THE UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULARY COMMISSION

Electric Transmission Incentives Policy	**)**	**RM20-10-000**
Under Section 219 of the Federal Power Act	**)**	

COMMENTS OF THE AMERICAN COUNCIL ON RENEWABLE ENERGY

The American Council on Renewable Energy ("ACORE") submits these comments in response to the Federal Energy Regulatory Commission's ("FERC" or "Commission") Notice of Proposed Rulemaking ("NOPR") issued March 20, 2020 to revise its existing regulations that implemented section 219 of the Federal Power Act in light of changes in transmission planning and development over the past few years.[1] ACORE is a national nonprofit organization dedicated to advancing the renewable energy sector through market development, policy changes and financial innovation.

I. Executive Summary

Commission regulations need reform to promote necessary investment in the transmission system, ensure grid reliability and resilience, promote economic growth, harness the nation's abundant domestic renewable energy and other resources, and mitigate environmental and greenhouse gas emissions. We commend FERC for reviewing all of the Commission's tools to promote new transmission and grid optimization.

The Commission should implement its proposed shift from a "risks and challenges" framework to a "benefits" framework, which can unlock private sector investment with minimal

[1] *Notice of Proposed Rulemaking on Electric Transmission Incentives Policy Under Section 219 of the Federal Power Act*, 170 FERC ¶ 61,204 (2020).

regulatory reform. Unnecessary ratepayer burdens can be avoided by asking incentive applicants to show that their projects require awards to be constructed. An advanced transmission technology incentive using a "benefits" framework linking system benefits to monetary awards, rather than the ROE adder model proposed in the NOPR, would help ensure deployment of these new technologies. Clarifying that energy storage and other resources acting as transmission can qualify for incentives will help ensure the continued buildout of these economically efficient and grid-enhancing resources. To ensure continued electric reliability, the Commission should improve the process for projects that satisfy public policy needs.

Transmission incentive reform should be augmented with transmission planning reform to more effectively promote new transmission. The incorporation of grid optimization and advanced technologies in the planning process, more standard and broad cost allocation, and increased inter-RTO transfer capability will lead to a more robust and efficient electric grid. Where possible within its authority, FERC should enhance efforts to streamline transmission siting and enable construction of necessary transmission lines.

II. Comments on Notice of Proposed Rulemaking

A. Reform Is Needed to Allow Necessary Investment in Transmission Infrastructure

Transmission regulation reform has the potential to enhance and diversify the U.S. electric generation mix. Reforms that address service congestion can simultaneously lower electricity costs and encourage integration of greater amounts of renewable energy by developing connections between locations that can inexpensively generate renewable electricity and locations that demand it. As recognized in the Commission's 2012 Promoting Transmission Investment Through Pricing Reform Policy Statement, projects needed to "unlock location

constrained generation resources that previously had limited or no access to the wholesale electricity markets" may face investment-related obstacles to deployment.[2]

Solar and wind resources are located throughout the country but can be remote from load. For example, according to the National Renewable Energy Laboratory (NREL), the central U.S. and ocean plains along the coasts contain large amounts of potential wind energy resources while the desert southwest contains large amounts of potential solar energy resources. At the same time, much of the U.S. population is not located in these regions. The NOPR properly observes: "Solar and wind increased from a collective one percent in 2006 to eight percent in 2018. These shifts create a need for more transmission infrastructure to bring generation to load."[3] Significant transmission development is required to connect these cost-competitive energy resources with areas of high demand and to allow the local surpluses and shortages that can occur at any moment to be spread out across the region.[4]

By linking the major interconnections and creating a broader power grid, these resources can be unlocked while also providing a level national playing field where all resources can compete. For example, according to NREL, increased transmission development at the seams between regions could save consumers more than $47 billion and return more than $2.50 for every dollar invested.[5] Greater geographic diversity in the nation's generation fleet can increase

[2] *Promoting Transmission Investment Through Pricing Reform* 141 FERC ¶ 61,129 (2012).
[3] *Notice of Proposed Rulemaking on Electric Transmission Incentives Policy Under Section 219 of the Federal Power Act*, 170 FERC ¶ 61,204 (2020) P 16.
[4] In addition to growing public policy demand for cost-competitive renewable resources, corporate demand is projected to grow by an order of magnitude in the next five years. See *Transmission Upgrades & Expansion: Keys to Meeting Large Customer Demand for Renewable Energy*. Wind Solar Alliance. January 2018. https://acore.org/transmission-upgrades-expansion-keys-to-meeting-large-customer-demand-for-renewable-energy/. At the same time, accelerating electrification of the economy may result in load growth of up to 85 percent by 2050. See *The Coming Electrification of the North American Economy*. WIRES Group. March 2019. https://wiresgroup.com/wp-content/uploads/2019/03/Electrification_BrattleReport_WIRES_FINAL_03062019.pdf.
[5] National Renewable Energy Laboratory, *Interconnections Seam Study,* https://cleanenergygrid.org/interconnections-seam-study/.

resilience by distributing the risk of any single event disrupting a whole region's supply. The market would then drive further integration of new energy resources.

B. Implement the Proposed Shift from a "Risks and Challenges" to a "Benefits" Framework to Reward Quantifiable Improvements to the Grid

FERC should implement the NOPR's proposed shift from a "risks and challenges" approach to a "benefits" framework.[6] This will be particularly important for grid operations technologies. Dynamic line ratings and other technological innovations can provide quantifiable economic benefits and reduced power costs by increasing the capacity of transmission infrastructure at lower costs than new wire solutions, but these innovations are not properly compensated for their benefits under the current approach. By issuing awards based on system benefits, projects are compensated for benefiting the nation's transmission system, rather than their own special risks and challenges.

C. Require "But For" Justifications from Incentive Applicants to Avoid Awarding Projects That Would Be Built Otherwise

For grid expansion, FERC should require that applicants for incentive awards justify that their proposals would not be built but for the award of the incentive. While the overall incentives framework proposes to assess the benefits of the project, FERC should also assess the costs and benefits to the project of the proposed incentive before issuing an award. FERC explained it has not proposed such a "but for" provision because Congress did not clearly direct the Commission

[6] *Notice of Proposed Rulemaking on Electric Transmission Incentives Policy Under Section 219 of the Federal Power Act*, 170 FERC ¶ 61,204 (2020).

to include such a provision.[7] However, Congress did direct FERC to incentivize new transmission capacity if it benefits customers. Awarding ratepayer funds to project applicants that would be built in the absence of an incentive are not being incentivized by the award. Commissioner Glick writes: "A payment that does not incentivize anything is a handout, not an incentive."[8] We urge caution about incentive payments that can make cost allocation challenges even more difficult, particularly for large capital investments for which ROEs are already supposed to attract capital. Section 219 of the Federal Power Act explains incentives are for the "purpose of benefitting consumers by ensuring reliability and reducing the cost of delivered power by reducing transmission congestion."[9] While Congress did not enter into these specifics, interpreting Congressional intent so as to enforce the law is the proper role of an agency like the Commission, which has delegated authority through Section 219 to evaluate project applications.

FERC recognizes this principle in the proposed design of the advanced transmission technology incentive, where it writes: "[W]e will generally not consider eligible transmission technologies to include transmission system assets traditionally associated with the transportation of electric power, such as powerlines, power poles, capacitors, and other substation equipment."[10] Whereas once a capacitor may have been an advanced transmission technology, awarding it an incentive today when it is a proven technology would not encourage deployment of this helpful, low-cost solution. While such an award may very well fund the installation of capacitors, their deployment would have taken place in the absence of an advanced transmission technology incentive.

[7] Order No. 679, 116 FERC ¶ 61,057 at P 48.
[8] Comm. Glick Partial Dissent on *Notice of Proposed Rulemaking on Electric Transmission Incentives Policy Under Section 219 of the Federal Power Act*, 170 FERC ¶ 61,204 (2020) P 2.
[9] *Federal Power Act, Section 219, Transmission Infrastructure Investment*, 16 U.S.C. § 824s.
[10] *Notice of Proposed Rulemaking on Electric Transmission Incentives Policy Under Section 219 of the Federal Power Act*, 170 FERC ¶ 61,204 (2020) P 68.

In the case of grid expansion, where base ROE is already designed to attract sufficient capital, FERC should ask incentive award applicants to make their "but for" justifications by explaining how the ROE adder makes a substantive difference to the project's financial viability.

D. Fulfill the Energy Policy Act of 2005 by Implementing an Advanced Transmission Technologies Incentive

FERC should adopt an advanced transmission technologies incentive. The Energy Policy Act of 2005 directs FERC to "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."[11] The NOPR proposes that the Commission implement this provision, fulfilling congressional intent and allowing advanced transmission technologies to receive incentives for their unique role in increasing transmission efficiency and reliability at potentially lower cost than traditional transmission lines. Advanced transmission technologies are not a replacement for transmission lines in all scenarios, but they provide benefits in many circumstances and serve as an effective complement to new transmission lines.

E. FERC Should Calculate Advanced Transmission Technology Incentive Awards by Linking System Benefits to Monetary Rewards

i. The Advanced Transmission Technology Incentive as Designed in the NOPR Will Not Encourage Deployment of Advanced Transmission Technologies

[11] Energy Policy Act of 2005, Pub. L. No. 109-58, Stat. 961.

The NOPR does not successfully implement the Energy Policy Act of 2005's advanced transmission technology directive by incentivizing the deployment and use of efficiency-improving technologies for the benefit of electricity consumers because its design will inherently limit the ability of such technologies to receive incentive awards. ROE incentives cannot motivate utilities because profit is directly proportional to capital invested, which for advanced transmission technologies can be very small. For example, a 100 basis point incentive on $1 million of equity invested yields only $50,000 in additional earnings.[12] It is hard to imagine senior utility management even having a meeting to discuss an action that could achieve only a $50,000 contribution to the bottom line, especially when 100 basis points on a $100 million transmission line with potentially similar system benefits would yield $5,000,000 in additional earnings.

Newly available grid operations technologies such as more advanced dynamic line ratings, power flow control systems, storage serving a transmission function, and topology optimization can reduce this congestion and curtailment for less cost than new transmission lines. For the Commission to address geographic resource constraints and deliver transmission benefits in a technology-neutral way, it should not consider incentive awards using a methodology that preferences high-cost technologies.

ii. Calculate Incentive Awards from System Benefits to Link Monetary Rewards with Transmission Enhancement

FERC should design the advanced transmission technology incentive so that utilities can earn more money from approaches that reduce more congestion. Grid expansion often requires

[12] Assuming 50% debt, tax of 27%, debt interest of 5%, target base ROE of 10%, O&M rate of 3% and discount rate of 7%.

allocations of hundreds of millions of dollars, while grid operation improvements can be single digit percentages of these costs. Within RTOs, transmission owners should also be allowed to keep some of the congestion cost reductions that are created by improved grid operations as further incentive to deploy these new consumer cost-saving technologies.

We support a specific, well-defined incentive focused only on low-cost projects that provide quantifiable congestion reduction benefits. This incentive is based on the existing economic planning and operations planning processes which have been approved by FERC, are in transmission tariffs, and have models and processes in place.

Transmission owners or utilities should submit projects that comply with both the existing regional planning criteria for economic projects and FERC's "bright-line criteria" for reliability, where total capital investment is under a threshold to be determined by the Commission. Projects should be evaluated using standard costs and benefits calculations as determined by traditional transmission studies for economic planning. The benefits assessment should include production cost and capacity cost savings determined on an ex-ante basis. Most planning authorities already evaluate the congestion impacts of a proposed project as part of the economic planning process. Ex-ante calculations are required to attract the investment necessary to develop the project. Compensation based on ex-post analysis creates investor uncertainty, precluding project financing.

If benefits exceed costs for a project, or a set of bundled project deployments, the transmission owner should be awarded an appropriate incentive based on the savings calculated. The utility should include the approved projects along with the shared savings and a benefits assessment in their periodic rate base filings with FERC. FERC's role should therefore be to review the benefit calculations rather than create them wholesale. After the time frame of

payments has passed, the utility should have the option of either collecting their standard revenue requirement on the investment for the remaining duration of the investment's lifetime or re-evaluating the benefits and pursuing a savings-based approach.

The incentive should be based on a share of the net savings calculated by identifying total benefits over the study time frame, subtracting the project capital costs and the corresponding operating costs over the study time frame, and multiplying net savings by a benefit sharing factor of 25% to 50%, to be requested and justified in the application. We recommend that this sharing factor be a sliding scale with various levers as determined by FERC.

For faster deployment of relatively small projects in the operations planning time frame, a programmatic (as opposed to installment-by-installment) approach could be used where each party interested in participating in the technology incentive program proposes to FERC their own specific program to deploy and implement the technologies and other measures in operations planning. For programs proposed by RTOs, member transmission operators have the option to participate in those programs, to propose their own specific programs to complement or substitute the RTO program, or to take no action.

This proposal should include a quantification of the expected societal benefits of the program; a quantification of the expected costs of the program; rules specifying how the program will be administered, including the technologies or measures for deployment and use as part of the program and the proposed duration; and the incentive the party will receive for conducting the program, typically a fraction of the expected societal benefits.

If FERC accepts the party's application, the participating party then executes the program. During the execution phase, the participating party should evaluate opportunities to reduce congestion using solutions that are deployable within the operations time frame. These

evaluations are expected to be performed multiple times over the operational time frame, such as six months before the start of a given season, one month before the start of the season, one week before real-time operations, one day before real-time operations, and so on, using the latest data available at that time, such as the most current outage schedule. During each evaluation, the participating party identifies a set of candidate projects and operational measures to reduce congestion. These projects and operational measures are assessed using predefined criteria. If a candidate project meets the criteria and sufficient program funding exists to implement the project, the party executes the project, such as deploying dynamic line rating on a specific line.

The set of candidate projects and operational measures should depend on the timing of the evaluation relative to real-time operations. For example, deploying mobile power flow controllers and dynamic line ratings are viable candidate projects up to a month prior to real-time. In contrast, making appropriate topology changes are viable up to near real-time operations.

The actual benefits of the program should be regularly compared to the expected benefits that were specified in the program application. This comparison should be reported to FERC. If the actual benefits are underwhelming, the participating party has the option to issue an action plan to correct this discrepancy, including adjusting the program based on updated knowledge or even terminating the program if warranted. A base, net-savings sharing factor should be awarded regardless for program participation. An additional share should be awarded as actual benefits are realized. To continue receiving the participation award, applicants should demonstrate their continued participation every two years.

At the end of the program period, the overall benefits should be compared to the expected benefits and the comparison reported to FERC. This report will be considered if the participating

party chooses to apply for future programs. Third-party verification of congestion relief, such as from a market monitor, provides an important verification of the ex-ante calculations, which may alleviate concerns regarding the accuracy of actual benefit achievement as the Commission considers future applications.

iii. FERC Has the Authority to Link System Benefits with Awards in the Final Rule

FERC has broad authority to design new incentives that promote a resilient, reliable, and low-cost transmission system. While Section 219 of the Federal Power Act is commonly seen as the basis of FERC's incentive authority, FERC also offered forms of incentives through Section 205 prior to the 2005 amendment that added Section 219.[13] This more recent legislation does not appear to limit FERC's preexisting authority.

Promulgating an advanced transmission technology incentive model that calculates awards based on system benefits is a logical outgrowth of the NOPR. Given FERC's stated aim in the NOPR to incent both advanced transmission technologies and cost-effective transmission solutions, this model is the most comprehensive way to meet those goals. The NOPR's advanced transmission technology incentive model does not meet those goals.

iv. Clearly Express Technology Preferences and Use Available Authority to Ensure Regulatory Certainty and Promote Transmission Investment

FERC should list the types of technologies eligible for the advanced transmission technology incentive in addition to evaluating new technologies on a case-by-case basis. In the

[13] *Inquiry Regarding the Commission's Electric Transmission Incentives Policy*, 166 FERC ¶ 61,208 (2019) P 4.

NOPR, the Commission declines to list eligible technologies on the grounds that this will encourage new technology development for needs identified in the various transmission planning processes. However, the lack of clarity regarding eligible technologies could in reality have the unintended effect of discouraging innovative proposals if applicants conclude there is too great a risk the time and capital required to create a filing could be wasted should the innovation fall outside what the Commission will ultimately consider. Clear statements from the Commission may encourage more applications for transmission incentives by promoting investment and developer certainty. Commissioners can make clear both in orders and in discussions with stakeholders the types of projects they believe to be consistent with the rulemaking.

FERC should also investigate how to include software upgrades in this incentive or clarify that software is already included. Revisions to the control software used by grid operators is an important technological improvement to enhance grid transmission capabilities. Some transmission hardware may make economic sense to deploy, but the grid operator would not be able to utilize it due to the presence of archaic software that cannot interact with the new equipment. An incentive that encourages grid operators to update their systems to make use of modern control software would have outside benefits with low capital expenditures relative to the construction of new transmission lines.

We suggest that power flow control, dynamic line ratings, storage as transmission, and power flow optimization should qualify, and the Commission should provide criteria for others that could apply to qualify in the future.

F. Clarify That Energy Storage and Other Resources Acting as Transmission Can Qualify for the Congestion Relief and Reliability Transmission Incentives

FERC should clarify that energy storage and other resources acting as transmission can qualify for the congestion relief and reliability transmission incentives should they otherwise meet the criteria eligible to qualify for such incentives. The NOPR properly articulates and proposes to compensate the congestion relief and reliability enhancements resulting from new transmission projects. Advanced resources such as energy storage are increasingly able to provide these same benefits to the grid, often at lower consumer cost. For example, MISO concluded through its stakeholder process that storage acting as a transmission-only asset can increase the robustness of its system and requested FERC approval of such classification in its tariff.[14] In Australia, battery developer Fluence recently proposed pairs in the Australian Energy Market Operator system that would serve as "virtual transmission," charging at one end while discharging at the other to alleviate transmission congestion.[15]

Recognition and verification of these advanced resource benefits will continue to grow among other stakeholders. This is not to suggest that FERC should award such projects over traditional transmission solutions. Rather, clarification on the eligibility of these solutions will ensure a robust competition for fulfilling the Commission's aims in a resource-neutral manner. Specific FERC direction serves to provide investment certainty, increasing the number of potential congestion-relieving and reliability-enhancing project proposals. Furthermore, the Energy Policy Act of 2005 contemplates energy storage as a type of advanced transmission technology not dissimilar from high-voltage, direct-current transmission.[16]

[14] Midcontinent Independent System Operator, Inc. Docket No. ER20-588-000. December 12, 2019. https://cdn.misoenergy.org/2019-12-12%20Docket%20No.%20ER20-588-000408995.pdf.
[15] Renew Economy. "Giant twin batteries proposed to boost links between two biggest energy markets." June 2, 2020. https://reneweconomy.com.au/giant-twin-batteries-proposed-to-boost-links-between-two-biggest-energy-markets-65208/.
[16] Energy Policy Act of 2005, Pub. L. No. 109-58, Stat. 954.

G. The Commission Should Focus Reforms on Projects That Would Satisfy Public Policy Needs

FERC should consider public policy aims when evaluating any of its transmission policies. FERC recognizes in the NOPR the nation's rapidly changing resource mix. This wholesale turnover of the nation's generation fleet will not stop changing in the near term, nor will it continue on a merely linear path. Public policy mandates, such as the growing number of states with high-penetration renewable energy standards, will continue to accelerate changes in the resource mix.

Previously, economics and technology were the primary determinants of resource type and placement. Developers could estimate the future, but not know it. Today, developers are blessed with the relative certainty of proliferating public policy mandates. As FERC works to ensure continued electric reliability, it should similarly take these stated public policy aims into account. Or looked at the other way, it would be poor transmission planning to ignore the needs being put on the system. Transmission projects proposed with the purpose of accommodating new resources that will be built in compliance with public policy mandates should be supported to ensure the grid's careful balance.[17] Commissioner Glick noted this nexus in his opinion on the NOPR by stating: "[B]ringing those resources online without the necessary transmission

[17] Furthermore, there are large economies of scale for transmission investment, which increases the importance of coordinated and forward-looking transmission planning. For example, extra-high-voltage transmission lines can carry four times as much power per dollar of investment as lower-voltage transmission lines. High-voltage transmission lines also have significantly lower power losses. Additionally, initial transmission investments reduce the cost and increase the benefits of subsequent investments. For example, new high-voltage transmission lines require the installation of high-voltage substations. Additional lines can use those substations, reducing the cost of investments at a later date. The same effect is seen when a third, roughly parallel transmission path is added to two existing lines. With two lines, contingency reserve requirements limit utilization to the capacity of a single line. One line must be held in reserve to ensure that reliability can be maintained if the other line fails. In this example, a third line would effectively increase transmission capacity by 100% for only a 50% increase in transmission cost. See *Grid Vision: The Electric Highway to a 21st Century Economy.* American Wind Energy Association. May 2019. https://www.awea.org/Awea/media/Resources/Publications%20and%20Reports/White%20Papers/Grid-Vision-The-Electric-Highway-to-a-21st-Century-Economy.pdf.

infrastructure may lead to reliability issues, especially insofar as the lack of adequate transmission facilities forces what should really be done through transmission planning into the generation interconnection process."[18]

III. Comments on Augmenting Transmission Incentive Reform Goals with Transmission Planning Reform to More Effectively Promote New Transmission

If the goal of the Commission's transmission incentive reform proceeding is a more modern, resilient, and cost-effective bulk power system, then broader transmission planning reforms will be necessary. Improvements to the Commission's planning and cost allocation processes would allow the development of new long-distance transmission lines to match sources of electric generation with regions of demand. The Commission should also work within its authority and with companion federal and state agencies to reduce barriers to transmission siting. Much as freight needs highways and rail, American energy needs transmission lines to reach markets. Transmission lines can be better realized through streamlined siting processes.

A. Encourage Use of Network Optimization Methods and Advanced Technologies in the Order No. 1000 Planning Process for More Efficient Grid Development

FERC should encourage use of network optimization methods and use of advanced technologies in the Order No. 1000 planning processes. Despite its broad goals, large regional and interregional transmission lines have been few and far between since Order No. 1000 came into effect. As with the grid modernization and optimization benefits realized from incentive

[18] Comm. Glick Partial Dissent on *Notice of Proposed Rulemaking on Electric Transmission Incentives Policy Under Section 219 of the Federal Power Act*, 170 FERC ¶ 61,204 (2020) P 6.

reform, a refined planning process that incorporates modern approaches to grid development will lead to greater transmission capacity at lower cost.

B. Allocate Costs in a Wider and More Standard Way to Promote Interregional Grid Expansion

To promote interregional grid expansion, including across seams, tariffs should be revised to allow RTOs to utilize broader areas to allocate costs more widely. This revision would better spread costs to all who benefit. Regulatory review should consider all benefits, including connecting new generation. Reviews that consider all benefits will allow for broader regional cost allocation than "economic projects" with narrower 80/20 cost allocation metrics that often stall, and "public policy" projects for which costs are typically assigned to the requesting state.

FERC should establish cost-allocation policies that recognize the full regional benefits of significant interregional transmission, including effects on delivered energy costs. The Commission should allocate the requisite portion of those costs that reflect regional benefits to all customers in the region, regardless of their utility's or their own contractual status with the new project.

C. Enable Transmission Owners to Increase the Transfer Capability Between RTOs

FERC should enable transmission owners investing in existing transmission infrastructure and grid optimization to increase the transfer capability between RTOs, reducing financial disincentives to schedule power across RTO seams. Real and artificial barriers, such as RTO seams, can deter the flow of electricity from one RTO to another. This result produces inefficient energy and capacity price formation that affects potential flows of electricity from

high-resource areas, such as in the Midwest, to high-demand areas, such as in the East. Currently, excess renewable power is trapped within some RTO boundaries, failing to reach customers that desire more renewable energy in their power supply portfolios.

The Commission should standardize planning processes across regional boundaries as a first step to enable further interregional transfer capability. FERC should require RTOs and smaller Order No. 1000 planning regions to harmonize their differing methods and criteria for project approval. Currently, projects are subject to the so-called "triple hurdle" problem. Under the existing framework, they must clear unique planning processes in each region they propose to enter, as well as an additional combined test. Standardization, or at least harmonization to reduce the hurdles to one or two, would prevent the rejection of potential projects that are unable to either navigate the complexity of divergent processes, or are unable to structure themselves for approval through competing processes.

Respectfully Submitted,

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