electric Transmission* (Mar. 2019), https://www.eei.org/issuesandpolicy/transmission/Documents/2018%20Smarter%20Energy%20Infrastructure%20The%20Critical%20Role%20and%20Value%20of%20Electric%20Transmission.pdf.

[3] 16 U.S.C § 824p (2012).

the fuel mix and the integration of new technologies has created new challenges for the transmission system. EEI appreciates the recognition in the Congestion Study "that critical issues facing the electricity system today go beyond understanding transmission constraints and congestion as these terms are defined and used routinely by industry."[4]

As discussed herein, EEI supports the proposal to expand the scope of the Congestion Study to focus on transmission system reliability and resilience against the threats posed by cyber and physical attacks, severe weather, natural disasters, and geomagnetic disturbances. DOE should facilitate dialogue among industry to address these emerging challenges discussed in the Congestion Study. For example, given the Congestion Study's focus on resilience, DOE could provide support for the Interruption Cost Estimate (ICE) Calculator, as one valuable tool in evaluating resilience investments, by helping to fund needed updates.

## II. COMMENTS

Section 1221 of The Energy Policy Act of 2005 (EPAct 2005), adding section 216 to the Federal Power Act (FPA),[5] directed DOE to conduct a transmission congestion study every three years to identify areas of potential transmission capacity constraints and congestion that negatively impact consumers. EPAct 2005 also gave new authority to DOE to designate areas having nationally significant electric congestion as "national interest electric transmission corridors" and gave the Federal Energy Regulatory Commission (FERC) federal backstop siting authority in those areas.[6] The Congestion

[4] Congestion Study, p. vi.

[5] 16 U.S.C § 824p (2012).

[6] *Id*. Of note, previous court decisions have affirmed the need for state coordination in identifying NIETCs and limit federal backstop authority to state inaction only. *See Piedmont Envtl. Council v. FERC*, 558 F.3d

Study concludes that there are no identified transmission conditions that would merit designating any national corridors at this time.[7] However, DOE proposes that, subject to Congressional approval, future triennial studies should focus on various resilience and reliability issues. To accomplish this, DOE suggests using the North American Energy Resilience Model (NAERM) to determine the impacts of severe weather, man-made threats, and electromagnetic pulses on the resilience of the nation's electric transmission grid, as well as how these impacts affect critical national interests served by transmission.[8] As discussed below, DOE should facilitate industry dialogue to address these additional factors.

### A. Future Transmission Triennial Studies Should Focus on Emerging Challenges.

As noted in the Congestion Study, since the enactment of EPAct 2005, transmission investment has significantly increased from approximately $5 billion per year to $22 billion per year.[9] EEI projects 2020 transmission investment to reach $26.1 billion.[10] This increased investment can be attributed to several factors including the need to replace aging infrastructure, resilience measures against severe weather events, new reliability standards, and advanced technologies to name a few. This increased investment, among other factors, has driven a significant reduction in congestion

304 (4th Cir. 2009) (Traxler, J., dissenting), *cert. denied*, 130 S. Ct. 1138 (2010); *California Wilderness Coalition v. U.S. Dep't of. Energy*, 631 F.3d 1072 (9th Cir. 2011).

[7] Congestion Study, p. vi.

[8] *Id*., pp. vi-viii.

[9] *Id*., pp. 9-10.

[10] EEI, Historical and Projected Transmission Investment (investment of U.S. investor-owned electric companies and stand-alone transmission companies. Actual investment figures were obtained from the EEI Property & Plant Capital Investment Survey supplemented with FERC Form 1 data. Projected investment figures were obtained from the EEI Transmission Capital Investment Forecast Survey supplemented with data obtained from company 10-k reports and investor presentations) (Nov. 2020).

nationwide.[11] Although studying transmission constraints and congestion provides a quantitative and simple measure of transmission system needs, they do not provide a complete picture as there are other pressing issues that the transmission system faces. As DOE notes in the Congestion Study, "[s]tudying constraints and congestion means focusing only on the operation of the Nation's transmission system under normal or routine conditions. Collecting information about constraints and congestion does not provide insight into the impacts of unexpected large events that can affect the transmission system."[12] Additional focus on nonroutine operating conditions or high-impact events may be needed. Accordingly, as discussed in the Congestion Study, it may be appropriate to consider other factors in determining the need for transmission infrastructure.

EEI's member companies continue to focus on emerging challenges and have increased investment to address those nonroutine operating conditions and high-impact events. Due to the increase in frequency and severity of weather events, EEI's member companies continue to invest in enhancing the resilience of their transmission systems through upgrades and/or new transmission construction. Since Superstorm Sandy in 2012, electric companies have expended more than $340 billion on investments to enhance the grid's ability to withstand these new challenges and allow faster recovery from weather events as well as physical and cyber-attacks. These include, for example, reinforcing transmission infrastructure, raising substations above flood levels, installing

[11] However, curtailment of renewables due to transmission limitations could increase congestion in the coming years as more renewables, some in remote locations, are added to the system.

[12] Congestion Study, p. 22.

fiber optic cables for real-time transmission performance monitoring, and employing wildfire prevention mechanisms on transmission lines.[13]

Investment in electric infrastructure also facilitates the evolution of the fuel mix for electric generation and integration of new technologies. EEI's member companies are in the middle of a profound, long-term transformation in how electricity is generated, transmitted, and used. This transformation is being driven by a wide range of factors, including declining costs of clean energy resources, technological improvements, changing customer expectations, federal and state regulations and policies, company values, and the profound changes in balancing load with increased penetration of distributed energy resources.

Over the past 8 years, more than half of the industry's investments in new electricity generation have been in non-synchronous wind and solar generation resources,[14] and nearly 40 percent of America's electricity is generated from carbon-free resources, including nuclear energy, hydropower, solar, and wind.[15] This transition to a lower carbon future heavily relies on a robust electric transmission system to connect renewable energy resources to customers and enhance the flexibility of the grid to respond to changes in the nation's energy portfolio. Additionally, it enables future two-way flows of electricity as the proliferation of energy storage and electric vehicles, both

[13] EEI, *Investing in Transmission to Enhance the Reliability and Resilience of the Energy Grid*, p. 2.

[14] *See* EIA, *Nearly Half of Utility-Scale Capacity Installed in 2017 Came from Renewables* (Jan. 10, 2018), https://www.eia.gov/todayinenergy/detail.php?id=34472. *See also* EEI, Industry Data, Statistical Highlights: Capacity and Generation (2018), http://www.eei.org/resourcesandmedia/industrydataanalysis/industrydata/Pages/default.aspx.

[15] *See* EIA, *Electricity Explained: Electricity in the United States* (Apr. 2018), https://www.eia.gov/energyexplained/index.php?page=electricity_in_the_united_states.

of which use energy and can inject energy into the electric grid, continues to expand over the next decade.

In order to meet ambitious state-driven clean energy goals and low-carbon solutions around the country, an estimated $300-$700 in transmission investment per each kilowatt (kW) of renewable capacity added to the system is necessary.[16] As these challenges have emerged over the last decade, Congress could not have anticipated the scale and complexity of transmission needs when EPAct 2005 was enacted. Therefore, a new approach to assessing transmission needs may be warranted.

As EEI's member companies continue to make investments in anticipation of these emerging threats and challenges, there remain significant barriers to transmission development to overcome at both the state and federal level. For example, complex and often controversial siting and permitting process, disputes over cost allocation, and regulatory uncertainty can frustrate transmission development. DOE can work towards its goal of encouraging the development of needed electric transmission to ensure the reliability and resilience of the grid by facilitating conversations with transmission owners and operators.

### B. DOE Should Work with Industry to Coordinate the Resilience Discussion While Protecting Sensitive Data.

The DOE acknowledges that understanding the current and future needs and abilities of the transmission system extends well beyond studying congestion and constraints. However, DOE suggests that it has limited ability

> to analyze the value of investments in the resilience of transmission infrastructure…due to the lack of details regarding potential threats; data and

[16] The Brattle Group, prepared for WIRES, The Coming Electrification of the North American Economy: Why We Need a Robust Transmission Grid, p.16 (March 2019).

> predictions on resulting impacts; tools required to model multiple infrastructures; and details concerning the coordination of numerous utilities and stakeholders involved in regional and national-scale energy system operations."[17]

It is unclear from the proposal in the Congestion Study whether DOE intends to supplement historical congestion data with emerging threat analysis and potential mitigation measures or eliminate the congestion and constraint analysis all together. DOE should clarify its proposed triennial scope change as well as details of it plan for Congressional approval, including the language and timing of proposed legislation.[18]

In order to compile such data, DOE proposes to use the development of its NAERM to provide real-time situational awareness.[19] DOE states this integrated model is expected to provide analysis on emerging threats, identify resilience measures that could mitigate those threats, and inform investment decisions going forward. At this time, the status of the NAERM project including what has been developed so far, the projected timeline for completion, what data and variables will be integrated into NAERM, and whether the outputs of this model will overlap with current transmission planning processes, is unclear.

Transmission owners and operators plan and develop electric system operations to safeguard reliability beyond current mandatory reliability standards. This level of reliability is supported by validated models using confidential, company-specific system design and operation data. Accordingly, the NAERM may not have the information necessary to fully reflect the complexity of the nation's electric system and any policy

[17] Congestion Study, p. 26.

[18] *See* Congestion Study, p. 26.

[19] *See* https://www.energy.gov/sites/prod/files/2019/07/f65/NAERM_Report_public_version_072219_508.pdf.

recommendations based on data derived from NAERM may not reflect all transmission needs and challenges.

If Congress grants DOE's request to change the scope of its Congestion Study, DOE should work with the energy industry and with EEI member companies. This includes coordination and communication with the electric industry before the NAERM is finalized as well as ensuring that confidential data is protected. To the extent any NAERM analysis identifies perceived threat scenarios and possible mitigation measures, DOE should work with transmission owners and operators to validate such results before taking any additional measures and should implement data security measures to ensure protection of any critical energy infrastructure information.

### C. DOE Should Support the Update of the Interruption Cost Estimate Calculator to Help Industry Identify Needed Transmission Investments.

As DOE seeks to "analyze the value of investments in the resilience of transmission infrastructure," tools that help to evaluate the benefits of resilience investments, such as the ICE Calculator, may be a more readily available resource for identifying transmission investments that enhance resilience.[20] Sponsored by Lawrence Berkeley National Laboratory (Berkeley Lab), the ICE Calculator is a publicly available web-based tool that provides information to decisionmakers on the economic costs of power interruptions to businesses and residences.[21] A number of EEI's member companies regularly use the ICE Calculator to help document the benefit that resilience investments have for the communities they serve. Although the ICE Calculator is not the

[20] The ICE Calculator is typically used for distribution-level outages but can be applied to transmission as well.

[21] *See* Berkeley Lab Electricity Markets & Policy, *Economic Value of Reliability & Resilience*, https://emp.lbl.gov/projects/economic-value-reliability-consumers.

only tool that utilities can use to asses such benefits—as some utilities rely instead, or in addition to, on proprietary tools tailored to their service territories—tools like the ICE Calculator can help to identify the need for, and support the development of, transmission investments that enhance resilience.

While useful in demonstrating the value that resilience-enhancing transmission investments can provide, the existing version of the ICE Calculator has limitations that a DOE-sponsored update could address. While some individual EEI member companies are working with Berkeley Lab to perform value of service studies that refresh some of the data used by the ICE Calculator, it does not appear that sufficient funding will be available to update the tool for users across the country. Supplemental funding from DOE would ensure completion of this effort by enabling a broader set of national surveys needed to ensure that the ICE Calculator fully captures the benefits of resilience investments.

## III. CONCLUSION

EEI appreciates the opportunity to provide these comments in response to the 2020 Electric Transmission Congestion Study. EEI looks forward to continuing the dialogue with DOE on efforts to ensure investment and development of needed transmission to meet emerging challenges and fundamental changes to the energy grid.

Respectfully submitted,

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