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TRANSMISSION REFORM STRATEGY FROM A CUSTOMER PERSPECTIVE: OPTIMIZING NET BENEFITS AND PROCEDURAL VEHICLES

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INTRODUCTION

Cost-efficient electric transmission planning, development and operations are vital for grid reliability and economic development. Investor-owned utilities (IOUs) have access to ample capital and spend about $20-25 billion per year on transmission in the United States.[1] However, billions of dollars are misallocated annually, which erodes net benefits to consumers and suppresses the development of cleaner and lower-cost energy generation.[2] The problem rests squarely on a regulatory system that is outdated and structurally flawed.

Investor-owned transmission utilities operate under cost-of-service regulation. Doing so provides IOUs assurances of investment cost recovery and above-market equity returns paid for by captive customers under rules established by the Federal Energy Regulatory Commission (FERC). This regulatory model creates a financial incentive to increase capital expenditures excessively, which places the interests of utilities at odds with the goal of serving their captive customers in the most cost-effective and reliable manner. The bias in favor of inflated capital investment has long been known as the "Averch-Johnson effect."[3]

Regulatory mechanisms achieve economic discipline either by facilitating robust competition or through strict cost-of-service oversight. FERC transmission regulation hardly does either, instead layering an incomplete competitive framework over an incomplete cost-of-service structure. This lets incumbent utilities control planning terms and avoid competitive solicitation requirements by exploiting exemptions. FERC grants utilities a presumption of prudence in order

1. See, e.g., Johannes Pfeifenberger, "21st Century Transmission Planning: Benefits Quantification and Cost Allocation," Brattle, January 2022, p. 3. https://www.brattle.com/wp-content/uploads/2022/01/21st-Century-Transmission-Planning-Benefits-Quantification-and-Cost-Allocation.pdf.

2. See, e.g., Toshiki Tsuchida et al., "Grid-Enhancing Technologies Shown to Double Regional Renewable Energy Capacity, According to Study by Brattle Consultants," Brattle, Feb. 1, 2021. https://www.brattle.com/insights-events/publications/grid-enhancing-technologies-shown-to-double-regional-renewable-energy-capacity-according-to-study-by-brattle-consultants.

3. H.A. Averch, and L.L. Johnson, "Behavior of the firm under regulatory constraint," *American Economic Review* 52:5 (1962), pp. 1052–1069. https://www.jstor.org/stable/1812181.

to make the agency's case load more manageable, and cost recovery is rarely denied on prudence grounds.[4]

The flawed regulatory structure results in a severe lack of economic discipline, evidenced by incumbent utilities overspending on less efficient transmission projects while underinvesting in newer, more efficient technologies.[5] For example, utilities flock to local reliability upgrades that they can unilaterally implement with little regulatory oversight.[6] This often comes at the expense of transmission projects that could bring lower-cost resources from outside a utility's footprint or that improve the efficiency of the existing system at a fraction of the cost of traditional projects.

The incentive problem is particularly acute with utilities that own both generation and transmission because they can advantage their own power plants and raise power prices by underbuilding transmission that would enable competing generators to reach their consumers. Beyond costs, this bias toward building local power plants over upgrading or building new transmission can have disastrous reliability consequences, as illustrated recently by Hurricane Ida. Entergy New Orleans obstructed transmission that could import more power from other utilities and instead only offered its regulators a power plant to ensure reliability in its footprint.[7] During Hurricane Ida, all of New Orleans' neglected transmission lines failed, and the power plant took days to come back online.[8]

Fixing regulatory defects is technically complex, time-consuming and fraught with the risk of rare but cascading outages that could be career ending for public officials and reliability entities. There will always be information asymmetry in favor of utilities, and thus most regulators and stakeholders are ill-equipped to hold them accountable. Opposing the utilities can be resource intensive and, in the extreme, can cost decisionmakers political reappointments.

Nevertheless, a rare opportunity to remedy regulatory flaws has emerged. After years of experience and building records on the shortcomings of its transmission policies, FERC recently opened multiple transmission reform proceedings. If done well, reforms could yield tens to hundreds of billions in customer savings and avoid billions of metric tons of emissions.[9]

The most important voices to consider in seizing this opportunity are those the transmission consumers bearing the costs of the structural problems. However, consumer voices are underappreciated given their dispersion and given the resource constraints relative to incumbent utilities. Consumer groups have various goals, but all have a core focus on cost-effective, reliable service. Understanding unified consumer views and proactively developing an overall vision and strategy for transmission reforms could improve the quality of reforms.

In an effort to help collect and amplify consumer perspectives, the R Street Institute (RSI) hosted a Chatham House discussion with representatives for consumers across the residential, commercial and industrial sectors. Additional analysis in this paper supplements these views by prioritizing reforms that could yield the largest net benefits for customers given administrative and political realities. The Chatham House discussion process identified four transmission reforms that are priorities from a customer perspective: improved planning, optimized existing infrastructure, effective competition and quality governance. The intent is for this insight to help inform FERC stakeholders and constructively influence FERC's agenda; it is represented visually in Figure 1.

FIGURE I: TRANSMISSION REFORM SYNERGIES

Source: Graphic based on Chatham House discussion hosted by RSI.

CUSTOMER PRIORITIES

The consumer discussion hosted under Chatham House rules was not intended to build a consensus or cover all relevant topics but to prioritize topics on live issues in open FERC dockets regarding transmission as well as some ideas

4. See, e.g., Ari Peskoe, "Is the utility transmission syndicate forever?" *Energy Law Journal* 42:1 (2021), pp. 1-66. https://www.eba-net.org/assets/1/6/5_-_%5bPeskoe%5d%5b1-66%5d.pdf.

5. Devin Hartman, "Post-Workshop Comments on Grid-Enhancing Technologies," R Street Institute, Feb. 14, 2020, pp. 1-3. https://www.rstreet.org/wp-content/uploads/2020/02/FINAL-Hartman-GETs_Post-Workshop_Comments.pdf.

6. Devin Hartman, "Enabling New Transmission Entrants: Unleashing Bottom-up Grid Reliability Improvements," R Street Institute, March 3, 2021. https://www.rstreet.org/2021/03/03/enabling-new-transmission-entrants-unleashing-bottom-up-grid-reliability-improvements.

7. Jon Schuppe, "Hurricane Ida power grid failure forces a reckoning over Entergy's monopoly in the South," NBC News, Sept. 24, 2021. https://www.nbcnews.com/news/us-news/hurricane-ida-power-grid-failure-forces-reckoning-over-entergy-s-n1279971.

8. Max Blau et al., "Entergy Resisted Upgrading New Orleans' Power Grid. Residents Paid The Price," NPR, Sept. 22, 2021. https://www.npr.org/2021/09/22/1039110522/entergy-resisted-upgrading-new-orleans-power-grid-residents-paid-the-price.

9. Christopher T.M. Clack et al., "Consumer, Employment, and Environmental Benefits of Electricity Transmission Expansion in the Eastern U.S.," Americans for a Clean Energy Grid, October 2020, pp. 4-5. https://www.vibrantcleanenergy.com/wp-content/uploads/2020/10/EIC-Transmission-Decarb.pdf.

beyond pending proceedings. At a high level, these topics included bettering future investments through improved planning; optimizing use of the existing system; leveraging competition to improve efficiency; and improving governance and transparency.

A common view among customer representatives was that the portfolio of transmission projects and upgrades being built were not the ones that provide the greatest efficiency gains, and this situation could be improved via better planning and revisiting exemptions from competition that enable incumbents to bypass means of prioritizing projects with higher net benefits for customers. Exemptions from regional planning for "supplemental" projects or local reliability upgrades have allowed incumbent utilities to channel billions per year into projects they can be sure to rate-base to eliminate the risk of being outbid by competitors.

Another problem with the competitive planning carve-out for local projects is that transmission-owning utilities may not sufficiently invest to serve non-native customers, such as transmission-dependent utilities (TDUs). This creates a "Swiss cheese" problem in which transmission-owning utilities (TOs) selectively upgrade for loads they serve and build around TDUs.[10] Joint transmission ownership with TDUs could help ensure that TDU customers are cost-effectively served and could also facilitate timely siting for needed transmission.

Rights of first refusal (ROFR) granted to incumbent transmission owners also limit competition. Allocating costs of projects qualifying for a state's ROFR across state lines can result in other states' customers paying higher prices for transmission compared to what they would bear were the projects competitively solicited. Thus, one state's protectionist ROFR policies can result in interstate harm.

Other areas of agreement during the Chatham House discussion included the notion that projects that do not go through a full regulatory planning and approval process or that result from a transmission owner's exercise of an ROFR should not receive any Federal Power Act (FPA) Section 219 return on equity incentive points, which are bonus points in addition to how much a utility can normally earn from making capital investments.[11] These bonus adders are intended to incentivize utilities to take on investments or perform beneficial actions that it would otherwise not take or implement.

10. Devin Hartman and Beth Garza, "Plenty of low-hanging fruit: How FERC can catalyze transmission infrastructure," Utility Dive, April 9, 2021. https://www.utilitydive.com/news/plenty-of-low-hanging-fruit-how-ferc-can-catalyze-transmission-infrastruct/598088.

11. Energy Policy Act of 2005, Pub. L. No. 109-58, § 1241, 119 Stat. 594, 961, adding FPA § 219. https://www.law.cornell.edu/uscode/text/16/824s.

If FERC does not sufficiently remedy these planning and competitive exemption issues through a rulemaking, there is the possibility of more stringent case-by-case review. However, discussants felt under-resourced to engage in these reviews. Under the FPA, the burden is on public utility transmission owners to show that their rate increases are just and reasonable. But in order to make cases manageable, FERC has given utilities the presumption that their expenditures are prudent unless another party casts serious doubt. This has made it more burdensome for customers to engage in adversarial rate case proceedings. Further discouraging customers are the complexity of formula rate cases and the fact that FERC has historically not denied cost recovery on prudence grounds. Some discussants suggested that if FERC were to remove the presumption of prudence, that would at least put the onus on utilities to come forth with the information necessary to demonstrate their case.

Discussants were all interested in making better use of the existing system, which includes better integrating grid-enhancing technologies (GETs), non-transmission alternatives (NTAs) and advanced conductors as part of the planning process. When presented with the question of how to hold planners and operators accountable in the consideration and deployment of GETs and NTAs, one idea, discussed in more detail below, was to create and enable an independent transmission monitor to ensure such consideration and deployment.

Independent Transmission Monitor

Many of the customer groups were interested in an appropriately defined independent transmission monitor (ITM), though the groups had not yet developed internal consensus positions. Some emphasized that the transparency that a monitor can bring is necessary but insufficient to ensure accountability and that a monitor does not change TO incentives or encourage RTO incentives to align with their TO members. Many of the customer representatives thought it was worthwhile to define a set of minimum functions for ITMs. The functions could broadly include improving transparency; assisting stakeholders in evaluating plans; running alternative scenarios; investigating alternative solutions, such as GETs, NTAs and advanced conductors; and evaluating supplemental and local upgrades. ITMs could help evaluate whether projects planned on a broader scale could provide greater net benefits or if they would eliminate the need for proposed local projects.

Customer groups were interested in an independent entity that could better hold non-RTO planning regions accountable and mitigate the incentives for TOs to leave RTOs. Discussants highlighted some deficiencies in non-RTO planning, in which investor-owned utilities do not disclose their own plans and where the criteria for selecting a regional project are insurmountable as implemented. An ITM may need additional functions in non-RTO regions beyond what it would do in RTO regions. Customers suggested that FERC could specify a set of minimum functions for ITMs in all regions and give regional planners the opportunity to show that they meet those minimum functions in other ways. FERC may need to provide metrics and examples to illustrate what would be sufficient in terms of independence, transparency and accountability.

In a separate effort, 72 consumer organizations formed the Electricity Transmission Competition Coalition to specifically target the extensive exceptions to the Order 1000 competitive processes for incumbent transmission owners.[12] Exceptions include allowing for technical carve-outs and permitting states to adopt ROFR laws to protect their incumbent transmission owners' interests.

State utility regulators and numerous consumer advocates from California to the Northeast also support better competition, with many asking FERC to reject a federal ROFR suggested by utilities.[13] The National Association of Regulatory Utility Commissioners asked FERC to encourage transmission competition, and Kentucky Public Service Commission Chairman Kent Chandler has emphasized the need for "Fewer ROFRs. More Competition."[14]

FERC ADMINISTRATIVE OPTIONS

FERC reform options include FERC-initiated rulemakings and investigations or FERC acting on stakeholder-initiated complaints. These require showing that existing practices are not "just and reasonable" or unduly discriminatory under FPA Section 206.[15] For evidence, a theoretical threat of unjust and unreasonable rates for transmission service based on economic theory, prior Commission proceedings and a record of comments from experts has sufficed in judicial review.[16] However, because FERC and challenging parties carry the burden of proof under Section 206, these reforms can have relatively high administrative costs. FERC does not initiate many rulemakings per year, and Section 206 complaints appear to have a low success rate.[17]

FERC reforms range in their benefits and impact, administrative costs, stakeholder regulatory engagement, litigation costs, regulatory lead-time and chances of success. For example, a nationwide solution may be administratively costlier for FERC, but leaving more issues open for regional flexibility or fact-specific considerations shifts additional burden onto customers and other parties with fewer resources to monitor multiple proceedings and litigate individual cases. Further, delaying difficult decisions can prolong regulatory uncertainty, particularly as FERC's commissioner composition changes over time.

This paper examines the challenges, potential solutions and benefits of reform for each of the four customer priorities. However, these issues all have cross-cutting components, and reforms done in conjunction benefit from substantive, technical and FERC procedural synergies.

BETTER TRANSMISSION INVESTMENTS THROUGH IMPROVED PLANNING

There are numerous studies estimating the benefits of better planning, including billions of dollars in savings, improved reliability and reduced emissions. For example, a report prepared for FERC summarizes retrospective analyses of the Midcontinent Independent System Operator's (MISO's) Multi-Value Project Portfolio, yielding benefit-to-cost ratios of 1.5 to 2.6 ($22-75 billion in benefits, $5.6-6.7 billion in costs) and Southwest Power Pool's Integrated Transmission Planning Portfolio, yielding a benefit-to-cost ratio of 2.45 ($17.6 billion in benefits, $7.2 billion in costs).[18] Prospective estimates of interregional lines yield results of benefit-to-cost ratios that reach as high as 2.5.[19]

Currently, the system is not set up to realize these benefits. Customers collectively emphasized that planning needs

12. "Comments of The Electricity Transmission Competition Coalition, Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection," Federal Energy Regulatory Commission, Docket No. RM21-17-000, Oct. 12, 2021, pp. 13-20. https://www.ieca-us.com/wp-content/uploads/ETCC-ANOPR-Comments-Filed.pdf.

13. Ethan Howland, "8 states, DC urge FERC to reject EEI, Eversource call to drop competition for transmission projects," Utility Dive, Nov. 29, 2021. https://www.utilitydive.com/news/state-utility-regulators-ferc-competition-rofr-transmission/610608.

14. "Motion to Intervene and Comments of The National Association Of Regulatory Utility Commissioners, Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection," Federal Energy Regulatory Commission, Docket No. RM21-17-000, Oct. 12, 2021, pp. 55-58. https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20211012-5536; "Reply Comments of Kentucky Public Service Commission Chairman and Commissioner Kent A. Chandler, Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection," Docket No. RM21-17-000, Dec. 1, 2021, p. 3. https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20211201-5009.

15. Environmental Law Program, "FPA Statutory Supplement Contents," Harvard Law School, Sept. 2015, p. 2. https://statepowerproject.files.wordpress.com/2015/09/fpa-supplement.pdf.

16. "DC Circuit Denies Order No. 1000 Appeals, Upholds FERC's Vision for Transmission Planning and Cost Allocation," Van Ness Feldman LLP, Aug. 18, 2014. https://www.vnf.com/3136.

17. Peskoe. https://www.eba-net.org/assets/1/6/5_-_%5bPeskoe%5d%5b1-66%5d.pdf.

18. Pfeifenberger. https://www.brattle.com/wp-content/uploads/2022/01/21st-Century-Transmission-Planning-Benefits-Quantification-and-Cost-Allocation.pdf; "Midcontinent Independent System Operator," MTEP17 Multi-Value Project Triennial Review, September 2017, p. 23. https://cdn.misoenergy.org/MTEP17%20MVP%20Triennial%20Review%20Report117065.pdf; "Regional Cost Allocation Review," Southwest Power Pool, July 11, 2016, p. 5. https://www.spp.org/documents/46235/rcar%202%20report%20final.pdf.

19. Aaron Bloom et al., "The Value of Increased HVDC Capacity Between Eastern and Western U.S. Grids: The Interconnections Seam Study," *IEEE Transactions on Power Systems* 37:3 (Sept. 27, 2021), pp. 1760-1769. https://ieeexplore.ieee.org/document/9548789.

to ensure that the most efficient projects are built across regions, including longer regional and interregional lines, but with particular emphasis on non-RTO regions. Cost-of-service utilities will not seek to build the transmission projects that result in greater efficiency in the absence of competition from non-incumbent developers, such as projects that are exempted from the Order 1000 competitive planning process. The level of transmission project benefits depends on how well they are planned and what benefits are considered. Regional "planning" in non-RTO regions that combine utility plans without evaluating basic adjusted production cost benefits of alternate proposals, much less the many other benefits that transmission can provide, will underestimate the value of regional transmission.[20] Outside of RTOs, the lack of independent and transparent regional planning has enabled entrenched monopolies to maintain their position against those who could do the same or a better job at lower costs.[21]

FERC's advance notice of proposed rulemaking (ANOPR) covers planning, cost allocation and generator interconnection.[22] The rulemakings that will stem from the ANOPR and related technical conferences are key vehicles for much-needed nationwide reform.[23] FERC's most recent action on this record was to announce a Notice of Proposed Rulemaking (NOPR), which includes a provision to propose a requirement for transmission providers to "conduct long-term regional transmission planning on a sufficiently forward-looking basis to meet transmission needs driven by changes in the resource mix and demand."[24]

Many of the solutions discussed throughout the ANOPR comments are critical, including conducting more thorough and accurate accounting of benefits and costs; requiring interregional planning and not simply coordination; anticipating changes to the resource mix and proactively planning; and eliminating means for which IOUs can continue to avoid the planning or building of more efficient regional and interregional solutions. These reforms would benefit from improved competition, oversight and inclusive planning, discussed further below. However, a number of reforms that could amplify these benefits are still missing.

Broader Geographic Scale

Order 1000 requires interregional coordination between neighboring pairs of Order 1000 Planning Regions. However, existing planning reforms consider transforming the interregional coordination to an interregional planning requirement and do not include interconnection-wide or nationwide planning. Thus, the proposed rule may not sufficiently expand the scope of planning regions to capture some of the most efficient solutions.

Independent Transmission Planners in All Regions and Plan Accountability

Without an independent entity that oversees or conducts the broader planning, certain reforms may not result in interregional plans that differ from rolled-up regional plans. Even if regional plans are made, some utilities may not build their part of the plan in a timely way, particularly if they have incentives to underbuild transmission. Independent analysis and planning across regions are key to a solution. A potential avenue is through the U.S. Department of Energy's (DOE) Building a Better Grid Initiative, in which DOE will engage states and stakeholders in a nationwide planning study.[25] The DOE could conduct nationwide transmission planning and solicit competitive bidding from transmission developers. If needed, the DOE could petition FERC, perhaps through initiating a rulemaking under Section 403 of the DOE Act to recognize the DOE's transmission plan as one that can qualify for Order 1000 cost allocation.[26] Then, public utilities subject to FERC jurisdiction winning the bids can file their rates with FERC to recover costs and earn a return under FPA Section 205.

Additional FERC Tools to Shepherd Utilities into Better Planning Practices

Section 205 requires that rates are "just and reasonable," and projects that have not satisfied certain criteria indicative of good planning arguably may not meet this mandate. FERC may deny utility 205 filings and use FPA Section 206 to enforce planning requirements, including initiating an investigation into whether a utility's planning processes

20. Pfeifenberger. https://www.brattle.com/wp-content/uploads/2022/01/21st-Century-Transmission-Planning-Benefits-Quantification-and-Cost-Allocation.pdf; Joseph H. Eto and Giulia Gallo, "Regional Transmission Planning: A review of practices following FERC Order Nos. 890 and 1000," November 2017, p. 20. https://eta-publications.lbl.gov/sites/default/files/lbnl_2001079_final_102519.pdf.

21. Zach Hale and Ellie Potter, "FERC hears support for proactive transmission planning, with caveats," S&P Global Market Intelligence, Oct. 13, 2021. https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/ferc-hears-support-for-proactive-transmission-planning-with-caveats-67054658.

22. "Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection," Advance Notice of Proposed Rulemaking, Federal Energy Regulatory Commission Docket No. RM21-17-000, July 27, 2021. https://www.federalregister.gov/documents/2021/07/27/2021-15512/building-for-the-future-through-electric-regional-transmission-planning-and-cost-allocation-and.

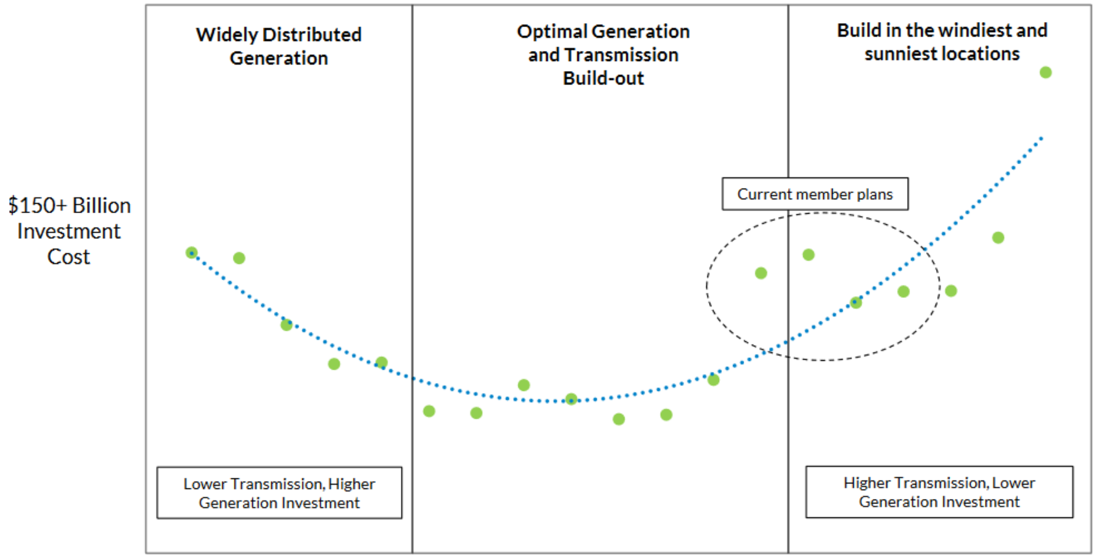
23. "Technical Conference on Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection," Docket No. RM21-17-000, last accessed April 11, 2022. https://www.ferc.gov/news-events/events/technical-conference-building-future-through-electric-regional-transmission.

24. "Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection," Notice of Proposed Rulemaking, Federal Energy Regulatory Commission Docket No. RM21-17-000, April 21, 2022, p. 1. https://elibrary.ferc.gov/eLibrary/filelist?accession_num=20220421-3090.

25. Office of Electricity, "Building a Better Grid Initiative," U.S. Department of Energy, last accessed March 31, 2022. https://www.energy.gov/oe/building-better-grid-initiative.

26. 42 US Code § 7173, "Initiation of rulemaking procedures before Commission," Legal Information Institute, last accessed April 11, 2022. https://www.law.cornell.edu/uscode/text/42/7173.

FIGURE 2: TOTAL COSTS MINIMIZED BY GENERATION AND TRANSMISSION CO-OPTIMIZATION



Source: Image reproduced with permission from Midcontinent Independent System Operator (MISO), "Long Range Transmission Planning - Preparing for the Evolving Future Grid," MISO Planning Advisory Committee, Aug. 12, 2020, p. 7. https://cdn.misoenergy.org/20200812%20PAC%20Item%2003c%20Long%20Range%20Transmission%20Planning%20Presentation465531.pdf.

pose a threat to just and reasonable rates.[27] Further, instead of FERC's current practice of presuming that all utility expenditures are prudent unless a challenger raises a serious doubt, FERC may require that utilities justify all of their costs as prudent upfront in order to demonstrate the reasonableness of their rates, as required by the FPA. Utilities could earn a presumption of prudence if their projects go through an Order 1000 competitive planning process and if they can show that they have satisfied a checklist of alternatives.[28] To do otherwise burdens customers who are already disadvantaged by information asymmetry and have fewer resources to pursue multiple cases. States have also noted that utility rate filings are "resource intensive and requir[e] specialized rate expertise . . . [and] any organization representing consumer interests would reasonably question whether it has missed asking important questions."[29] Part of the prudence demonstration could include a showing that the utility has considered alternative solutions, such as GETs, NTAs, regional solutions, etc., and had a reason backed by analysis to reject them.[30]

27. 16 U.S.C. § 824e (2012); "Order to show cause re Monongahela Power Company," Federal Energy Regulatory Commission, Docket No. EL16-71, Aug. 26, 2016, p. 1. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01E2EB33-66E2-5005-8110-C31FAFC91712.

28. "Comments of The Electricity Transmission Competition Coalition, Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection," Federal Energy Regulatory Commission, Docket No. RM21-17-000, Oct. 12, 2021, pp. 13-20. https://www.ieca-us.com/wp-content/uploads/ETCC-ANOPR-Comments-Filed.pdf.

29. "Initial Comments of the New England States Committee on Electricity, Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection," Federal Energy Regulatory Commission, Docket No. RM21-17-000, Oct. 12, 2021. https://nescoe.com/resource-center/anopr-initial-comments.

30. Peskoe. https://www.eba-net.org/assets/1/6/5_-_%5BPeskoe%5D%5B1-66%5D.pdf.

Co-optimization of Transmission and Generation

It is widely understood that fuel- and emissions-free resources are among the lowest cost options, but additional transmission is needed to access these resources. Identifying resource-rich regions, like renewable energy zones, is an important first step. However, developing generation where renewable potential is the greatest and building further transmission out may not yield the least-cost solution overall if the additional transmission costs exceed the marginal gains of building further away from load. Instead of taking it as a given that developers will site renewable building projects where it is windiest and sunniest, it would be useful to provide information about how siting for generation and transmission could be co-optimized in relation to load. This would help state and local governments and other stakeholders understand how to minimize costs for the same benefits. RTOs are in a good position to provide this type of information.

As seen in Figure 2, MISO analysis shows that while appropriate transmission builds can help bring low-cost generation online, current practices of building transmission to far-flung renewable developments can be as costly as relying on local distributed generation and building little-to-no transmission. Better planning that considers co-optimization analysis could result in more efficient overall power system development. If shorter transmission lines are needed, that may also mitigate some siting disputes.

OPTIMIZING EXISTING INFRASTRUCTURE WITH EFFICIENT TECHNOLOGIES

Customers across all sectors were in strong agreement that technologies and operational changes that can help optimize the existing system need to be incorporated in planning, operational and other relevant processes.[31] These technologies fall into three broad categories.

- Non-transmission Alternatives (NTAs) or Non-Wires Solutions
  NTAs include storage, demand response, energy efficiency and distributed energy resources and can reduce usage—particularly during peak times. These technologies typically have uses other than providing transmission services and need access to different revenue streams. Dispatchable resources could be used as a means of indirectly altering power flow.

- Grid-Enhancing Technologies (GETs)
  GETs often include technologies that can be layered onto existing transmission systems to better account for grid and ambient conditions and enable operational changes to improve the efficiency of the existing system. Examples are dynamic line ratings (DLR) that inform operators when more capacity is available on the wires based on weather conditions, topology optimization software and power flow control devices. The latter, along with judicious dispatch of NTAs or operating switches to open and close lines, could act on information from topology optimization as well as DLR. Studies have estimated potential GETs benefits, and they significantly exceed costs. Pennsylvania-New Jersey-Maryland Interconnection (PJM) studied a hypothetical DLR installation on one of its most congested lines and found system congestion payments would decrease by more than $4 million and provide a two-month payback of the estimated $500,000 installation cost.[32] This translates to a benefit-to-cost ratio of about eight. A study for Southwest Power Pool suggests that spending about $90 million to implement GETs could yield annual savings of about $175 million, for a benefit-to-cost ratio of nearly two.[33] Another estimate indicates that PJM could realize more than $245 million per year in real-time and day-ahead market savings for the costs of implementing topology-optimization software.[34]

- Right of Ways (ROWs)
  Advanced transmission technologies that efficiently expand capacity on existing ROWs have not seen as much attention as GETs, but should, given how difficult new ROWs are to obtain. Many of these technologies can be combined and include reconductoring with higher capacity; lower line-loss wires; and installing a flexible alternating current transmission system (FACTS) to increase the power flow on lines; and/or conversion to HVDC, which could transmit up to 3.5 times more power.[35] Converting to new tower configurations coupled with low-impedance bundled conductors can reduce line losses and significantly increase power delivery capability along existing ROWs.[36] Overall, the design can increase line capacity by 50 percent. Furthermore, composite-core conductors can lower line losses by 25 to 40 percent compared to traditional cables.[37] Finally, increasing operating voltage or number of circuits on an existing line, while not a technology, should also be considered in planning.[38]

The problem is that cost-of-service utilities do not have much incentive to improve the efficiency of their systems but do have a financial incentive to build up to what their regulators allow. Thus, the status quo regulatory structure presents a severe disincentive to adopt more efficient technologies that can mitigate higher-capital-cost projects.[39] Potential solutions could include the following.

Efficiency

Efficiency must be factored into planning, which needs to optimize the system with available technology and infrastructure. But improved planning alone is an incomplete solution. Competitive, "solutions-based" solicitations pressure utilities to use all the tools at their disposal to meet

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31. See, e.g., "Advanced Transmission Technologies," U.S. Department of Energy, December 2020. https://www.energy.gov/sites/prod/files/2021/02/f82/Advanced%20Transmission%20Technologies%20Report%20-%20final%20as%20of%2012.3%20-%20FOR%20PUBLIC.pdf.

32. "The Benefits Of The PJM Transmission System," PJM, April 16, 2019, p. 63. https://www.pjm.com/-/media/library/reports-notices/special-reports/2019/the-benefits-of-the-pjm-transmission-system.pdf.

33. T. Bruce Tsuchida et al., "Unlocking the Queue with Grid Enhancing Technologies," Brattle, Feb. 1, 2021, p. 10. https://watt-transmission.org/wp-content/uploads/2021/02/Brattle__Unlocking-the-Queue-with-Grid-Enhancing-Technologies__Final-Report_Public-Version.pdf90.pdf.

34. Pablo A. Ruiz and Xiaoguang Li, "Transmission Topology Optimization to Efficiently Mitigate Congestion & Overloads: Case Studies and a Path Toward Implementation," Federal Energy Regulatory Commission, Docket No. AD10-12-012, June 23, 2021, p. 8. https://www.ferc.gov/media/w1-ruiz.

35. See, e.g., "Conductor efficiency can dramatically reduce CO2 emissions," CTC Global, last accessed April 11, 2022. https://www.ctcglobal.com/efficiency; "Advanced Transmission Technologies," pp. 26-27. https://www.energy.gov/sites/prod/files/2021/02/f82/Advanced%20Transmission%20Technologies%20Report%20-%20final%20as%20of%2012.3%20-%20FOR%20PUBLIC.pdf; Liza Reed et al., "Expanding Transmission Capacity: Examples of Regulatory Paths for Five Alternative Strategies," *The Electricity Journal* 33:6 (July 2020). https://doi.org/10.1016/j.tej.2020.106770.

36. "AEP's bold new approach to overhead line design," Modern Power Systems, March 23, 2016, https://www.modernpowersystems.com/features/featureaeps-new-approach-to-overhead-line-design-4847288.

37. "The Benefits Of The PJM Transmission System," pp. 61-62. https://www.pjm.com/-/media/library/reports-notices/special-reports/2019/the-benefits-of-the-pjm-transmission-system.pdf.

38. Jay Holman, "Increasing Transmission Capacity," Wind Systems, Jan. 10, 2011. https://www.windsystemsmag.com/increasing-transmission-capacity.

39. Devin Hartman, "R Street Comments on Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection before the Federal Energy Regulatory Commission," R Street Institute, Oct. 12, 2021. https://www.rstreet.org/2021/10/12/r-street-comments-on-electric-regional-transmission-planning-and-cost-allocation-and-generator-interconnection-before-the-federal-energy-regulatory-commission.

transmission needs at least-cost and to potentially innovate in order to submit a winning proposed plan.[40]

Transparency

Transparency and information sharing would facilitate efficient proposal design through more inclusive planning by allowing GETs/NTA providers and other stakeholders to provide input on how these technologies and resources could help produce a less expensive solution. These stakeholders will likely need data, information and modeling assistance to effectively participate in planning.

Performance

Performance-based rates (PBR) are an alternative to the problematic cost-of-service model that enables the utility to retain its monopoly. Compensation under PBR is based on the utility meeting performance metrics instead of increasing capital expenditures. Despite congressional and FERC interest, progress has been incremental and slow. FERC first considered PBR in Order 2000 (1999).[41] The Energy Policy Act of 2005 directed that 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 benefiting consumers by ensuring reliability and reducing the cost of delivered power by reducing transmission congestion."[42] In response, FERC issued Order 679 offering additional incentives on top of base rates and is currently revisiting its incentives policy in FERC Docket No. RM20-10.[43]

Accuracy

FERC recently finalized a line-rating rule, Order 881, requiring all transmission providers to use ambient-adjusted ratings to increase the accuracy of near-term line ratings.[44] This is a good step forward, albeit incremental, as ambient-adjusted ratings are the lowest common denominator. Order 881 does not mandate dynamic line ratings (DLR) adoption but requires that RTOs establish and maintain systems and procedures necessary to allow transmission owners to voluntarily use DLR. A separate notice of inquiry builds on the record for further action on DLR.[45] DLR could be established broadly but with an opt-out in circumstances where utilities can explain why using DLR would not be appropriate or cost effective.

Additional solutions that have not received as much attention but would help are described below.

Operational Changes

Operational changes will be needed for some of these technologies to be effective, but these may not be part of a FERC tariff under current practice. Given how they can impact rates, FERC may consider incorporating best "good-utility" practices into tariffs. More generally, maximizing use of existing transmission will also require market rule changes; for example, interregional transmission is not being fully used due to inefficient charges levied on imported or exported power and inaccurate short-term price forecasting.[46] An independent transmission monitor could identify chronically congested corridors and model how GETs and NTAs could cost effectively alleviate congestion.

Cost-Based Compensation

Cost-based compensation should be implemented for NTAs to provide transmission service. Energy efficiency, demand response and other NTAs may not be eligible for cost-based compensation for transmission service even if they reduce the need for transmission as non-transmission alternatives. Discussions about storage providing transmission service are gaining ground unevenly across the RTOs.[47] FERC has a policy statement providing guidance on the ability of electric storage resources to provide both transmission and market services and seek to recover their costs through both cost-based and market-based rates concurrently.[48] While a policy statement is less administratively costly, it has a softer effect than a rule and requires near unanimous commissioner support to be effective. Following on the heels of Order 745, Orders 841 and 2222 govern how these resources can participate and be compensated for market-based services. FERC could take an additional step and address how these resourc-

40. Pfeifenberger et al., "Cost Savings Offered by Competition in Electric Transmission: Experience to Date and the Potential for Additional Customer Value," Brattle, April 2019, p. 11. https://www.brattle.com/wp-content/uploads/2021/05/16726_cost_savings_offered_by_competition_in_electric_transmission.pdf.

41. "Order No. 2000: Regional Transmission Organizations," Federal Energy Regulatory Commission, Docket No. RM99-2-000, Dec. 20, 1999, p. 7. https://www.ferc.gov/sites/default/files/2020-06/RM99-2-00K_1.pdf.

42. Energy Policy Act of 2005. https://www.law.cornell.edu/uscode/text/16/824s.

43. Order No. 679, Promoting Transmission Investment through Pricing Reform, 71 Fed. Reg. 43,294 (2006). https://www.ferc.gov/whats-new/comm-meet/072006/E-3.pdf.

44. "Order No. 881, Managing Transmission Line Ratings," Federal Energy Regulatory Commission, Jan. 21, 2021. https://www.federalregister.gov/documents/2021/01/21/2020-26107/managing-transmission-line-ratings.

45. "Notice of Inquiry, Implementation of Dynamic Line Ratings," Federal Energy Regulatory Commission, Docket No. AD22-5-000, Feb. 17, 2022. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=680bb3ae-b80b-c303-9733-7f0915d00000.

46. Travis Kavulla, "Efficient Solutions for Issues in Electricity Seams," R Street Institute Policy Study No. 172, April 2019. https://www.rstreet.org/2019/04/30/efficient-solutions-for-issues-in-electricity-seams.

47. Sharon Thomas, "Storage As a Transmission Asset is Gaining Traction in Many RTOs/ISOs," Energy Storage Association, Dec. 15, 2020. https://energystorage.org/storage-as-a-transmission-alternative-is-gaining-traction-in-many-rtos-isos.

48. "Utilization of Electric Storage Resources for Multiple Services When Receiving Cost-Based Rate Recovery", Federal Energy Regulatory Commission, Docket No. PL17-2-000, Jan. 19, 2017. https://www.ferc.gov/sites/default/files/2020-04/E-2_34.pdf.

es may value stack and be compensated for cost-based transmission service in addition to earning market-based rates.

Inefficiency Identification

Improving the efficiency of the U.S. grid has been incremental and piecemeal because utility business model incentives often work against efficiency. Further, utilities themselves have better information about how to improve the efficiency of their own systems compared to regulators and stakeholders. Stakeholders are thus skeptical of PBR, which has yielded mixed results at the state level.[49] Even shared-savings proposals have been controversial, as customers believe cost-of-service utilities already have an obligation to implement cost-effective solutions as part of good utility practice and should therefore already be considering and implementing more efficient technologies.

The U.S. grid loses about 5 percent of all the electricity generated through transmission and distribution.[50] Utilities are in the best position to identify and mitigate inefficiencies throughout their systems, whether through reconductoring with lower-line-loss wires, installing and operating power flow control devices or otherwise. Where there is notable information asymmetry, regulators can set a target. For example, regulators could set targets to improve efficiency by a certain percentage per year based on the best available technologies, such as advanced transmission technologies and NTAs, but allow the utilities to determine how to cost effectively achieve the outcome. This could be implemented through an incentive rate, but stakeholders are concerned that performance-based rate incentives are too easy for utilities to game.

Another possibility is to set efficiency standards, similar to Environmental Protection Agency standards associated with emissions reductions or limits.[51] In this case, Congress would likely need to extend the Energy Policy Act of 2005 or grant new authority, likely to the DOE, along a similar vein to DOE appliance-efficiency standards.[52] The Energy Policy Act of 2005 standards have reduced the national energy bill by about $80 billion.[53] The grid is like a large modular machine, but distribution transformers are currently the only type of transmission technology covered.[54] Technology-forcing standards could also incentivize innovation; best-available technologies that are uniformly applicable could simply be required, but establishing a standard that requires new innovation has also proven successful in the past.[55]

LEVERAGING COMPETITION TO ENSURE COST EFFECTIVENESS

The benefits and cost savings from competition are well established.[56] However, transmission projects subject to competition only represent 3 percent of U.S. transmission investments between 2013 and 2017. Based on this data, estimated cost savings from expanding competitive processes could range from 20 to 30 percent, consistent with savings achieved with similar competitive processes in Canada, the United Kingdom and Brazil.[57] Newer evidence suggests competition benefits reach 20 to 40 percent in cost savings and drive innovation in technological solutions, as well as financing mechanisms and risk-management methods.[58] This can include cost-containment mechanisms that reduce the risk of cost escalations that customers bear. For example, in Southwest Power Pool's (SPP) solicitation last year, the winning proposal from NextEra cost 27 percent less than the next-lowest offer. The maintenance and operations savings over a 40-year period are expected to produce a 30 percent cost decrease.

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49. See, e.g., Chris Villarreal, "R Street Supplemental Reply Comments to Xcel Energy's Reply Comments on Performance Based Ratemaking proposal, State Of Minnesota Before The Public Utilities Commission," R Street Institute, Sept. 9, 2021. https://www.rstreet.org/2021/09/09/r-street-supplemental-reply-comments-to-xcel-energys-reply-comments-on-performance-based-ratemaking-proposal.

50. "Frequently Asked Questions," U.S. Energy Information Administration, last accessed April 11, 2022. https://www.eia.gov/tools/faqs/faq.php?id=105&t=3.

51. "Setting Emissions Standards Based on Technology Performance," United States Environmental Protection Agency, last accessed April 11, 2022. https://www.epa.gov/clean-air-act-overview/setting-emissions-standards-based-technology-performance.

52. Energy Policy Act of 2005. https://www.gpo.gov/fdsys/pkg/PLAW-109publ58/pdf/PLAW-109publ58.pdf; "About the Appliance and Equipment Standards Program," U.S. Department of Energy, last accessed March 31, 2022. https://www.energy.gov/eere/buildings/about-appliance-and-equipment-standards-program.

53. "Fact Sheet, Energy Efficiency Standards for Appliances, Lighting and Equipment," Environmental and Energy Study Institute, Aug. 11, 2017. https://www.eesi.org/papers/view/fact-sheet-energy-efficiency-standards-for-appliances-lighting-and-equipmen.

54. "Energy Conservation Program: Energy Conservation Standards for Distribution Transformers; Final Rule," U.S. Department of Energy, April 18, 2013. https://www.govinfo.gov/content/pkg/FR-2013-04-18/pdf/2013-08712.pdf.

55. David Gerard and Lester B. Lave, "Implementing technology-forcing policies: The 1970 Clean Air Act Amendments and the introduction of advanced automotive emissions controls in the United States," *Technological Forecasting & Social Change* 72 (2005), pp. 761-778. https://faculty.lawrence.edu/gerardd/wp-content/uploads/sites/9/2014/02/18-TFSC-Gerard-Lave.pdf.

56. See, e.g., Johannes Pfeifenberger, "Competitive Transmission Planning Offers Significant Cost Savings and Consumer Benefits," Brattle, Oct. 25, 2018. https://www.brattle.com/news-and-knowledge/news/brattle-economists-competitive-transmission-planning-offers-significant-cost-savings-and-consumer-benefits; Hartman and Garza. https://www.utilitydive.com/news/plenty-of-low-hanging-fruit-how-ferc-can-catalyze-transmission-infrastruct/598088.

57. Pfeifenberger et al., p. 1. https://www.brattle.com/wp-content/uploads/2021/05/16726_cost_savings_offered_by_competition_in_electric_transmission.pdf.

58. See, e.g., Tom Kleckner, "SPP Board of Directors/Members Committee Briefs: Oct. 26, 2021," RTO Insider, Nov 1, 2021. https://www.rtoinsider.com/articles/28966-spp-board-directors-mc-102621; "Draft Impact Assessment," Office of Gas and Electricity Markets, last accessed March 31, 2022, p. 27. https://www.ofgem.gov.uk/sites/default/files/2021-08/Transmission_Early_Competition_IA_Final.pdf; Pfeifenberger et al., p. 10. https://www.brattle.com/wp-content/uploads/2021/05/16726_cost_savings_offered_by_competition_in_electric_transmission.pdf.

TABLE I: CUSTOMER SAVINGS FROM U.S. AND INTERNATIONAL EXPERIENCE WITH COMPETITIVE PROCESSES

Region	Estimated Savings
CAISO	29-50 percent
MISO	15-28 percent
PJM	60-67 percent
SPP	50-58 percent
NYISO	22 percent
IESO	16 percent
AESO	21 percent
United Kingdom	23-34 percent
Brazil	20-40 percent

Source: Data derived from Judy Chang, "Cost Savings Offered by Competition in Electric Transmission, Experience to Date and Potential Value for Electricity Consumers," NARUC Annual Meeting, Brattle Group, Nov. 19, 2019, p. 19. https://pubs.naruc.org/pub/656DDB87-F249-7EBF-8516-9BB-B7AA1FE5F.

Even factoring in the costs of administering these competitive solicitations, the benefits vastly outweigh the costs. For instance, SPP's cost of administering its first competitive process was about $500,000, recovered from each of the respondents and accounting for about 3 percent of the project's $17 million cost estimate. SPP estimated that developers spent $300,000 to $400,000 each to prepare their proposals.[59] In 2017, PJM spent $1.7 million administering five solicitation windows, 97 percent of which were recovered from the project proponents.[60]

However, the problem is that monopoly utilities do not want to give up their exclusive franchise and will seek to thwart the competitive process by hoarding information and ROWs, often lobbying for ROFRs—even to the detriment of their own captive customers.[61] Projects protected by ROFRs could harm other states that are allocated costs of those projects.

Even though RTOs independently administer the competitive transmission planning process, RTO membership is voluntary, and the threat of transmission owners leaving is a concern for RTOs. It is therefore difficult for RTOs to divorce themselves completely from transmission-owner influence. Incumbents have pressured RTOs to adopt exemptions to competition, resulting in differing technical, but somewhat arbitrary, exemptions to Order 1000 competitive processes across the regions and contributing to varying levels of success with competition. Incumbents then have prioritized competition-exempt projects.[62] According to industry experts, even when transmission projects make it through the planning process, utilities sometimes do not build the planned transmission on time.

Promising solutions have been offered in the ANOPR record to enhance competitive processes and encourage independent, stakeholder-inclusive and transparent regional transmission planning. Productive reforms, most of which are supported by key customer interests, include several options:[63]

- Eliminating unnecessary restrictions on competitive project eligibility, such as project-cost allocation requirements.
- Applying competitive mechanisms and requiring an independent transmission planner in all regions, although RTOs may demonstrate to FERC that they satisfy this role.
- Strengthening independence, transparency and inclusivity of stakeholder participation in transmission planning and competitive bidding administration.
- Lowering the voltage threshold for projects exempt from competition.
- Collaborating with states to encourage competition below the threshold.
- Preempting state ROFR laws for interstate transmission or requiring that all costs of a project subject to ROFR be allocated within the state.
- Requiring transmission owners to demonstrate in their case-in-chief the prudence of transmission projects not offered for competitive solicitation.

Competition between utilities can help hold them accountable for keeping costs reasonable. This is analogous to how electricity markets discipline expenditures and help stakeholders and regulators better understand what costs are reasonable. Further, competition could help address foot dragging by incumbents that do not have sufficient incentives to build transmission, because if they do not, others will.

59. "Prepared Statement of Paul Suskie, Executive Vice President and General Counsel, Southwest Power Pool, Inc., Competitive Transmission Development Technical Conference," Federal Energy Regulatory Commission, Docket No. AD16-18-000, last accessed April 11, 2022, p. 2. https://www.ferc.gov/sites/default/files/2020-08/Suskie-SPP.pdf.

60. Pfeifenberger et. al., p. 12. https://www.brattle.com/wp-content/uploads/2021/05/16726_cost_savings_offered_by_competition_in_electric_transmission.pdf.

61. See, e.g., Jon Schuppe, "Hurricane Ida power grid failure forces a reckoning over Entergy's monopoly in the South," NBC News, Sept. 24, 2021. https://www.nbcnews.com/news/us-news/hurricane-ida-power-grid-failure-forces-reckoning-over-entergy-s-n1279971.

62. Johannes Pfeifenberger, "Generation Interconnection and ELCC Values for Variable Resources," Brattle, Feb. 25, 2022, p. 7. https://www.brattle.com/wp-content/uploads/2022/02/Generation-Interconnection-and-ELCC-Values-for-Variable-Resources.pdf.

63. "Comments Of The Electricity Transmission Competition Coalition, Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection," Federal Energy Regulatory Committee, Docket No. RM21-17-000, Oct. 12, 2021, pp. 13-20. https://www.ieca-us.com/wp-content/uploads/ETCC-ANOPR-Comments-Filed.pdf.

The NOPR, however, proposes a direction that diminishes competition. It proposes to expand a form of competitive exemption, specifically a conditional federal ROFR, for incumbent transmission providers.[64] The extent that this would undercut existing competitive mechanisms hinges on details like the eligibility definition, which may be expansive in the NOPR.[65]

Beyond the ANOPR and NOPR, FERC could better promote competition in specific cases. For example, in *TranSource v. PJM*, a FERC administrative law judge found PJM's process for authorizing transmission upgrades was not transparent and unduly discriminated against a merchant developer.[66] Specifically, the judge found that the transmission planning models, criteria and assumptions provided were inadequate to allow stakeholders to replicate their planning studies in a timely manner and that inputs were not disclosed. Yet FERC reversed the judge's decision.

Eliminating ROFRs may be politically difficult when FERC does not want to interfere with state issues. However, not addressing one state's protectionist policies harms other states' interests in keeping costs down. This is precisely the type of situation where federal intervention is needed. Of course, the first and best solution is for states to hold firm against utility lobbying for ROFRs.[67] In any event, FERC could also interpret RTO tariffs in favor of competition, which has not always been the case.[68]

In contrast to the RTOs, independent market monitors are better positioned to be candid and independent from transmission owners, and they overwhelmingly support competition enhancement.[69] This underscores the value of independent oversight and administration across all regions, as discussed in the next section.

64. "Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection,", p. ii. https://elibrary.ferc.gov/eLibrary/filelist?accession_num=20220421-3090.

65. Ibid., pp. 287-288.

66. "Order on Initial Decision Opinion No. 566 re TranSource, LLC v. PJM Interconnection, L.L.C," Federal Energy Regulatory Commission, Docket No. EL15-79-001, Aug. 26, 2019. https://www.ferc.gov/sites/default/files/2020-06/20190826181640-EL15-79-001.pdf.

67. "Testimony in opposition of Senate Bill No. 103 from: Devin Hartman, Director of Energy and Environmental Policy," R Street Institute, Nov. 3, 2021. https://www.rstreet.org/wp-content/uploads/2021/11/Final_Michigan-testimony-SB-103-Devin-Hartman.docx.pdf.

68. See, e.g., Melissa Oellerich Butler and Adrienne Thompson, "FERC Confirms NYTOs Federal Right of First Refusal to Build and Recover Cost of Upgrades to Existing Transmission Facilities" JD Supra, April 23, 2021. https://www.jdsupra.com/legalnews/ferc-confirms-nytos-federal-right-of-3984226.

69. "Comments Of The Independent Market Monitor For PJM," Monitoring Analytics, Docket No. RM21-17-000, Nov. 1, 2021, pp. 2, 7-9. https://www.monitoringanalytics.com/filings/2021/IMM_Comments_Docket_No_RM21-17_20211101.pdf.

GOVERNANCE IMPROVEMENTS TO FACILITATE COST-EFFECTIVE OUTCOMES WITH BUY-IN

Transparency, inclusive stakeholder processes and accountability are key prerequisites to effectuating substantive reforms. Further, without adequate, timely information and technical assistance, competition will not fully work because non-incumbent stakeholders cannot effectively participate in planning processes and submit competitive proposals. Incumbent, transmission-owning monopolies are well aware of this advantage and guard it.

Improving transparency has been a long-standing goal, and struggle, at FERC. Even prior to Order 1000, Order 890 required:

> transmission providers to disclose to all customers and other stakeholders the basic criteria, assumptions, and data that underlie their transmission system plans . . . [Transmission providers must] reduce to writing and make available the basic methodology, criteria, and processes they use to develop their transmission plans . . . This information should enable customers, other stakeholders, or an independent third party to replicate the results of planning studies and thereby reduce the incidence of after-the-fact disputes regarding whether planning has been conducted in an unduly discriminatory fashion.[70]

Transparency, adequate and timely information sharing, and technical assistance are important to planning an efficient system that will serve customers into the future, and yet, 15 years after Order 890, insufficiently transparent processes and analysis are still creating barriers to competition.[71]

Inclusive planning can help ensure all the options are considered, smoothing cost allocation and other disputes. Industry experts confirm that a more inclusive stakeholder process would help even out the fairly uniform interests who typically participate in transmission planning processes. A system that encourages early stakeholder participation, constructive feedback and alternative proposals while setting up guardrails to prevent obstructionist or holdout behavior could help overcome challenges that could emerge subsequent to the planning phase. Notably, the successes in ERCOT, SPP and MISO could be attributed to state support for transmission projects.[72] Conversely, insufficiently inclusive processes may result in projects failing after getting through the planning process, particularly during the siting phase. For example, the Pennsylvania Public Utility

70. Federal Energy Regulatory Commission Order No. 890, FERC Stats. & Regs. ¶ 31,241 pp. 461, 471. Order No. 890, FERC Stats. & Regs. ¶ 31,241 pp. 461, 471.

71. See, e.g., "Order on Initial Decision Opinion No. 566 re TranSource, LLC v. PJM Interconnection, L.L.C." https://www.ferc.gov/sites/default/files/2020-06/20190826181640-EL15-79-001.pdf.

72. "Corporate Renewable Procurement And Transmission Planning: Communicating Demand To RTOs Necessary To Secure Future Procurement Options," Wind Solar Alliance, October 2018, pp. 7, 10. https://acore.org/wp-content/uploads/2020/04/Corporates-Renewable-Procurement-and-Transmission-Report.pdf.

Commission (PAPUC) denied a certificate needed for siting an interstate project because it saw no benefits for its rate-payers.[73] In defending its action, PAPUC raised governance issues, noting that PJM's process is not an official government action, and FERC does not participate in PJM's process other than to infrequently gather information. The New England States Committee on Electricity also emphasized in its ANOPR comments that FERC may not achieve lasting reforms without corresponding changes to RTO governance.

Independent decision making is also an issue. RTOs are beholden to their transmission-owner members because their members can leave voluntarily. Thus, RTO decision making and transmission-owner interests are not de facto independent. Further, according to independent industry sources, planning is dominated by transmission owners, and they can manipulate inputs to shape outcomes and pressure RTOs to do what they want. Then, TOs represent to their states that the plan was developed by an independent planner.

In non-RTO regions, there is essentially no independent planning at all. In many of these regions, regional planning consists of combining individual utility plans. These "rolled-up" plans are the ones alternative plans must beat in terms of avoided costs, and yet no alternatives are ever selected.[74] This result is unsurprising given that alternative plans are usually evaluated by looking for avoided costs only and may not include basic adjusted production cost savings or other benefits. In addition, cost-estimate inaccuracies by incumbent utilities for their own proposed projects can also disadvantage alternative proposals.[75] Accountability is needed to ensure that transmission projects are fairly compared and built cost effectively.

There are some good solutions offered in the ANOPR that could improve all of these governance issues; in particular, the independent transmission monitor (ITM) concept was discussed at length at the R Street customer roundtable. Many of the customer representatives were supportive of proposing a set of minimum conditions to help address long-standing governance issues. At its core, an ITM could accomplish several things:

- Improve transparency by ensuring information is timely and adequately provided to stakeholders.
- Facilitate stakeholder participation by assisting stakeholders in evaluating plans, running alternative scenarios, investigating alternative solutions, such as NTAs, GETs and other advanced transmission technologies.
- Work with stakeholders to develop a technical screen to help evaluate supplemental and local upgrades and check whether planning on a broader scale could provide greater net benefits or eliminate the need for any of the proposed local projects.

Market monitors today can be involved in transmission matters on issues that intersect with markets—for example, congestion and financial transmission rights and auction revenue rights. An expanded market monitor role could potentially cover deployment of GETs that can mitigate congestion; the role could, for instance, monitor whether installed topology optimization and power flow control devices are used to drive efficient outcomes. Market monitor staffing and budgeting would need increases to take on these functions.

Independent transmission planning must occur in all Order 1000 Planning Regions, and currently that function is lacking in many non-RTO regions and arguably in RTO regions to some degree. FERC could designate an independent transmission planner (ITP) in all regions with core functions defined. These entities could be the RTOs themselves, and in non-RTO regions or for interregional and broader scale planning, FERC could recognize an entity such as the DOE as a default ITP unless the region proposes another acceptable entity. Projects arising from these plans would be eligible for cost allocation over the appropriate region under Order 1000. If the DOE or others conduct requests for proposals and select winning bids from developers who are public utilities under FERC jurisdiction, FERC could approve their 205 tariff filings. Projects that do not go through a robust planning process would be subject to a full prudence review without the benefit of any presumptions and ineligible for any ROE adders.

Other solutions could include requirements for retrospective cost-benefit evaluation to help promote better practices and improve accountability. In particular, this requirement should apply to projects not subject to competition or where incumbents tend to low-ball their cost estimates to subvert competition. FERC could publish these outcomes in a way that makes it easier for customers and states to see how their utility's performance compares with others.

Overall, the NOPR is limited on governance reforms, especially with respect to bolstering independence. One notable area of potential improvement is a requirement for transmission providers to seek the agreement of state entities regarding the cost allocation method(s) for long-term regional

73. *Transource Pennsylvania, LLC v. Pennsylvania Public Utility Commission*, In The United States District Court For The Middle District Of Pennsylvania, June 22, 2021, pp. 24, 25. https://statepowerproject.files.wordpress.com/2021/08/transource-complaint.pdf.

74. Ethan Howland, "FERC should loosen incumbent transmission owners' grip on planning, R Street panelists say," Utility Dive, Jan. 28, 2022. https://www.utilitydive.com/news/r-street-transmission-reforms-ferc/617928.

75. Joseph H. Eto and Giulia Gallo. https://eta-publications.lbl.gov/sites/default/files/lbnl_2001079_final_102519.pdf.

transmission planning.[76] The NOPR also has a limited transparency enhancement provision, which are modest compared to the reforms sought by customers. However, FERC announced a technical conference in tandem with the NOPR announcement that may examine oversight issues pertaining to cost management.[77]

CONCLUSION

The reforms prioritized by customer interests have significant benefit-to-cost ratios (where quantifiable), could reduce siting risks or other disputes and work in synergy with one another. These reforms should be part of a comprehensive national framework that emerges from the ANOPR record. The NOPR appears to make progress on two customer priorities: improved planning and optimizing existing infrastructure. However, it backtracks on customers' competition priority, perhaps in a profound manner. The NOPR's emphasis on state involvement may improve governance, but reforms to instill independent planning and monitoring remain absent. Their absence may impede the implementation quality of planning and existing infrastructure reforms.

Inclusive and transparent transmission planning is the foundation for making efficient and least-regrets investments going forward and obtaining stakeholder buy-in, or at least mitigating opposition to cost allocation and siting. Any rules arising from the ANOPR record, notably that are tied to the NOPR, should ensure that planning robustly and broadly considers benefits as well as the evolving resource mix and that piecemeal, local projects do not displace more efficient, larger-scale solutions. The NOPR contains important provisions that advance forward-looking regional transmission planning.

Optimizing existing infrastructure is a key component to cost-effective planning and less prone to siting opposition. Implementing new technologies has demonstrated tremendous net benefits, but current FERC dockets are based on select technologies and do not incentivize utilities who have the best information about their own systems to holistically consider efficiency improvements. While FERC's order on ambient adjusted line ratings and subsequent proceeding on dynamic line ratings represent progress, certain proven technologies should be required where net beneficial and technology-specific regulation will significantly lag technological progress. Fundamentally, the incentive against efficiency must be corrected, and if FERC is unwilling to fully use the authority Congress has already granted in Energy Policy Act 2005 to remedy rate incentives, Congress may need to step in again and involve the DOE on efficiency standards as well.

Customers want competition, as it is crucial to cost efficiency, and transparency is needed for a competitive process to work. FERC is at a crossroads with competition policy: Some believe ratcheting back the competitive process could end the stalemate between monopoly utilities and non-incumbents, but others believe that better faith engagement in the competitive process will yield longer-term benefits. On this issue, it should be noted that key fundamental problems producing the stalemate—such as insufficient transparency, independent planning and oversight, inclusive stakeholder engagement and accountability to customers—are all problems that need to be fixed. Further, it is unlikely that walking back on competition policy would produce projects in all regions. FERC controls the valve to utility wholesale and unbundled transmission revenue streams and therefore has tools to exercise better regulatory oversight. FERC should bolster competition by reducing or eliminating competition exemptions, requiring robust consideration of alternatives and using its ability to limit rate recovery as a tool. The NOPR would do the opposite by expanding the exemption framework.

A core theme throughout this discussion has been a need to improve inclusiveness, transparency, independence and accountability, all of which are critical to the success of substantive reforms. These governance reforms should be included as part of the ANOPR reforms. In particular, a well-defined ITP across all interstate transmission regions, which could be RTOs, and an ITM to oversee planners, which may constitute an enhanced independent market monitoring role, can help improve on each of these governance issues. The NOPR takes limited steps to address governance, but FERC may intend to address the issue in separate, closely linked rulemakings, such as those resulting from the upcoming October 2022 technical conference.[78]

Reforms prioritized by customers have synergies, and past attempts to reform one component without tackling related changes have led to disappointment. Planning for an efficient, future-looking system requires optimizing the existing system, and making the most of the existing system requires good planning. Both planning and optimization efforts benefit from the cost savings and pressure to innovate and consider alternatives. All of these reforms benefit from inclusive, transparent, independent and accountable processes and require these governance reforms to fully realize the benefits.

76. "Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection,", p. i. https://elibrary.ferc.gov/eLibrary/filelist?accession_num=20220421-3090.

77. Ethan Howland, "FERC proposes expanded state role in effort to spur transmission development," UtilityDive, April 22, 2022. https://www.utilitydive.com/news/ferc-state-transmission-planning-cost-allocation/622532.

78. "Technical Conference on Transmission Planning and Cost Management," Federal Energy Regulatory Commission, Docket No. AD22-8-000, Oct. 6, 2022. https://www.ferc.gov/news-events/events/technical-conference-transmission-planning-and-cost-management-10062022.

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