

11/23/20

RE: Public Comment on the 2020 National Electric Transmission Congestion Study

INTRODUCTION

The 2020 National Electric Transmission Congestion Study (NETCS20) relies on publicly available information to determine geographic areas that are experiencing transmission congestion in the United States. Unfortunately, it does a poor job assessing potential impacts and existing weaknesses transmission congestion within the bulk power system (BPS) and fails to reach beyond vague assumptions of current transmission congestion issues, which are, at best, loosely representative of actual conditions. The EPAct states that the DOE shall “in consultation with affected states...conduct a study of electric transmission congestion” and then issue a report “which may designate any geographic area experiencing electric energy transmission capacity constraints or congestion that adversely affects consumers as a national interest electric transmission corridor (NIETC).”¹ This study fails to present any comprehensive data, does not consult with affected states, and does not accurately assess the capacity constraints or congestion affecting the BPS.

The authors of NETCS20 call their own data and analysis into question at several points throughout the study, citing a lack of publicly available information.² The lack of substantive information found within the report is by no means hidden by the authors. For example, on page vii-viii, the authors state that a “wider range of information and data—much of which is not now coordinated systematically or collected comprehensively—is needed to assess comprehensively

¹ Energy Policy Act of 2005, 16 U.S.C. § 824 et seq. Section 216 a

² National Electric Transmission Congestion Study, UNITED STATES DEPARTMENT OF ENERGY, at vii, <https://www.energy.gov/sites/prod/files/2020/10/f79/2020%20Congestion%20Study%20FINAL%2022Sept2020.pdf>

how the critical national interests identified in EPOA are being affected by the ongoing evolutionary changes in the relationship between transmission networks and the broader electricity system.”³ This explanation is hardly adequate to sidestep the legal mandates required to the DOE by the EPOA 2005 to develop the NETCS20.⁴

The lack of specificity found in this report is compounded by the DOE’s failure to comply with another aspect of EPOA’s mandate which states that NETCS20 be conducted “in consultation with affected States.”⁵ Instead, it makes no effort to detail any relevant information from the state-level, claiming that “a national assessment of individual transmission constraints is not possible because of the limited amount of information that is publicly available.”⁶ The DOE should seek to address this by retroactively informing state legislators and regulators about this study directly, allowing sufficient opportunity to consult on any transmission projects, which may or may not benefit from an NIETC designation.

This comment will aim to address some of the current transmission conditions in the bulk power system, as well as analyze the DOE’s mandate to perform a study that “take[s] into account the need for upgraded and new electricity transmission and distribution facilities to—(1) improve reliability; (2) relieve congestions; and (3) enhance the capability of the nation grid to deliver electricity.”⁷

³*Id.*

⁴ Energy Policy Act of 2005, 16 U.S.C. § 824 et seq. Section 216 a

⁵ *Id.*

⁶ National Electric Transmission Congestion Study, *supra* note 2, at 11.

⁷ Energy Policy Act of 2005, 42 U.S.C. § 15926 et seq. Section 368 d

ANALYSIS

This study makes repeated claims that broad-scale investment in transmission leads to reduced congestion. However, unless you control for a number of other factors, investment and congestion is not directly correlated. One of the metrics that the study uses is a U75 rating, or, the rate at which transmission lines are used above 75% of their rated capacity.⁸ The Western Energy Coordinating Council’s (WECC) website states that this U75 designation is not necessarily a measure of congestion rather; “many factors determine operating limits. A low U75 or U90 does not necessarily indicate a path is underused, nor do high values necessarily indicate congestion.”⁹ Many of the lines depicted in Figure 4-3¹⁰ are operating as designed, “built to carry electricity from large plants.”¹¹ While an effort was made to consider congestion in the West (although not adequately), the study again fails to properly address the national scale claiming that; “comparable information does not exist on the operation of the transmission systems across the Eastern Interconnection.”¹² Given that the eastern interconnection services 39 states – again the level of specificity required to make definitive conclusions about transmission infrastructure needs has fallen short from the enabling legislation.

Investments in transmission nationwide, as noted by NETCS20, have grown significantly over the past 15 years.¹³ While NETCS20 notes that this investment was responsible for grid reliability gains within the past decade, it does not prove with any certainty that the investment in transmission was responsible for mitigating issues pertaining to capacity constraints or

⁸ National Electric Transmission Congestion Study, *supra* note 2, at 11.

⁹ Transmission Adequacy, WECC.ORG, (Nov. 26, 2020), <https://www.wecc.org/epubs/StateOfTheInterconnection/Pages/Transmission-Adequacy.aspx>

¹⁰ National Electric Transmission Congestion Study, *supra* note 2, at 12.

¹¹ Transmission Adequacy, *supra* note 9.

¹² National Electric Transmission Congestion Study, *supra* note 2, at 11.

¹³ *Id.* at 10. Figure 4-2 rightly depicts the increases in annual transmission investments in every region from 1996 - 2008.

congestion. Transmission investments occur for a variety of reasons, most commonly to promote reliability and variable renewable integration.¹⁴ Therefore, it would be more accurate to home in on investments made to combat congestion specifically. Data reported by Wires Group in 2020 suggest that transmission investment has done little to combat congestion issues systemwide. Congestion costs incurred by RTO's have risen steadily during 2016-2018, from \$3.7 billion in 2016, to \$4.1 billion in 2017, and finally \$5 billion in 2019.¹⁵ Furthermore, research by the Brattle group in 2019, explains that the kind of transmission projects that benefitted from increased investment were largely intraregional - not the kind of interstate corridors that the EPC Act was intending to create.¹⁶ While it is true that investments have increased, those investments have been made to support reliability needs and local-projects; "relatively little has been built to meet the broader regional and interregional economic and public policy needs envisioned when FERC issued Order No. 1000."¹⁷

Transmission investment is slated to flatten off through 2022, which could threaten BPS reliability amidst a changing energy mix.¹⁸ NREL reports that transmission improvement and installation projects are projected to decline significantly throughout the next decade; "under 15,000 circuit miles of new transmission is expected over the next 6 years; this is considerably less than the nearly 40,000 circuit miles planned earlier this decade."¹⁹ Not only is infrastructure declining, the nature of these projects are being constrained in scope;

¹⁴ *Failure to Act: Electric Infrastructure Investment Gaps in a Rapidly Changing Environment*, EBP US, (Sep. 2020), at 21, <https://wiresgroup.com/wp-content/uploads/2020/09/Failure-to-act-electricity-report.pdf>

¹⁵ *Id.* at 23.

¹⁶ *Cost Savings Offered by Competition in Electric Transmission*, THE BRATTLE GROUP, (Apr. 2019), at 2, https://brattlefiles.blob.core.windows.net/files/15987_brattle_competitive_transmission_report_final_with_data_tables_04-09-2019.pdf

¹⁷ *Id.*

¹⁸ *Failure to Act: Electric Infrastructure Investment Gaps in a Rapidly Changing Environment*, *supra* note 14, at 20

¹⁹ *2019 Long-Term Reliability Assessment*, NERC, (2019), at 7,

https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2019.pdf

“Less and shorter lines are being constructed at a time when more and longer transmission is needed to accommodate large amounts of wind and solar resources. While a lack of future transmission projects does not currently pose a reliability concern, the importance of a secure transmission system is amplified when considering the significant addition of variable generation resources, continuing retirement of conventional and nuclear generation, and increased demand projections throughout North America in the assessment’s 10-year horizon.”²⁰

It will be pertinent to consider whether projects delayed by state and interest-group pushback will threaten reliability, economic growth, and energy independence.

Current Transmission Constraints

Transmission constraints are pervasive in 2020, therefore, it falls within the scope of this study to assess NIETCs based on the geographies where inhospitable market and regulatory conditions are halting transmission projects. However, the report does not delve into any current or prospective projects, let alone consider if the execution of said projects would fall within the customers’ best interest. Meanwhile, several regions are experiencing bottlenecks to development and interconnection due to lack of sufficient transmission infrastructure. The Clean Grid Alliance, points to MISO as a particular sore spot for congestion; “of 5,000 megawatts of wind and solar projects in MISO’s western region that were part of a group being studied for interconnection, all but 250 MW had withdrawn.”²¹ Considerations for the DOE should include whether blockages to renewables development posed by transmission “adversely affects

²⁰ *Id.* at 35.

²¹ *Renewables ‘Hit a Wall’ in Saturated Upper Midwest Grid*, E&E NEWS, (Dec. 12, 2019), <https://www.wind-watch.org/news/2019/12/13/renewables-hit-a-wall-in-saturated-upper-midwest-grid/>

consumers” in these markets. It should also consider whether a “diversification of supply is warranted,” through an evaluation of state clean energy goals, as well as appropriate cost-benefit analysis.²² The Clean Grid Alliance claims that the 4,750MW of capacity, which withdrew from interconnection proposals, will likely never be constructed “because they would require \$100 million in transmission upgrades.”²³ Whether these upgrades are necessary falls within NETCS20 mandates to consider diversity of supply, economic growth, energy independence, national energy policy, and homeland security.

The grid is beginning to increasingly rely on utility-scale renewables, and distributed energy resources, rather than fossil fuels. Currently “23 states and the District of Columbia have established economy-wide greenhouse gas emissions targets.”²⁴ Furthermore, 30 states have instated renewables portfolio standards²⁵ which will have seismic effects on the BPS and interregional transmission. NREL is already analyzing transmission constraints that are arising due to high penetrations of VERs; “Many new VERs will be located in areas remote from demand centers and existing transmission infrastructure. In some areas, such as SPP and ERCOT, the level of VERs are reaching full subscription of the transmission network and exhaust current as well as planned transmission capacity”²⁶. The DOE should collaborate with industry and state government alike to address these constraints as they happen, not retroactively when consumers have already internalized the costs of delays. Offshore wind capacity along the east coast, much of which is planned to begin operations in 2026, raises additional questions

²² Energy Policy Act of 2005, 16 U.S.C. § 824 et seq. Section 216 (4)b

²³ *Id.*

²⁴ *U.S. State Greenhouse Gas Emissions Targets*, C2ES.ORG, (Sep. 2020), <https://www.c2es.org/document/greenhouse-gas-emissions-targets/>

²⁵ *State Renewable Portfolio Standards and Goals*, NCSL.ORG, (Apr. 17, 2020), <https://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx>

²⁶ *2019 Long-Term Reliability Assessment*, *supra* note 19, at 7.

about transmission constraints. The potential offshore wind pipeline is massive, “over 26,000 MW in federal lease areas issued to date off the Atlantic Coast.”²⁷ NREL, in a report assessing potential impact of offshore wind energy on the power system in the U.S. Northeast, found that transmission congestion is a concern when offshore units are brought online; “The number of hours with transmission congestion increases because of offshore wind injection, with varying impact on a subregional level.”²⁸ To be clear, these issues fall within the scope of the report submitted, as they are current projects, whereby delays will “adversely affect consumers” as well as prohibit utilities from reaching their clean-energy mandates, making them subject to hardy fines. Therefore, these types of projects and others already identified should be clearly and realistically addressed in the report.

The changing energy mix is ultimately a question of “national and homeland security”; therefore, it falls under the list of considerations that should be addressed NETCS20. While the DOE nods at these concerns in the executive summary, claiming that “recent hurricanes affecting Texas and Louisiana, and the combination of extreme heat and wildfires in California have underscored that a robust transmission network is critical for coping with such challenges,” it does not provide any data or detail about how these issues are threatening grid reliability in real-time.²⁹ This year, California experienced extensive blackouts and brownouts subjecting millions of consumers to outages during extreme heat conditions. Again, this is a current issue that warrants collaboration from the DOE with the affected stakeholders. Many of these blackouts could have been avoided with more robust transmission infrastructure. “California had trouble

²⁷ *Wind Powers America, Amended Annual Report 2019*, AWEA, at 12, <https://www.awea.org/Awea/media/Resources/Amended-WPA-Annual-Report-2019.pdf>

²⁸ *The Potential Impact of Offshore Wind Energy on a Future Power System in the U.S. Northeast*, NREL, (Jan. 2020), at 3, <https://www.nrel.gov/docs/fy20osti/74191.pdf>

²⁹ National Electric Transmission Congestion Study, *supra* note 2.

importing enough power. California imports about 25% of its power, ISO officials said. But the heat wave that scorched California also baked other Western states, and they declined to send electricity because they needed it for their residents and businesses.”³⁰ The impacts of increased penetrations of VER’s, more extreme heat and weather events and economy-wide electrification, combine to create a scenario that warrants the kind of immediate consideration that this report was intended to provide under the EPAct, however the report in its current form falls short

The DOE, via NETCS20, is required to consider “whether (A) the economic vitality, may be constrained by lack of adequate or reasonable priced electricity.”³¹ In 2020, Virginia passed the Clean Economy Act which established a mandatory RPS program aimed at achieving 100% electricity generation from renewable sources by 2045 or 2050.³² The Virginia SCC predicts that the changing energy mix will have significant impact on customers’ rates; a typical Dominion residential customer consuming 1,000 KWh per month would see their monthly bills to rise by about \$67 and annual bills by \$808 by 2030, a 58% increase.³³ This illustrates a change that is increasingly common as states commit themselves to more aggressive clean energy goals. Interregional transmission is said to ease the financial burden on customers, provide new jobs, and create multiple economic benefits.³⁴ In a scenario with 95% CO2 emissions reductions by 2050, a scenario within reach under a Biden administration, researchers demonstrated significant

³⁰ *Blackouts threaten heat-ravaged grid*, E&E NEWS, (Aug. 18, 2020), <https://www.eenews.net/stories/1063711909>

³¹ Energy Policy Act of 2005, 16 U.S.C. § 824 et seq. Section 216 (4)a

³² VA. CODE ANN. § 10.1-1308 (2020); *see*, VA. CODE ANN. § 56-585.5(c) (2020) (explaining Phase I utilities must meet 100% by 2050 and Phase II by 2045); VA. CODE ANN. § 56-585.1 (2020) (“Phase I Utility is an investor-owned incumbent electric utility that was, as of July 1, 1999, not bound by a rate case settlement adopted by the Commission that extended in its application beyond January 1, 2002, and a Phase II Utility is an investor-owned incumbent electric utility that was bound by such a settlement.”).

³³ Gregory L. Abbott, *Commonwealth of Virginia State Corporation Commission, Prefiled Staff Testimony, In re: Virginia Electric and Power Company’s Integrated Resource Plan*, Volume I, Part A, Lines 32-34, (Sept. 29, 2020). (explaining Virginia Electric and Power Company is Dominion’s utility operating in the Commonwealth of Virginia).

³⁴ *See generally, Consumer, Employment, and Environmental Benefits of Electricity Transmission Expansion in the Eastern U.S.*, (Oct. 2020), <https://cleanenergygrid.org/wp-content/uploads/2020/10/Consumer-Employment-and-Environmental-Benefits-of-Transmission-Expansion-in-the-Eastern-U.S..pdf>

cost savings from investments in transmission; “investments in transmission more than pay for themselves by accessing low-cost sources of energy and providing other economic and reliability benefits.”³⁵ NREL’ SEAMS study demonstrated similar findings; exchanging power across the Rockies “would return about \$2.50 or more for every \$1 invested in transmission.”³⁶ Not to mention the massive impact on reducing CO2 emissions. While mounting evidence exists regarding the economic benefits of interregional transmission, there was no mention of geographies where consumers would benefit from the designation of an NIETC.

CONCLUSION

NETCS20 does not currently consider current realities pivotal to mitigating congestion of the BPS. The authors, are unabashedly aware of this;

“Periodic assessments of a broad range of issues around the resilience of the U.S. transmission system are needed... [including] transmission’s role in reliably, securely, and economically adjusting to anticipated changes in the composition and location of the future fleet of electricity generators.”³⁷

NETCS20 notes that it has failed to meet its responsibility to provide a wholistic picture of present and future constraints and congestion issues. Meanwhile, it delegates its mandated authority to provide a triennial report to a separate initiative, the North American Energy Resilience Model (NAERM) Initiative. The DOE does not however offer whether this information will be used in to help facilitate the designation of national interest electric transmission corridors in consultation with affected states. The bottlenecks that developers are

³⁵ *Id.* at 10.

³⁶ *How a Plan to Save the Power System Disappeared*, THE ATLANTIC, (Aug. 20, 2020), <https://www.theatlantic.com/politics/archive/2020/08/how-trump-appointees-short-circuited-grid-modernization/615433/>

³⁷ National Electric Transmission Congestion Study, *supra* note 2.

experiencing are happening right now, and they should not have to wait an additional three years for a more complete assessment of electric transmission congestion to be executed.