UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Improvements to Generator Interconnection	)	
Procedures and Agreements	)	Docket No. RM22-14-000

Initial Comments of the R Street Institute

I. Issue Summary

On July 27, 2021, the Federal Energy Regulatory Commission (Commission) published an Advance Notice of Proposed Rulemaking (ANOPR) on potential reforms to improve generator interconnection processes, regional transmission planning and cost allocation.[1] On July 5, 2022, the Commission published a Notice of Proposed Rulemaking (NOPR) on improvements to generator interconnection procedures and agreements.[2] The intent of the NOPR is to address interconnection queue backlogs, improve certainty and prevent undue discrimination of new technologies. To ensure that the large generator interconnection (GI) process is not unduly discriminatory or preferential, the NOPR requires public utility transmission providers (TPs) to adopt an interconnection cluster study process, cost allocation for cluster studies, increased financial commitments and more readiness requirements. The NOPR also proposes reforms aimed at increasing interconnection queue processing and incorporating technological advancements into the interconnection process.

II. Summary of R Street Position

The R Street Institute (RSI) filed initial and reply comments in the ANOPR.[3] RSI hereby submits overarching comments on the need for a vision of GI reform as well as comments specific to the prompts in the NOPR.

[1] 86 Fed. Reg. 15512 (July 27, 2021). https://www.govinfo.gov/content/pkg/FR-2021-07-27/pdf/2021-15512.pdf.
[2] 87 Fed. Reg. 39934 (July 5, 2022). https://www.govinfo.gov/content/pkg/FR-2022-07-05/pdf/2022-13470.pdf.
[3] "Comments of the R Street Institute on the Advanced Notice of Proposed Rulemaking: Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection," Docket No. RM21-17-000, Oct. 12, 2021. https://www.rstreet.org/wp-content/uploads/2021/10/ANOPR-Initial-Comments-FINAL.docx.pdf; "Reply Comments of the R Street Institute on the Advanced Notice of Proposed Rulemaking: Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection," Docket No. RM21-17-000, Nov. 30, 2021. https://www.rstreet.org/2021/11/30/r-street-reply-

Vision

The NOPR does not elucidate a holistic problem statement, nor paint a clear vision of the objectives of GI reform in complete context. Doing so is imperative to any reform strategy, especially given the co-dependencies of GI reform on regional transmission reform and resource adequacy constructs. As such, RSI offers a problem statement and vision of GI reform.

GI processes are necessary, but their current form imposes excessive systemwide costs and large undue barriers to entry for new resources, which results in unjust and unreasonable rates under the Federal Power Act. Deep-seated flaws, such as deliverability requirements for a network resource, combined with cost allocation, information access and procedural problems, were once marginal. Now these flaws are major unavoidable problems. Flaws in GI processes are particularly exposed given the number and type of GI requests under the new generation paradigm.

This is causing a "massive backlog and delay in the construction of new power projects."[4] At the end of 2021, over 1,000 gigawatts (GW) of generation capacity was in interconnection queues.[5] This is almost the capacity of the entire existing U.S. generation fleet, which measures 1,144 GW.[6] The average wait time in queues has increased from 2.1 years to 3.7 years from projects built in 2000-2010 compared to projects built in 2011-2021.[7]

Delays are expected to worsen under prevailing market conditions and with the passage of the Inflation Reduction Act (IRA).[8] Industry routinely cites permitting and interconnection-related problems as the

---

comments-on-ferc-anopr-on-potential-reforms-to-improve-generator-interconnection-processes-regional-transmission-planning-and-cost-allocation.

[4] Jay Caspary et al., "Disconnected: The Need for a New Generator Interconnection Policy," Americans for a Clean Energy Grid, January 2021, p. 4. https://cleanenergygrid.org/wp-content/uploads/2021/09/Disconnected-The-Need-for-a-New-Generator-Interconnection-Policy-1.14.21.pdf.

[5] Joseph Rand et al., "Queued Up: Characteristics of Power Plants Seeking Transmission Interconnection," Lawrence Berkeley National Laboratory, April 2022. https://emp.lbl.gov/sites/default/files/queued_up_2021_04-13-2022.pdf.

[6] "Electricity Explained: Electricity generation, capacity, and sales in the United States," U.S. Energy Information Administration, last updated July 15, 2022. https://www.eia.gov/energyexplained/electricity/electricity-in-the-usgeneration-capacity-and-sales.php.

[7] Rand et al. https://emp.lbl.gov/sites/default/files/queued_up_2021_04-13-2022.pdf.

[8] Wind Energy Technologies Office, "DOE Launches New Initiative to Improve Clean Energy Interconnection," U.S. Department of Energy, Aug. 15, 2022. https://www.energy.gov/eere/wind/articles/doe-launches-new-initiative-improve-clean-energy-interconnection.

largest barriers to entry today.[9] For example, a 2021 survey found 89 percent of developers citing "interconnection timelines and costs" as the biggest barrier to entry for solar deployment.[10]

The problem is not merely the result of greater GI request volume, but also the nature of projects seeking interconnection. Current GI processes are vestiges of the "open access" transmission model for vertically integrated utilities constructing thermal power plants. Now, renewables are dominating interconnection requests with independent power producers developing five times more wind power and eight times more solar power than monopoly utilities.[11] Unlike conventional thermal plants, in which the beneficiary of transmission upgrades predominately accrues to a single generator, the benefits of transmission upgrades are increasingly dispersed.[12] The incremental transmission upgrade approach in current GI processes can increase upgrade costs by multiples, increasing uncertainty and total costs by tens of billions of dollars per region, while causing underinvestment in upgrades because those paying for the upgrades do not receive many of the benefits. GI processes therefore impose greater unnecessary systemwide costs and depart from beneficiary-pays upgrade cost allocation with the evolving resource mix, in addition to erecting barriers to entry that disrupts an orderly, efficient and reliable energy transition.

An examination of the causes of GI delays shed light on the root problems. These manifest as barriers to entry in three forms:

- *Financial barriers*. Inefficiencies between GI and transmission planning processes dramatically increase the aggregate cost of network upgrades and overallocate costs to generators relative to the beneficiary pays principle. Upgrade costs are further increased by limitations on the solution sets considered; most regions only consider traditional technologies to solve transmission

[9] Zach Starsia, "Why Now is the Best Time to Secure a Power Purchase Agreement," LevelTen Energy, July 27, 2022. https://www.leveltenenergy.com/post/why-now.
[10] Rob Collier, "Standing in Line: How Congested Interconnection Queues Are Slowing Renewable Build-Out," LevelTen Energy, Nov. 2, 2021. https://www.leveltenenergy.com/post/interconnection-slowdown.
[11] Devin Hartman, "Competitive energy markets promise a clean, prosperous future," *Washington Examiner*, Aug. 19, 2022. https://www.washingtonexaminer.com/restoring-america/patriotism-unity/competitive-energy-markets-promise-a-clean-prosperous-future; Rand et al. https://emp.lbl.gov/sites/default/files/queued_up_2021_04-13-2022.pdf.
[12] "Comments of the R Street Institute on the Advanced Notice of Proposed Rulemaking: Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection," Docket No. RM21-17-000, 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.

upgrades requirements, ignoring lower-cost advanced technologies like power flow controls and dynamic line ratings.[13] Incremental, individual generator studies increase transactions costs and uncertainty, which increases project financing risk. GI study deposit fees may deter information-seeking GI requests, but at current levels are unlikely to pose a material barrier to entry for commercially serious requests.

- *Informational barriers*. Many GI requests are not commercially serious, but rather information seeking. This underscores value in alternative mechanisms to remedy information deficiencies to avoid unnecessarily clogging sophisticated phases of the GI process for commercially viable projects. Regional transmission organizations (RTOs) are making advances with concepts like heat maps and queue scope products. Transparency outside RTOs is most problematic with incumbent transmission providers following their incentive to inhibit third-party development.
- *Procedural barriers.* GI queue management techniques, modeling approaches, study assumptions and criteria vary substantially by region, and the surge in GI requests has overwhelmed current staffing and technological processing methods in most regions.[14] Greater process automation and employment of advanced computing methods holds tremendous untapped potential to slash GI study periods.

GI reform can result in drastically lower transmission upgrade costs and barriers to entry while still achieving the objectives of current GI processes. The purpose of GI procedures is important, but some functions of current GI processes best reside in other processes. For example, RSI recommends merging aspects of GI that trigger network upgrades into proactive transmission planning in order to co-optimize system planning while lowering transactions costs, uncertainties, duplication and inconsistencies between interconnection and transmission planning processes. Overall, optimal GI reform is highly co-dependent with transmission policy and resource adequacy constructs, which are undergoing their own reforms concurrently.

[13] Johannes Pfeifenberger, "Generation Interconnection and Transmission Planning," The Brattle Group, Aug. 9, 2022, p. 6. https://www.brattle.com/wp-content/uploads/2022/08/Generation-Interconnection-and-Transmission-Planning.pdf.
[14] Ibid.

Consistent with our regional transmission planning reform comments, transmission network upgrades could shift entirely to regional transmission expansion planning.[15] Generation assumptions could be informed by generator requests, perhaps in a format similar to the open season processes for pipeline expansion. A short-term transmission planning process could readily respond to upgrade requests and feed into the long-term planning process. Cost allocation should still follow the beneficiary pays principle. Implementation methods may include calculating generator benefits by expected increases in wholesale market revenues and consumer benefits calculated by wholesale rate reductions and the value of avoided lost load.

Removing transmission network upgrade studies from GI would markedly reduce GI technical and administrative requirements, enabling a far simpler interconnection process. This could result in energy resource interconnection service (ERIS) serving as a simple service when it comes to requirements for reliability, reactive power capability, transformers, protection, control and communications. Generators could fund and own ERIS and request transmission upgrades in the transmission expansion process. Network resource interconnection service (NRIS) could be marginalized, redefined or eliminated. ERIS has the advantage of not having the demanding and inaccurate deliverability tests and requirements of NRIS and would greatly reduce the transmission investment needed for local interconnection. Network Integration Transmission Service (NITS) could be simplified and redefined to focus RTOs on efficient generator dispatch.

The deliverability requirements of interconnection for NRIS are tethered to the resource adequacy construct. The definition of deliverability and associated procedures are often unclear and vary by region, which limits prescriptive *pro forma* tariff reforms to GI. Improving the deliverability construct is important for resource adequacy as well as GI. Currently, GI for NRIS and capacity accreditation processes presume centralized administrative modeling is capable of accurately determining, years in advance, what generation can meet particular load needs. This false premise introduces extensive administrative uncertainty that translates into system performance risk. This can be addressed in part by shifting performance risk onto generators and away from permission-based administrative processes. Aligning generator financial incentives with performance includes foregone energy and ancillary service

[15] "Initial Comments of the R Street Institute on Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection," Docket No. RM21-17-000, Aug. 17, 2022, p. 8. https://www.rstreet.org/wp-content/uploads/2022/08/20220817-5207.pdf.

revenues as well as foregone capacity revenues or performance penalties. Ensuring generators bear the risk of curtailment and nonperformance losses and/or penalties can be used in exchange for eliminating or drastically reducing deliverability test requirements. With sufficient information on risk drivers, generators have proven capable of managing such risks.

The Electric Reliability Council of Texas (ERCOT) provides a worthwhile case study. Industry experts consider ERCOT's GI process to be perhaps the most effective domestically. Projects can be developed and interconnected in the ERCOT footprint in 2-3 years, whereas the interconnection study alone takes that long in some other regions.[16]

ERCOT uses a "connect-and-manage" GI approach, in which transmission network upgrades in ERCOT are handled in the transmission planning process and GI does not include deliverability requirements. This contrasts with other RTO's "invest-and-connect" GI approach. The ERCOT approach places siting risk on generators, who account for congestion and curtailment risk. This results in a simple GI process with far lower barriers to entry. Transmission upgrades respond to systemwide curtailment and congestion, such as those recently developing in the Texas panhandle area, via the transmission planning process.[17]

ERCOT's core role is informing rather than gatekeeping. Better information, such as on generator export ability, improves generator and resulting system risk management. The GI process has two parts: a screening study (SS) performed by ERCOT and a full interconnection study (FIS) performed by the transmission service provider. After a project requests a FIS, it is publicly listed in a monthly report detailing its capacity, technology, point of interconnection, county location and other factors.[18] Pertinent milestone dates are also tracked and updated, such as FIS request and approval dates, data of interconnection agreement signed and milestones determining whether projects are included in planning models. This transparency helps evaluate and motivate performance; the SS is completed on average in less than 80 days.

[16] Pfeifenberger, p. 7. https://www.brattle.com/wp-content/uploads/2022/08/Generation-Interconnection-and-Transmission-Planning.pdf.
[17] "2020 Panhandle Regional Stability Study," Electric Reliability Council of Texas, July 2020. https://www.ercot.com/files/docs/2020/11/27/2020_PanhandleStudy_public_final__004_.pdf.
[18] See, e.g., "Major GIM Milestone Status by Fuel/Technology Type, MW," Electric Reliability Council of Texas, last accessed Oct. 11, 2022. https://www.ercot.com/misdownload/servlets/mirDownload?doclookupId=861601058.

The advantages of ERCOT's transparency and treatment of transmission network upgrades is applicable to all regions. The simplicity advantages of not having a deliverability test may not be fully replicable in RTOs with capacity markets. Nevertheless, capacity market regions can still modify their deliverability and transmission service constructs to accommodate a GI and resource adequacy paradigm that puts greater performance risk on generators.

Overall, the NOPR needs to specify a comprehensive problem statement and a vision. As it stands, specific reforms proposed in the NOPR are incomplete and without larger context. What is missing most is how network upgrades triggered by GI requests today might be handled in transmission planning reform, as well as how to rectify the inefficiencies of varying deliverability tests across regions that depend on the Commission's willingness to reconsider concepts like NRIS. The NOPR defines the floor for GI practices, but it does not frame the ceiling nor strive for it.

RSI encourages the Commission to describe a vision that harmonizes GI with transmission planning and resource adequacy requirements with the objective of minimizing system costs, realigning cost allocation with beneficiary pays and eliminating undue barriers to entry. The Commission should map detailed root causes of GI performance problems today to inform specific reforms (e.g., GI stage criteria). A more comprehensive reform agenda includes:

- Fold transmission network upgrade evaluations into transmission cluster planning and instill a conduit for commercial interest to drive upgrades. Realign transmission network upgrade cost allocation consistent with the beneficiary pays principle. Ensure advanced transmission technologies are incorporated into available solution sets.
- Simplify deliverability requirements and associated terms for interconnection service. Consider downsizing or eliminating NRIS. Shift performance risk to generators.
- Expand tools for informational screening purposes and differentiate them from procedures for commercially advanced projects. These include proactive tools like heat maps as well as location-specific screening studies that better inform generators of performance risk.
- Drive adoption of best GI queue management processes and transparency. Provide forums for best and emerging management practices, including process automation and leveraging advanced computing capabilities, in addition to robust performance metrics and accountability mechanisms. Improve performance metrics and require regular public reporting of monthly GI request status and location.

Prompted NOPR Comments Summary

The prudence of the incremental reforms proposed in the NOPR are difficult to comment on in the absence of the context that a visionary roadmap provides. Nevertheless, RSI's comments assume the proposed reforms are incremental under "business-as-usual" assumptions. The Commission should clarify that the overarching policy goal of pivoting TPs toward providing information and away from acting as permissive gatekeepers based on administrative assumptions of long-term deliverability.

The NOPR does not address all GI elements in need of reform, though it proposes many sound and some problematic reforms. Advancing a first-ready, first-served cluster process in which improved reporting and public interconnection information are paramount. But the Commission should remove other proposals in the NOPR that introduce barriers to entry and may adversely affect competitive relationships, such as those between incumbent utilities and independent power producers.

RSI provides the following major recommendations on the three main categorizations of proposed reforms in the NOPR:

1. Reforms to implement a first-ready, first-served cluster study process.
    a. Require public interconnection information, such as heat maps of transmission capacity, in lieu of informational interconnection studies requirements.
    b. Require a shift from sequential to cluster study GI process. Reductions in uncertainty, transactions costs and system costs are in the billions of dollars per region.
    c. In lieu of static deposit levels, explore using a market-based mechanism that reflects the expressed willingness to pay of GI-requesting parties in a public reservation system. This would obfuscate the need for other proposed requirements.
    d. Avoid site control and commercial readiness requirements that exacerbate barriers to entry by imposing schedule dependencies in project development. Some NOPR proposals are unworkable, including requiring full site control and an executed contract. They contradict the NOPR's intent.
2. Reforms to increase the speed of interconnection queue processing.
    a. Require TPs to provide refined reporting in lieu of levying penalties, which do not address root causes of delays. Public reporting should at least provide monthly GI request-specific progress, such as that conducted by ERCOT.

b. The Commission should convene stakeholders around identifying root causes of GI queue processing delays and best practices, such as optimizing study cycles and harnessing advances in automation and computing.

3. Reforms to incorporate technological advancements into the interconnection process.
    a. Increase flexibility of GI processes to accommodate hybrid resources and require TPs to incorporate alternative transmission technologies into GI assessments.

III. Small Generator Interconnection Reform

The NOPR proposes *pro forma* reform for large GI reform, where problems are abundantly clear. It is not clear if the same level of revisions or specificity are required, at this time, for small generators. However, the Commission should be careful not to enact reforms that imbalance the relative economics of large and smaller generators. The Commission should seek to ensure that reforms for large generators age well should reforms for small generators become necessary. Further, recognizing the problems of delaying large GI reform, the Commission may wish to define proactive triggers that initiate a small GI inquiry. These triggers could be based on market conditions, such as a threshold level of small GI requests in a given time period, or a change in regulatory conditions, such as removing small GI exemptions for distributed energy resource aggregations in Order 2222.

IV. Reforms to Implement a First-Ready, First-Served Cluster Study Process

Interconnection Information Access

The Commission's objective of increasing transparency and reducing informational barriers to entry is laudable. However, given that TPs already struggle to process GI requests in a timely manner, they will likely find it difficult to perform informational interconnection studies in a timely and meaningful manner. Rather than impose a new requirement, requiring the best practice of cluster studies should provide meaningful improvement. It is unclear if the benefit of informational studies exceed their burden, but if individual regions or TPs want to offer them as an option, they should be allowed. Requiring limited, interim informational studies until sufficient public interconnection information is made available might be prudent.

Providing public interconnection information would indeed strike a better balance of providing GI customers with useful information while making efficient use of TP resources. Providing additional information regarding interconnection capability via an interactive visual representation of available interconnection capacity is currently a best practice and should be required nationwide. Visualizations can reflect a given transmission system configuration represented by shift factors—the amount of flow across lines based on an injection at a given interconnection point—compared to the line ratings to determine any overloads. If well done, it can serve as a powerful decentralized self-screening tool.

One such example is a "heat map" visualization of incremental transmission capacity to interconnect new projects. The Midcontinent Independent System Operator (MISO) employs this in its Points of Interconnection tool.[19] The PJM Interconnection is exploring a similar screening tool, known as Queue Scope.[20] Two RTOs initiating access to such a tool clearly constitutes an industry best practice that can form the basis for a public interconnection information requirement across RTOs. Non-RTO TPs may have added challenges in implementing such a tool, which perhaps warrants a longer implementation timeline, but does not inhibit the ability to require the practice under *pro forma* tariff change.

Cluster Study

Ideally, cluster studies for transmission network upgrades would be conducted in the regional transmission planning process. Notwithstanding changes to that process, the NOPR's proposal is sound. This fundamental restructuring of the GI process should improve throughput, greatly improve transmission upgrade solution identification, and improve certainty for both interconnecting generators and the TPs providing interconnection service.

The NOPR appropriately identified the benefits of moving from sequential to cluster analysis. The reduction in uncertainties, transactions costs and system costs are large and can lower transmission

[19] "Points of Interconnection," Midcontinent Independent System Operator, 2022. https://giqueue.misoenergy.org/PoiAnalysis/index.html.

[20] Ian Mundell, "Planning Center (Competitive Planner, Gen Model, Queue Point and TO Planner), Queue Scope, and, eGADS Roadmap," PJM Interconnection, Aug. 16, 2022, pp. 7-10. https://www.pjm.com/-/media/committees-groups/forums/tech-change/2022/20220816/item-04g---product-roadmap---planning-center---gen-model-queue-point-competitive-planner-and-to-planner-and-egads.ashx.

upgrade costs by billions of dollars per region. For example, PJM identified $3 billion in transmission upgrades that would save billions compared to the current GI practice of incremental upgrades.[21]

Concerns over excessive speculative GI requests can be addressed by requiring finite submission windows for requests to impose discipline. Other reforms, such as heat maps, should satisfy the system information sought by generation developers to help them screen potential sites. Paying to analyze the potential for multiple generation sites via the GI process, when a generation developer is only interested in pursuing a single site, would not be efficient. Several TPs have already implemented a form of cluster analysis as a way to avoid having to analyze nearly infinite permutations of new generation interconnections. Similarly, if a generation developer overloads a specific cluster area with multiple requests, they run the risk of the required network upgrades being more extensive than the generation project can financially support.

The Commission should refrain from being too prescriptive regarding how cluster areas are defined. Instead, it should require that TPs publish their cluster definitions well in advance of the request window for GI requests. Some RTOs like MISO have been pursuing cluster studies for years, so the NOPR merely proposes to raise the floor. The Southwest Power Pool is now largely copying the MISO approach. The final rule should permit and instill the motivation to strive for such shared learning and innovation in cluster study approaches.

Upon implementation, the cluster study process should not impede the transfer of interconnection request "ownership" between parties. Allowing parties to trade will help ensure an efficient balance between generation additions and transmission interconnection costs.

Cluster Study Cost Allocation

The NOPR's proposed cost allocation method is reasonable. There is no reason not to allow individual providers to propose different weightings provided both metrics are used.

Allocation of Cluster Network Upgrade Costs

[21] Johannes Pfeifenberger, "Planning for Generation Interconnection," The Brattle Group, May 31, 2022, p. 5. https://www.esig.energy/event/special-topic-webinar-interconnection-study-criteria.

Generation developers will be enabled to make more efficient siting decisions if they are subject to a clearly understood mechanism for allocating network upgrade costs. Allocation based on distribution factors may seem more precise, but it is dependent on forecasts of the state of the transmission grid—including any new network upgrades identified as part of the cluster study. Allocating these network costs based on proportional capacity is appropriate in situations where clusters are comprised of similar types of generation. The default should be that all thermal network upgrade costs allocations are based on proportional capacity. This leaves open the possibility for TPs to allocate other types of network costs (voltage, transient stability, short circuit) using a different but predefined manner.

Shared Network Upgrades

The mechanics of the NOPR's proposal seems difficult to administer and fraught with participant conflict. GI requests would reimburse upgrades paid for by earlier GI requests. Having clusters would seem to further complicate the mechanism. If implemented, the proposal should have a maximum look back period, such as 3-5 years. There should also be a minimum impact or financial threshold.

Increased Financial Commitments and Readiness Requirements

Financial commitments and readiness requirements properly tailored to a GI stage can help screen out requests seeking information that are better reserved for other tools, such as basic export constraint analysis to inform site selection, rather than causing delays in sophisticated processes better reserved for projects seeking to commercial advance. However, imposing financial commitments and readiness requirements can also create regulatory barriers to entry if they deter GI requests from commercially viable projects or increase financing costs. Such policies should aim to hit the "sweet spot" and err on the side of avoiding the creation of barriers to entry, since many of the so-called speculative GI requests should be diverted by enhancing information access platforms and processes. As proposed, the NOPR's deposit commitment may approximate the "sweet spot" but the withdrawal penalty and certain readiness requirements risk imposing severe anti-competitive barriers to entry. Aspects of the commercial readiness requirement are particularly problematic.

Increasing deposits by tens of thousands of dollars will not act as a material barrier to entry for large generation projects with all-in costs of tens to hundreds of millions of dollars. If the goal is to limit so-called speculative projects, then the Commission could endeavor to set the deposit at a level above an estimate of the average requestor's willingness to pay for the information. Deposit levels could also be

adjusted in a market-based mechanism that reflects the expressed willingness to pay of requesting parties in a public reservation system. A market-based mechanism would obfuscate the need for other proposed requirements, which may produce results that contradict the NOPR's intent.

Site control and commercial readiness requirements generally run counter to the objectives of the NOPR by increasing GI delays and barriers to entry. A key to efficient project development is to enable parallel work flows. By imposing extensive prerequisites to advance in the GI process, site control and commercial readiness requirements would introduce greater process dependencies in project development. This would increase the complexity of schedule dependencies and, by definition, increase constraints and expected timelines for project development.

Full site control at the time of GI request is unworkable. If the Commission is intent on requiring a demonstration of site control, it must reduce requirements to partial control only. The MISO process of site control demonstration prior to proceeding with a facilities study is a workable example. Even a partial site control requirement, however, would create delays and increase project development costs. For example, securing even partial site control would require more options contracts to be in place with landowners. The Commission could consider providing an alternative, such as partial site control or employ a greater deposit requirement.

Some of the NOPR's proposed commercial readiness requirements are egregiously anti-competitive. Requiring an executed contract to enter into a facilities study simply does not reflect commercial reality and would impose major barriers to development and profoundly distort competitive relationships between market participants. The objective of open access transmission policy should be to secure a level landscape for all parties to be able to pursue power purchase agreements on equal terms. The NOPR's commercial readiness requirements would greatly tilt the scales in favor of incumbent utilities, especially in bilateral arrangements outside RTOs.

Granting non-RTO TPs discretion over commercial readiness requirements is a recipe for discriminatory behavior. The Commission should be wary of non-RTO TPs withholding offtake contracts as a way to discriminate against other potential suppliers. A system of clearly defined escalation deposits in lieu of an offtake contract could make for an appropriate approach. In RTOs, market evidence of major equipment supply and/or completed RTO membership or registration may suffice.

The NOPR's proposal to require TPs to assess a withdrawal penalty to GI customers that choose to withdraw during the interconnection study process or do not otherwise reach commercial operation is misguided. The conditions attached to this would add another administrative process that increases implementation complications and costs. Imposing a withdrawal penalty would deter parallel project processes from incurring, which delays development timelines. The Commission should stick instead to a simple loss of deposit as its financial lever.

V. V. Reforms to Increase the Speed of Interconnection Queue Processing

Elimination of the Reasonable Efforts Standard

The finding still holds that the Commission should emphasize improved reporting as a preferable approach to encourage timely processing of interconnection studies in lieu of firm study deadlines. Current conditions beg the question of why current deadlines are not being met, which the NOPR does not fully appreciate. The Commission and stakeholders would benefit from a root cause analysis of GI queue processing times. This analysis would inform more reasonable performance expectations than imposing arbitrary timelines for process steps.

Diagnosing specific causes of processing delays would be illuminating and inform effective fixes, such as how study cycles interact. For example, if early stages would benefit from quicker technology approximations, then routinizing equipment manufacturer specs like modules and invertors as inputs to TPs could better systematize reviews. If unscheduled restudies are a delay driver, then adopting scheduled restudies with a fixed maximum might remedy the issue. If human error or other problems unresolved by increasing staffing are at fault, then automating processes holds greater value. Advances in the computing field hold great potential to reduce processing times.

The NOPR's proposed penalties will not remedy the core issues slowing GI queue processing. The implementation of determining and levying a penalty would require cumbersome enforcement and may not have much desired effect. The costs of new compliance and accounting mechanisms would be borne by consumers. Levying penalties on RTOs is irrational, as they are non-profit organizations who would pass the costs onto stakeholders, including potentially entities harmed by any process delay.

TPs can game requirements that trigger penalties, such as by forcing requesting parties to resubmit specifications in order to restart the processing clock. The level of fine proposed will also not motivate much, if any, behavioral change and the Commission would have to ensure TOs could not channel them into cost recovery at federal or retail levels. Penalties or bonuses on returns on equity would induce financial motivation but would require a performance baseline that TOs could also game.

Instead, the Commission should convene regular forums on best practices and require better reporting. Robust, quality public reporting and posting allows for easy peer performance comparison. Comparative data enables additional accountability tools the Commission has at its disposal. The Commission should endeavor to improve performance metrics and require regular public reporting of monthly GI request status and location, which provides insights and will prove more effective than imposing penalties.

The Commission can learn from ERCOT, which posts its Generation Interconnection Status (GIS) report showing GI request-specific progress updates monthly. Following a screening study, a project can request a FIS, where it becomes publicly listed in a monthly report detailing its capacity, technology, point of interconnection, county location and other factors.[22] Pertinent milestone dates are also tracked and updated, such as FIS request and approval dates, date of interconnection agreement signed and milestones determining whether projects are included in planning models.

Affected Systems

Defining a process is an improvement over the current ad hoc, minimally documented processes that are currently in use. The Commission's proposed approach of redefining the process such that "silence is deemed acceptance" should provide sufficient motivation for most neighboring systems to engage actively. Still, requiring adjacent RTO and non-RTO TPs to coordinate would be fruitful. Specifying that affected systems are to evaluate for ERIS, not NRIS level of service, provides clarity and consistency.

Optional Resource Solicitation Study

The NOPR proposal to include state agencies that are required to develop a resource plan or conduct a resource solicitation process explicitly in the definition of a resource planning entity is prudent. Guardrails may be helpful to prevent inefficiencies, preference or undue discrimination of such entities

[22] "Major GIM Milestone Status by Fuel/Technology Type, MW." https://www.ercot.com/misdownload/servlets/mirDownload?doclookupId=861601058.

requesting initiation of an optional resource study. For example, specifying the type of qualifying condition, such as a competitive generation solicitation under state oversight, could coordinate state activities with regional GI processes to mutual benefit.

VI. Reforms to Incorporate Technological Advancements into the Interconnection Process

Increasing Flexibility in the Generation Interconnection Process

The addition of a new resource to a GI request should not automatically be deemed a material change. The Commission could consider standardized non-discriminatory conditions that trigger a material change to interconnection even if the service limit does not change. Hybrid resources should not be penalized for their technology profile. For example, adding to an inverter-based resource may not constitute a material change, but adding a natural gas turbine to a solar site, even with no increase to net output across the interconnection point, could create a material shift in interconnection facilities.

The NOPR's proposal to create a mechanism for the GI requestor to specify a storage and hybrid resource facility's operating parameters is prudent. The Commission's proposal should result in the most economic set of network upgrades, with sufficient reliability protections in place. Interconnection customers should not have to request that TPs not study generating facilities in ways that are not physically possible, as noted in the NOPR.

Incorporating Alternative Transmission Technologies

GI requestors should not have to ask for alternative technologies to be considered. TPs should be required to describe the benefits (or lack thereof) of the set of commercially ready technologies affirmatively, including advanced power flow control, transmission switching, dynamic line ratings, static synchronous compensators and static VAR compensators. That these technologies may be used as a temporary measure until other network upgrades are completed recognizes their expedient and powerful impact to reduce the cost and delays of GI, even if they only serve as a bridge to a permanent solution set such as cluster upgrades.

Creating an annual informational report will allow the Commission to oversee the current use of a variety of technologies effectively. Asking transmission providers to explain why the technology is not in use should not be burdensome, and will provide the Commission and others with information.

Modeling and Performance Requirements

It is appropriate for GI to require the submission of the data necessary to model non-synchronous generator behavior accurately. Imposing this requirement should spur inverter manufacturers to have models that reflect their equipment. Providing a list in the final rule is not prudent given its dynamics. Posting the list on relevant public industry websites, including those of the North American Electric Reliability Corporation, would be prudent.

VII. Conclusion

RSI respectfully requests the Commission consider the comments contained herein.

Respectfully submitted,

/s/ Devin Hartman
Devin Hartman
Director, Energy and Environmental Policy

R Street Institute
1212 New York Ave. NW, Suite 900
Washington, D.C. 20005
(202) 525-5717
dhartman@rstreet.org
October 13, 2022

/s/ Beth Garza
Beth Garza
Senior Fellow, Energy

R Street Institute
1212 New York Ave. NW, Suite 900
Washington, D.C. 20005
(202) 525-5717
bgarza@rstreet.org
October 13, 2022

Document Content(s)