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**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Update
Distribution Level Interconnection Rules and
Regulations

Rulemaking 25-08-004
(Filed November 6, 2025)

**REPLY COMMENTS OF THE NATURAL RESOURCES DEFENSE COUNCIL ON THE
ORDER INSTITUTING RULEMAKING TO UPDATE DISTRIBUTION-LEVEL
INTERCONNECTION RULES AND REGULATIONS**

BETH HAMMON
Natural Resources Defense Council
1314 2nd Street,
Santa Monica, CA 90401
(310) 434-2300
bhammon@nrdc.org

November 10, 2025

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The Natural Resources Defense Council (“NRDC”) respectfully submits these Reply Comments on the California Public Utilities Commission’s (“Commission”) Order Instituting Rulemaking (“OIR”) to update distribution-level interconnection rules and regulations. NRDC appreciates the Commission’s recognition that modernizing Rule 21 is essential for achieving California’s electrification, distributed energy resource (“DER”) deployment, and reliability objectives.

The record demonstrates broad agreement among automakers, DER providers, technology providers, and other stakeholders that Rule 21 must be updated to: (1) Support vehicle-grid integration (“VGI”) when interconnection is required and bidirectional electric vehicle (“EV”) charging; (2) Improve interconnection timelines and utility accountability; (3) Reduce customer costs; and (4) Ensure clear, consistent pathways for emerging electrification technologies that need interconnection. However, parties such as Southern California Edison (“SCE”), correctly point out that technical issues need to be addressed, such as the need for robust certification of compliance with standards and protocols including those for improved cybersecurity.¹

To advance California’s transportation electrification goals, the Commission should prioritize reforms that directly affect EV charging when it requires interconnection, V2X (“bidirectional charging”) deployment, and interconnection timelines for residential, commercial, and fleet charging. While most EV charging only needs energization, more complex EV charging does require interconnection when it is combined with battery storage, solar, fuel cells, etc or if it is bi-directional and grid connected (“vehicle to grid” or “V2G”).

I. INTRODUCTION

California’s success in achieving its climate, reliability, and transportation electrification goals depends on a distribution-level interconnection framework that is efficient, transparent, and

¹ SCE Opening Comments on the OIR at pp. 14-16 and 28-33.

capable of supporting the rapid deployment of DERs and VGI technologies. The Commission’s decision to open this rulemaking reflects both the progress California has made under Rule 21 over the past decade and the persistent gaps that continue to slow DER deployment, increase soft costs, and undermine customer confidence in utility interconnection processes.

Stakeholders across the DER ecosystem – including automakers, battery and inverter manufacturers, EV charging companies, DER aggregators, and policy organizations – describe a Rule 21 landscape that has not kept pace with emerging technologies or with the scale of electrification required to meet state policy mandates. Tesla explains that today’s interconnection process is a “significant source of friction” that increases costs, delays project timelines, and limits customer access to grid-interactive technologies.² Ford similarly details the inconsistent and sometimes burdensome treatment of EV backup power and bidirectional charging systems, even when such systems do not operate in parallel with the grid.³ VGIC, The Mobility House (TMH), and Advanced Energy United (United) each highlight structural inefficiencies – including outdated fees, lack of clear V2X pathways, and chronic delays in review and inspection – that hinder customer adoption and slow the deployment of grid-supportive technologies.⁴

As EV adoption expands and more households, fleets, and businesses seek to deploy behind-the-meter storage, bidirectional EV charging, and flexible load management systems, delays in interconnection compound into larger, systemic barriers to electrification. Improving Rule 21’s consistency, clarity, and accountability is therefore essential not only for DER developers and installers, but for California’s broader reliability and decarbonization strategy.

These reply comments are organized around NRDC’s highest priorities for transportation electrification and distributed energy resource deployment. The sections that follow begin with issues that most directly affect customers seeking to adopt EV technologies.

II. SCOPE AND TIMING

NRDC recommends that all the following issues be incorporated into the scope of this OIR. Consistent with our recommendations for the High DER OIR, we urge the Commission to establish parallel tracks and phased timelines that produce interim decisions while longer-term efforts continue in parallel. Early phases should prioritize near-term implementation issues, while more complex or technical efforts, such as the working group we recommend, should begin immediately on a separate, concurrent track.

The broader question of coordination among related OIRs, and whether the scope of other proceedings should be amended to ensure alignment, should be addressed during the Pre-Hearing Conference and reflected in the subsequent Scoping Ruling for this OIR.

² Tesla Opening Comments on the OIR at 1-4.

³ Ford Opening Comments on the OIR at 2-4.

⁴ VGIC Opening Comments on the OIR at 4-6; TMH Opening Comments on the OIR at 3-4; AEU Opening Comments on the OIR at 5-10.

III. INTERCONNECTION PATHWAYS FOR ELECTRIC VEHICLES, V2X SYSTEMS, AND CUSTOMER-SIDE ELECTRIFICATION

California’s transportation electrification (“TE”) and VGI objectives depend on a clear, consistent, and modernized framework for bidirectional EV charging and customer-side electrification technologies. As automakers and VGI stakeholders emphasize, the current Rule 21 structure is not well-suited to the diversity of emerging EV technologies and use cases. These issues directly affect customer adoption, grid reliability, and the pace of EV charging infrastructure deployment across residential, commercial, and fleet sectors.

A. Support for a dedicated, non-Rule 21 notification pathway for backup-only systems.

Ford presents clear technical evidence that its Home Backup Power system – and comparable systems from other manufacturers – operate exclusively in an islanded configuration using break-before-make transfer switches and therefore cannot operate in parallel with the grid.⁵ These systems function as backup generators, not DERs, and are not subject to Rule 21.

Yet Ford documents that some utilities require customers to submit a full Rule 21 application, including payment of the \$800 application fee, solely to satisfy Health and Safety Code § 119085’s generator-notification requirement.⁶ This inconsistency creates customer confusion, delays deployment of resilience-enhancing technology, and misapplies Rule 21 in a manner that conflicts with both statutory intent and technical reality.

NRDC recommends that the Commission:

1. Create a uniform, statewide backup-only EV notification process, separate from Rule 21 and consistent with § 119085;
2. Explicitly exclude islanded, backup-only systems from Rule 21, confirming that such systems are not “generating facilities” for interconnection purposes; and
3. Direct utilities to discontinue use of Rule 21 application procedures or fees for backup-only notifications.

Providing a clear statewide policy will help eliminate confusion for customers and utilities, ensure alignment with safety standards, and support broader adoption of EV-based backup power – and important resilience tool for households.

B. Clarify Rule 21 applicability for V2H, V2G, inadvertent-export, and hybrid EV systems.

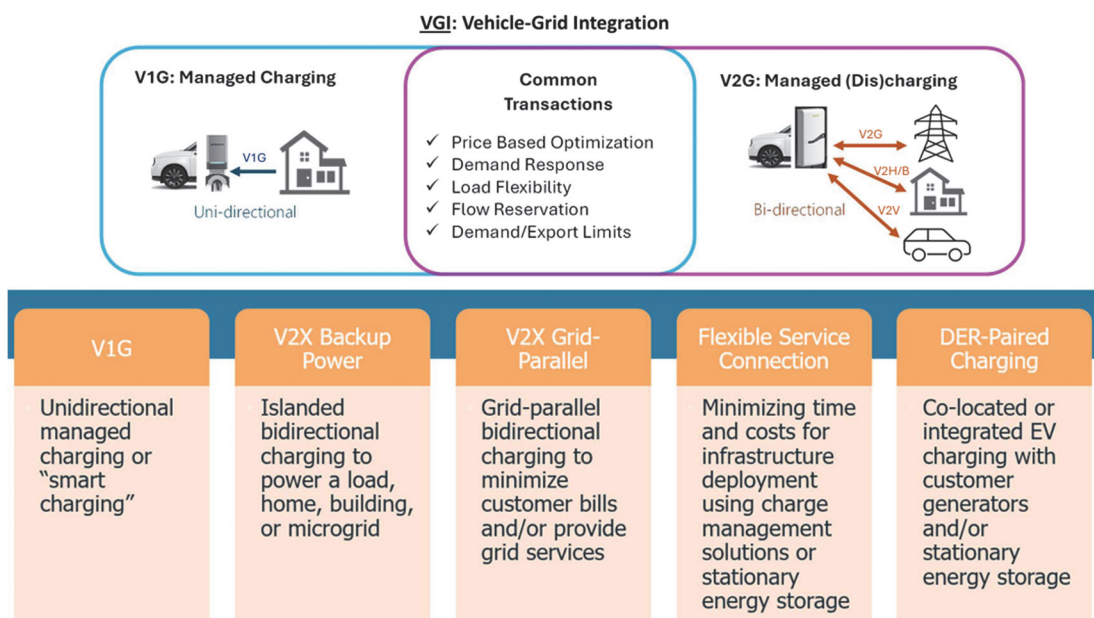
Stakeholders including The Mobility House (“TMH”), VGIC, Tesla, and Ford identify significant ambiguity in how Rule 21 applies to the diverse operating modes of bidirectional EV

⁵ Ford Opening Comments on the OIR at 2-4.

⁶ Id.

systems.⁷ The lack of clear guidance causes utilities to apply inconsistent processes, permitting delays, and inhibits deployment of grid-supportive V2X applications.

To address this, NRDC urges the Commission to adopt a consistent, statewide V2X taxonomy and precise definitions of bidirectional operation that distinguishes among key operating modes. Multiple conflicting definitions are currently in use across proceedings and utility practices, compounding technical confusion. The following chart – developed by the Harmonization of Standards Working Group within the Commission’s EPIC Project GT-18-0015 and its V2G Technical Advisory Board – is provided for reference only. While we do not propose that set of terms and brief definitions as the solution, it illustrates the need for the Commission to establish clear and uniform nomenclature.



For example, the following terms need to be defined and more effort put into requiring correct use of terms, including:

- Vehicle-grid integration (VGI)
- Vehicle-to-everything (V2X)
- Unidirectional VIG (unidirectional charging (active or passive management)
- Vehicle-to-load (V2L)
- V2X Back-up Power (islanded bidirectional charging to a home, building, or microgrid)
- V2X Back-up Power - Parallel Operation (non-export with certified PCS)
- Inadvertent-export-only systems (technically allow minimal, safety-bound export)
- Flexible Service Connection

⁷ TMH Opening Comments on the OIR at 3-5; VGIC Opening Comments on the OIR at 4-6; Tesla Opening Comments on the OIR at 4-6.

- V2G (bidirectional grid connected)
- DER paired charging.

C. Modernize type-testing and certification requirements for V2X power control systems.

Ford and TMH recommend that the Commission explicitly recognize certified software-based Power Control Systems (“PCS”) that comply with UL 1741 SB, UL 1741 SC, and UL 3141.⁸ NRDC agrees scope should examine whether the Commission should accept certified PCS systems as functionally equivalent to hardware-based configurations; prohibit duplicative testing requirements where national standards apply; and ensure PCS-based export limiting is fully integrated into expedited interconnection pathways for V2X systems. Clear PCS recognition will benefit customers deploying V2H and V2G systems, reduce review complexity, and accelerate approval of VGI-enabled EV chargers.

D. Customers and manufacturers require regulatory certainty to deploy grid-supportive EV technologies.

Automakers and VGI stakeholders consistently emphasize the importance of consistent, predictable interconnection requirements. Without clarity on when Rule 21 applies or what review level a system will receive, manufacturers hesitate to active or market advanced V2X features in California.⁹ The Commission should adopt the proposed reforms early in the proceeding’s schedule and issue interim guidance where appropriate – especially on backup-only EV systems and non-export V2X applications – to prevent delays for near-term deployments.

IV. INTERCONNECTION PROCESS REFORMS AND UTILITY ACCOUNTABILITY

Efficient, timely interconnection is among the most important determinants of California’s ability to deploy TE, grid-supportive EV charging, and DERs at scale. Delays in Rule 21 processing – whether during initial application review, supplemental information requests, study phases, inspections, or Permission to Operate (“PTO”) – impose significant soft costs on developers and customers, stall beneficial electrification, and ultimately undermine the state’s ability to meet decarbonization and reliability objectives.

Multiple parties – including AEU, Tesla, VGIC, and TMH – identify chronic delays, inconsistent application of deadlines, and substantial avoidable administrative burdens.¹⁰ NRDC agrees and supports reforms that strengthen accountability, increase transparency, and improve the customer experience.

⁸ Ford Opening Comments on the OIR at 3-4; TMH Opening Comments on the OIR at 3-4.

⁹ Tesla Opening Comments on the OIR at 1-4; Ford Opening Comments on the OIR at 2-4; VGIC Opening Comments on the OIR at 4-6.

¹⁰ AEU Opening Comments on the OIR at 5-10; Tesla Opening Comments on the OIR at 4-6; VGIC Opening Comments on the OIR at 4-6; TMH Opening Comments on the OIR at 3-4.

A. Strengthening accountability for interconnection timelines is essential to achieving electrification goals.

AEU provides extensive evidence that investors, developers, and customers face recurring and significant delays across all stages of interconnection: screening, supplemental review, engineering studies, construction design, inspection scheduling, and PTO.¹¹ These delays translate direction into higher cost of capital for project developers, slower deployment of EV charging infrastructure, greater uncertainty for fleets and commercial customers, and reduced consumer confidence in utility responsiveness.

Tesla similarly describes prolonged ‘back-and-forth’ caused by avoidable utility process gaps, including missing information that utilities already possess, such as existing DER data, and inconsistencies in how application requirements are communicated.¹² VGIC and TMH identify comparable patterns, especially for emerging V2X systems and small commercial installations.¹³

NRDC supports the following reforms:

- 1. Enforceable, measurable consequences for utility non-compliance.** Without penalties or clear corrective actions, Rule 21 deadlines remain aspirational. The Commission should strengthen the consequences for mission statutory or Commission-adopted timelines
- 2. Clear, uniform utility reporting requirements.** Rule 21 reporting varies widely by utility. Required data should be standardized, and utilities should be obligated to report timeline performance metrics in a transparent, publicly accessible format.
- 3. Increased Commission oversight.** The Commission should monitor overall utility performance, create a mechanism for identifying chronic non-compliance, and allow for targeted Commission intervention where improvement is not demonstrated.

Greater accountability will improve customer experience, reduce delays, and ensure that utilities are pacing the state’s electrification needs.

B. Pre-parallel inspection delays require immediate reform.

AEU documents persistent multi-month delays in pre-parallel inspections (“PPI”) – often extending three to six months – even for systems comprised entirely of certified equipment.¹⁴ These delays exacerbate backlog and cost overruns, particularly for small commercial and residential EV charging projects.

¹¹ AEU Opening Comments on the OIR at pp. 5-10.

¹² Tesla Opening Comments on the OIR at pp. 4-5.

¹³ TMH Opening Comments on the OIR at pp. 3-4; VGIC Opening Comments on the OIR at pp. 4-5.

¹⁴ AEU Opening Comments on the OIR at pp. 6-7.

D.20-09-035 requires utilities to report scheduling data for PPIs (“Time for scheduling of Commissioning Test”), yet AEU finds utilities are not providing this data at all.¹⁵ This lack of transparency undermines both Commission oversight and statutory objectives.

NRDC recommends the Commission:

- **Standardize and cap PPI timelines.** The Commission should establish a uniform timeline for PPIs to prevent prolonged delays.
- **Clarify that certified equipment should not trigger PPI unless justified by documented safety concerns.** Manufacturers increasingly use certified equipment, and unnecessary inspections slow down grid-supportive deployments.
- **Enforce existing reporting requirements.** Utilities must comply with D.20-09-035’s reporting requirements, and the Commission should enforce compliance.
- **Allow third-party inspections when utilities fail to meet deadlines.** A third-party option can provide relief when utility staffing shortages or procedural bottlenecks persist.

Reforming the PPI process is critical, especially for EV projects that rely on predictable scheduling to meet fleet operational deadlines.

C. Modernizing and standardizing utility interconnection portals is essential for customer experience and TE deployment.

Many of the delays documented in opening comments stem from outdated or inconsistent interconnection portals. Tesla highlights structural deficiencies including lack of pre-populated DER data, redundant information requests, inconsistent terminology among utilities, and absence of V2X-specific fields.¹⁶ TMH similarly observes that unclear or inconsistent portal instructions add weeks to project timelines.¹⁷ The VGIC underscores similar issues faced by V2G and hybridized DER systems.¹⁸

NRDC recommends that the Commission require utilities to:

1. **Standardize Rule 21 application forms and terminology.** All utilities should use consistent fields, definitions, and naming conventions, especially for V2X systems.
2. **Pre-populate customer data.** Utilities already possess DER information for many sites, yet they require vendors to re-enter this data manually, often inaccurately or incompletely. Utilities should integrate existing DER records into portal workflows.
3. **Maintain developer listservs and update logs for form revisions.** AEU noted that utilities often revise forms without notification, forcing developers to restart

¹⁵ AEU Opening Comments on the OIR at pp. 5-7.

¹⁶ Tesla Opening Comments on the OIR at pp. 4-6.

¹⁷ TMH Opening Comments on the OIR at pp. 3-4.

¹⁸ VGIC Opening Comments on the OIR at pp. 4-6.

applications.¹⁹ Requiring listserv updates and revision logs will prevent unnecessary rework.

4. **Add dedicated fields for V2X systems.** Bidirectional EV chargers should not be forced into ill-fitting NEM or non-export categories; utilities should create V2H, V2G, inadvertent-export, and PCS configuration fields.
5. **Increase transparency and ease of navigation within portals.** Utilities should provide consistent guidance regarding required documentation, necessary diagrams, and common application deficiencies.

These improvements would help reduce soft costs, avoid unnecessary rework, and create a customer experience consistent with California's electrification goals.

D. Improved utility communication practices reduce delays and improve customer confidence.

AEU describes repeated situations where utilities "respond" within required windows only to indicate that they need additional time, thus meeting the letter of the rule but not the spirit.²⁰ Utilities also frequently update forms or requirements without public notice.²¹

NRDC recommends establishing specific communication protocols, including requiring utilities to issue complete responses, not placeholder acknowledgements; requiring public posting of updated forms with advance notice; and mandating customer-facing explanation of project status and next steps. Simple communication reforms can reduce cancellations, improve customer satisfaction, and build trust in the interconnection process.

V. APPLICATION FEES AND COST BARRIERS FOR SMALL NON-NEM AND V2X PROJECTS

Outdated and disproportionate interconnection fees impose avoidable barriers on customers seeking to deploy small non-NEM distributed energy resources (DERs), including residential and light-commercial bidirectional EV charging systems. As stakeholders emphasize, California's current flat \$800 Rule 21 application fee is neither cost-based nor proportionate to the complexity of many projects subject to it, and is among the highest such fees in the country.²² This fee structure places a disproportionate burden on residential customers, small businesses, and early adopters of V2X technologies – precisely the customer segments whose participation is needed to support California's electrification and grid-support goals.

¹⁹ AEU Opening Comments on the OIR at pp. 7-9.

²⁰ Id.

²¹ Id.

²² VGIC Opening Comments on the OIR at pp. 3-4; Tesla Opening Comments on the OIR at pp. 4-5.

A. Stakeholders identify the \$800 interconnection fee as a barrier to DER and V2X adoption.

Multiple parties – including VGIC, Tesla, TMH, and AEU – highlight that the existing \$800 application fee for non-NEM, non-NEM-paired storage projects creates a significant cost barrier. VGIC’s benchmarking demonstrates that California’s fee exceeds comparable jurisdictions by several multiples, often by 500-800 percent.²³ Tesla similarly notes that for small customer-sited systems, especially bidirectional EV chargers where interconnection is needed primarily for mode verification and export-limit confirmation, the \$800 fee is misaligned with actual utility review effort.²⁴

TMH adds that early adopters of V2X systems typically install equipment precisely because of the grid-support and resiliency benefits those systems offer.²⁵ Saddling such customers with a disproportionately high fixed fee slows market growth and undermines the broader policy objectives of the proceeding.

These concerns apply not only to V2X customers but to small commercial storage, EV fleet pilot installations, and other advanced DERs that are expected to play a growing role in meeting system flexibility and reliability needs.

B. A cost-based and tiered fee structure better aligns with modern DER technologies and supports electrification.

NRDC agrees with stakeholders that the Commission should revise the Rule 21 application fee to reflect current technologies, review practices, and customer needs. The scope for this proceeding should ensure that modernized fee structure bases interconnection fees on actual utility review costs; create fee tiers that scale by system size or complexity; provide reduced-fee or no-fee pathways for non-export or inadvertent-export-only V2X systems; and that EV backup-only systems are installed correctly. These changes would improve affordability and support early adoption of grid-beneficial EV technologies.

The current \$800 fee – designed for older, more time-intensive processes – is disproportionate for small, non-exporting, or islanded systems that require minimal review. Tiered and cost-based fees would better reflect the true workload associated with interconnection applications, reduce barriers for households and small businesses, and align with state electrification goals. For EV backup-only systems, NRDC agrees they should be exempt from Rule 21 fees, provided they are correctly isolated with a transfer switch and verified through inspection by the relevant Authority Having Jurisdiction (AHJ) to ensure grid safety and compliance.

²³ VGIC Opening Comments on the OIR at pp. 3-4 & Attachment A.

²⁴ Tesla Opening Comments on the OIR at pp. 4-5.

²⁵

C. Fee reform can directly improve the economics of many types of transportation electrification and grid connected VGI.

Because many grid-connected V2X and EV charging projects that need interconnection and not just energization appear in the smallest and lowest-cost category of DER deployments, the interconnection fee is often a meaningful share of total project cost. For some V2H-ready customers, the interconnection fee exceeds the cost of the transfer switch or certified PCS hardware itself. Reducing unnecessary upfront soft costs is therefore a critical part of California's electrification strategy. Aligning fees with actual review efforts will:

- Encourage manufacturers to activate V2X capabilities in the California market;
- Encourage households to adopt backup-capable EV systems;
- Reduce the upfront cost of early V2G pilot projects;
- Improve accessibility for moderate-income and small-business customers; and
- Support broader adoption of smart, flexible EV charging that enhances grid reliability.

D. The Commission should initiate fee reforms early in this proceeding.

Given the consensus among stakeholders, the relative simplicity of updating the fee structure, and the near-term customer benefits, NRDC recommends that the Commission prioritize interconnection fee reform in an interim decision. Early resolution would immediately reduce cost barriers for many residential and commercial electrification projects and improve alignment between Rule 21 and California's broader transportation electrification policies.

VI. STANDARDS DEVELOPMENT, CERTIFICATIONS, AND RELATED ISSUES

Several foundational barriers to emerging interconnection use cases, including V2X. Chief among these are the need for improved standards and certification tests addressing communications, interoperability, cybersecurity; delays in obtaining approvals from Authorities Having Jurisdiction ("AHJs") for interconnections under Rule 21; and uncertainty around certification of compliance by a Nationally Recognized Testing Laboratories ("NRTLs"), particularly for new or emerging applications. Together these obstacles slow the deployment of technologies critical to grid modernization and transportation electrification.

NRDC agrees with SCE that additional action is needed to resolve these issues.²⁶ We agree with SCE's recommendation to convene a technical working group composed of manufacturers, utilities, and industry experts to focus on developing solutions related to standards, testing, and certification. We are open to having this effort scoped within this OIR or alternatively within the High DER proceeding.

At present, the High DER scope is limited to communications and existing cybersecurity for priority uses cases to be addressed by the Smart Inverter Operationalization Working Group.

²⁶SCE Opening Comments on the OIR at pp. 14-16 and 32-33

However, that narrow scope does not encompass the full range of use cases and technical challenges identified by SCE’s comments.²⁷ The Commission also oversees the ratepayer-funded Electric Program Investment Charge (“EPIC”) V2G Technical Advisory Board, led by SCE for many years, which includes dozens of industry experts addressing cybersecurity issues AC V2G integration, and harmonization of standards.²⁸ We understand that this technical advisory board will soon publish their final findings and recommendations for further work. These efforts should continue and be integrated into the Commission’s other, related interconnection proceedings to ensure consistent treatment of technical standards and accelerated resolution of remaining gaps.

We also note that several parties identified additional technical challenges in their opening comments, including in response to Question 7a and SCE’s comments on Question 3a.²⁹ The Commission should ensure that these issues, along with the forthcoming, and the findings and recommendations of the V2G Technical Advisory Board, are thoroughly reviewed and acted upon. NRDC recommends that a Pre-Hearing Conference would be an appropriate venue for a discussion of how and where to address these topics to avoid duplication across proceedings and ensure timely progress.

More broadly, we are concerned that these V2X-related issues are advancing too slowly across multiple overlapping efforts. Currently, three OIRs and one EPIC project – the Rule 21 OIR, TEPI OIR, High DER, and the V2G Technical Advisory Board – are addressing aspects of V2X with limited coordination or urgency. For years, these highly technical interconnection issues have been deprioritized or deferred from one proceeding to another without resolution. To remedy this, we recommend establishing a parallel track, either within this OIR or another appropriate OIR, dedicated to resolving these issues and challenges, within a technical working group empowered to develop actionable recommendations for Commission consideration.

With respect to SCE’s recommendation to expand the scope of this OIR to include DER cybersecurity, we recommend that the pros and cons of this proposal be discussed at the pre-hearing conference to determine whether and how it could be incorporated into this or related proceedings.³⁰

VII. FLEXIBLE SERVICE CONNECTIONS AND ALIGNEMENT WITH OTHER PROCEEDINGS

Flexible Service Connections (“FSCs”) are tools for enabling cost-effective transportation electrification alongside customer-sited DER deployment. As fleets, businesses, and homeowners electrify, many projects face lengthy upgrade timelines or avoidable cost escalations. FSCs

²⁷ *Assigned Commissioner’s Amending Scoping Memo and Ruling*, Aug. 11, 2023 (in R.21-06-017) at pp. 7-8.

²⁸ Electric Program Investment Charge (EPIC) Project GT-18-0015, “Demonstration of AC and DC Vehicle-to-Grid Interconnection for Bi-Directional EV Charging” (SCE, active 2018-2025).

²⁹ *See, e.g.*, AEU Opening Comments on the OIR at pp. 19-20; SCE Opening Comments on the OIR at pp. 29-30; PG&E Opening Comments on the OIR at pp. 6-7.

³⁰ SCE Opening Comments on the OIR at pp. 33-34.

provide a technically sound, customer-protective means to advance interconnection while maintaining grid safety and reliability.

AEU recommended that FSC development be explicitly included within the scope of this OIR.³¹ NRDC agrees that integrating FSC pathways into Rule 21 would modernize California’s interconnection framework and better align utility practices with state electrification policy, including the goals articulated in Senate Bill 100, the full suite of California Air Resources Board transportation emissions rules and regulations, and the Commission’s ongoing efforts to accelerate EV charging infrastructure deployment.

However, we recognize that FSC-related work is already being addressed in at least two other open proceedings – the Timelines OIR and the High DER OIR. Adding FSCs to this proceeding would place the same topic in three concurrent OIRs. At a minimum, if FSCs are incorporated into this proceeding, there must be close coordination among the three OIRs to avoid duplication of effort and ensure consistent policy direction, technical alignment, and timely implementation.

A. Flexible Service Connections are critical to accelerating EV charging deployment and managing upgrade-triggered delays.

EV charging – especially medium- and heavy-duty fleet charging – often requires significant distribution upgrades. These upgrades can take months or years to complete. Without FSCs, the customer faces a binary choice: delay energization until all upgrades are completed or significantly downsize charging deployment. Both options slow transportation electrification and increase operational risk for fleets transitioning to zero-emission vehicles.

FSCs help solve this problem by allowing phased energization of charging infrastructure aligned with customer need and construction timelines; temporary export or import limits until upgrades are completed; operational profiles that keep charging load within local hosting capacity limits; and smart inverted control strategies to cap peak demand.

United correctly highlights that FSCs allow DERs to operate safely “sooner rather than later” by reducing reliance on rigid upgrade schedules.³² NRDC strongly supports the incorporation of FSCs into this proceeding for precisely these reasons.

B. Aligning FSC development with Rule 21 modernization will improve consistency across EV and DER applications.

Rule 21’s current structure – built largely around traditional generation-export paradigms – does not reflect modern DER portfolios or electrification use cases. FSCs, by contrast, integrate distribution engineering, inverter-based control, and customer load flexibility in a way that aligns with hosting capacity maps, grid-responsive charging programs, VGI objectives, managed charging programs, and California’s long-term distribution system planning efforts.

³¹ AEU Opening Comments on the OIR at pp. 9-10.

³² AEU Opening Comments on the OIR at pp. 9-10.

Developing FSC rules within this OIR will allow the Commission to harmonize Rule 21 with these parallel initiatives. NRDC supports integrating and coordinating FSC efforts in this OIR with the Commission’s High-DER proceeding (R.21-06-017), which already addresses smart inverter operationalization and interoperability frameworks, and track 2 of the Energization Timelines proceeding (R.24-01-018)³³ Coordinated development across proceedings will ensure that utilities implement consistent, modern practices for DER customers.

C. FSC pathways can significantly reduce soft costs, reduce unnecessary upgrade triggers, and improve affordability.

Because FSCs enable earlier energization and more flexible operation, they directly reduce costs by avoiding or deferring expensive distribution upgrades, preventing unnecessary triggered upgrades for loads that can self-curtail or flex down, reducing soft costs associated with long construction timelines, increasing certainty for fleets and commercial customers planning electrification projects and investments, and improving grid utilization by helping shift EV charging loads outside of peak demand windows. These benefits extend significantly to equity-focused electrification efforts and programs, where upfront cost and delay are major barriers for small businesses, disadvantaged and overburdened communities, and multifamily charging projects.

D. The Commission should adopt FSC development as a priority track in this rulemaking.

Given the strong stakeholder support³⁴, clear alignment with state policy goals, and immediate benefits for beneficial electrification, NRDC recommends that the Commission:

1. Formally include FSCs as a defined topic in the final Scoping Memo, as proposed by AEU;³⁵
2. Develop a consistent statewide framework for temporary and long-term FSC pathways;
3. Establish clear technical requirements;
4. Ensure FSCs are available for both DER and EV charging applications; and
5. Prioritize early implementation through an interim decision in this proceeding.

FSCs are among the most practical and high-impact tools available to accelerate transportation electrification and DER adoption while maintaining system reliability and safety.

³³ AEU Opening Comments on the OIR at pp. 7-8 and 23.

³⁴ *See, e.g.*, AEU proposing that FSCs be explicitly included in the Rule 21 OIR and recommending further development of flexible interconnection pathways (pp. 9-10); TMH describing practical experience with V2G projects “integrating ... flexible service connections” and urging clarification of Rule 21 for these configurations (pp. 2-3); VGIC supporting streamlined, flexible interconnection pathways for bidirectional EV systems consistent with FSC objectives (pp. 3-6); Tesla advocating for more adaptive, efficient interconnection processes to accelerate DER and EV charging deployment (pp. 1-4); and Ford urging the Commission to adopt simplified, notification-only interconnection pathways for backup-power EV applications, an approach aligned with FSC principles (pp. 2-3).

³⁵ AEU Opening Comments on the OIR at pp. 9-10.

Their inclusion in this OIR is essential to ensuring that Rule 21 keeps pace with evolving customer needs, modern inverter capabilities, and California’s electrification trajectory.

VIII. ELECTRICAL INDEPENDENCE TESTS (SCREENS Q & R)

Screens Q and R determine whether a project requires further study before interconnecting. Parties take sharply different positions on their future role. NRDC supports targeted, incremental improvements, not wholesale replacement, so that interconnection remains safe, transparent, and proportional to project impacts.

A. NRDC supports modest, data-driven refinements, not elimination of Screens Q and R.

SDG&E proposes eliminating Screens Q and R and shifting projects into group studies.³⁶ This approach would likely increase costs and delays for small DER and V2X projects, without evidence of safety or efficiency benefits. PG&E recommends only general review, and United emphasizes that Screen Q failures currently route many small projects into unnecessarily complex studies.³⁷ NRDC agrees with United: reform should focus on reducing unnecessary study triggers, not expanding them.

B. SCE’s interim Screen Q methodology warrants consideration with clear transparency requirements.

SCE describes an interim Screen Q approach intended to avoid inappropriate CAISO referrals for small projects.³⁸ This may have merit, but SCE has not provided sufficient detail for statewide adoption. Before formalizing any methodology, the Commission should require clear documentation of criteria and assumptions; uniform application across utilities; and alignment with hosting capacity analysis.

IX. COST SHARING OF UPGRADE COST

AEU notes that the OIR’s questions on “sustained load reduction” raise broad cost-responsibility issues that extend far beyond Rule 21 and should not be resolved in this proceeding.³⁹ NRDC agrees. These questions implicate statewide ratemaking principles that affect all customers, not just DER applicants, and belong in a dedicated, general proceeding if the Commission chooses to revisit them.

NRDC supports keeping this proceeding focused on targeted interconnection improvements. Limited exploration of cost-sharing mechanisms, such as allocating upgrade costs over time or sharing the cost of upgrades that provide clear system benefits, may be appropriate,

³⁶ SDG&E Opening Comments on the OIR at pp. 2-5.

³⁷ PG&E Opening Comments on the OIR at pp. 1-2; AEU Opening Comments on the OIR at pp. 4-6.

³⁸ SCE Opening Comments on the OIR at pp. 3-7.

³⁹ AEU Opening Comments on the OIR at pp. 3-4.

but only to the extent they directly relate to DER and EV charging interconnections and do not increase barriers for small or early-stage projects.

X. TRANSMISSION-INTERCONNECTED PROJECTS

We agree with PG&E that this OIR should consider creating a separate, relevant process tailored for transmission-interconnected projects under Rule 21, including different fast-track screen criteria.⁴⁰ Transmission-interconnected DERs including those that include DC fast charging, are an important emerging opportunity which appear to have different needs than distribution-interconnected DERs.

XI. CONCLUSION

NRDC appreciates the opportunity to provide these reply comments and urges the Commission to prioritize reforms that directly advance transportation electrification, DER integration, and customer experience. A modernized Rule 21 – one that supports V2X systems, ensures timely interconnection, reduces soft costs, and aligns with flexible service models – will accelerate progress toward California’s climate, reliability, air quality, public health, and equity goals.

Respectfully submitted,

/s/ Beth Hammon

Beth Hammon

Senior Advocate, EVs and Infrastructure

Natural Resources Defense Council

1314 2nd Street,

Santa Monica, CA 90401

(310) 434-2300

bhammon@nrdc.org

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⁴⁰ PG&E Opening Comments on the OIR at pp. 2.