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BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Modernize the Electric Grid for a High Distributed Energy Resources Future.	Rulemaking 21-06-017 (Filed June 24, 2021)

NATURAL RESOURCES DEFENSE COUNCIL COMMENTS ON DRAFT RESOLUTION E-5413

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The Natural Resources Defense Council ("NRDC") and respectfully submit these comments on Draft Resolution E-5413 ("Resolution"), which establishes a statewide framework for identifying and integrating "pending loads" into the Distribution Planning and Evaluation Process ("DPEP"). We appreciate the Commission's efforts to modernize the distribution planning framework and create a more structured, transparent, and scalable method for incorporating customer-based, study-based, and policy-driven load information.

Draft Resolution E-5413 represents meaningful progress toward a more comprehensive approach to pending loads. It acknowledges the value of both customer-submitted information and study-based or policy-based analyses, establishes three categories of pending loads, and creates a "hot spot" mechanism to reflect concentrated load growth. These foundations are strong. At the same time, several technical and definitional refinements are necessary to ensure that the framework fully reflects California's electrification trajectory, supports long-lead distribution planning, and aligns with statutory obligations including Senate Bill ("SB") 350, SB 100, Assembly Bill ("AB") 2700, and Public Utilities Code §740.21.

Draft Resolution E-5413 represents a significant step forward. The Resolution adopts improved pending load definitions, ensures greater consistency across utilities, and expands the use of Category B1 and B2 pending loads – changes that will significantly improve the visibility of transportation electrification ("TE") and other electrification-driven loads. However, additional clarity is needed on the planning horizon, the application of the hot-spot definition, the treatment of Category B2 and C studies, and the reporting requirements for study-based loads.

I. SUMMARY OF RECOMMENDATIONS

To strengthen the Resolution and ensure the pending loads framework accurately reflects policy-driven electrification, the Commission should:

- Adopt a 10-year planning horizon for substations and long-term hot spot identification, consistent with October 2024 High DER ("HIDER") Order and IEPR alignment.
- Refine the definition of "hot spot" to clarify that its two elements operate on an "and/or" basis, ensuring that areas with substantial forecasted TE load growth are captured even if observable constraints have not yet materialized within the 10-year horizon.
- Revise Finding 17 to align pending load treatment with TEPP outputs across corridors and non-corridor areas.
- Identify both short-term and long-term TE hot spots, recognizing that long-lead assets must be planned before constraints emerge.
- Require the use of finalized TEPP outputs for identifying both short- and long-term TE hot spots.
- Explicitly include policy-driven and regulatory compliance studies within Category B2, including CARB modeling, SIP measures, AB 2700 analyses, and TEPP outputs.
- Refine the B2 threshold structure to avoid "cliff effects" and ensure that small variations in study-based load estimates do not trigger disproportionately large changes in the amount of load utilities may plan for.
- Clarify that Category B2 pending loads may exceed the IEPR only within designated hot spots, and that Category C studies may exceed the IEPR within hot spots when they provide geographically specific estimates of load associated with identifiable state-policy compliance requirements.
- Require utilities to report how state policies, regulatory obligations, local government plans, and §740.21 requirements are incorporated into each study used to derive B2 or C pending loads, consistent with Finding 31.

II. DETAILED COMMENTS

A. The Pending Loads Framework Should Adopt a 10-Year Planning Horizon Consistent with High DER and the IEPR

Draft Resolution E-5413's five-year horizon is insufficient for long-lead TE infrastructure. The October 2024 HIDER Order requires utilities to plan over a 10-year horizon to align with the IEPR and account for the extensive development timelines associated with substations. Substations can require 10-15 years for land acquisition, environmental review, design, and construction. A five-year horizon will inevitably under-identify TE needs and delay upgrades essential for AB 2700 and CARB compliance.

To ensure internal consistency, the 10-year planning horizon should also apply to the hot-spot definition and to the identification of capacity-constrained areas. Retaining a five-year constraint window for hot-spot classification would be inconsistent with D.24-10-030 and risk systematically excluding long-lead TE load centers that materialize beyond the five-year window but within the required planning horizon.

The Commission should therefore adopt a 10-year pending loads horizon for substation and backbone-level planning, including identification of hot spots expected to emerge in years 6-10. Without this adjustment, the pending loads framework will remain structurally misaligned with both HIDER and the IEPR and will continue to undercount TE-related load in long-range planning cycles.

B. The Definition of "Hot Spot" Should Be Refined to Accurately Capture TE-Driven Load Signals

The framework's current definition of "hot spot" risks missing meaningful concentrations of future TE demand because it relies too heavily on observable constraints or discrete customer applications. The Commission should refine this definition to better reflect the way TE load emerges in practice. A hot spot should be defined as *"a geographical area served by electrical infrastructure that is expected to experience substantial forecasted load growth from multiple sources, including known loads, Category A inputs, and Category B1 pending loads."*

To ensure that the definition is not applied too narrowly, the Commission should clarify that the two components of the hot-spot definition operate on an "and/or" basis. Hot spots may arise because (1) substantial forecasted load growth from Category A, B1, or other aggregated TE signals is present, and/or (2) the associated substations or circuits are forecasted to be capacity-constrained within the 10-year planning horizon. This clarification ensures that areas with clear TE-driven growth are not excluded simply because observable constraints have not yet materialized, particularly for long-lead assets such as substations that require more than a decade to plan, permit, and construct.

For clarity and consistent implementation, the Commission should also specify that "total demand" for determining whether an area is capacity-constrained includes current load, known loads, and Category A and B1 pending loads. Without this clarification, utilities may apply the definition inconsistently, undermining the purpose of identifying least-regrets areas for incorporating B2 pending loads above the IEPR.

C. The Commission Should Revise Finding 17 to Align Pending Load Treatment with TEPP Outputs Across Corridors and Non-Corridor Areas

Finding 17 in the Draft Resolution narrows the circumstances under which pending loads may exceed the IEPR forecast by focusing primarily on transportation corridors. This framing is inconsistent with how TE load will actually materialize across the distribution system and is an issue we identified in our comments on the TEPP, that corridors and non-corridor locations are critical TE load centers.

Corridors represent only one subset of high-confidence TE growth. Some of the highest-density medium- and heavy-duty TE loads are expected at depots, warehouses and logistics hubs, ports, industrial districts, airports, and other activity centers that are not located along designated transportation corridors. These locations frequently have long-lead infrastructure needs – particularly substation expansions and high-capacity feeder upgrades – which must be identified well in advance of observable constraints.

D. Both Short-Term and Long-Term TE Hot Spots Must Be Identified to Support Long-Lead Infrastructure, and TEPP Should Serve as a Foundational Tool

The framework's current focus on near-term constraints does not capture the long-term TE load centers expected to materialize under CARB's rules, AB 2700 planning requirements, SIP obligations, and natural fleet turnover cycles. Many of the most significant TE loads – such as medium- and heavy-duty fleet depots – will emerge in the 2031-2045 horizon even if they do not yet present observable system constraints. Because substations and backbone circuits take more than a decade to plan and construct, both short-term and long-term hot spots must be identified to support timely infrastructure delivery.

The finalized Transportation Electrification Proactive Planning ("TEPP") product is the most comprehensive statewide tool available for identifying both types of TE hot spots. TEPP integrates fleet data, truck-movement modeling, land-use patterns, regulatory timelines, and geographic clustering to reveal where TE loads will concentrate over the next decade and beyond. Draft Resolution E-5413 should explicitly require the use of finalized TEPP outputs in hot-spot identification for both short-term and long-term planning. Without this direction, utilities may apply TEPP inconsistently or only to transportation corridors – even though TE load centers overwhelmingly arise at depots, ports, and industrial hubs.

Incorporating TEPP into the pending loads framework will provide the Commission and utilities with a reliable, policy-aligned identification of TE clusters, ensuring that infrastructure decisions can be sequenced appropriately to meet electrification timelines.

E. The Category B2 Threshold Structure Should Be Refined to Avoid Distorting Emerging TE Loads

Category B2 currently relies on fixed threshold values that determine whether study-based pending load can be incorporated into planning. This structure can create "cliff effects," where slight changes in study estimates, such as the addition or removal of a single charger, trigger disproportionately large shifts in the amount of load utilities may plan for. This problem is especially acute for medium- and heavy-duty fleet projects, which often scale in modular build-outs.

The Commission should adopt a more proportional, graduate, or tiered approach to incorporating B2 pending loads. This refinement would more accurately reflect the phased nature of TE deployment and improve planning stability without increasing uncertainty or risk.

F. Category C Studies Should Be Eligible to Exceed the IEPR Within Hot Spots When Tied to Policy Compliance

The Resolution appropriately distinguishes Category C from B2, but its current treatment does not fully recognize the role of state-policy-driven TE load. Many state policies – such as Executive Orders, CARB regulations, SIP attainment deadlines, and local government fleet transition plans – generate credible TE load signals even before formal regulatory obligations take effect.

Category C studies should be eligible to exceed the IEPR within hot spots when they provide geographically specific estimates of TE load associated with compliance with state policies for which regulatory obligations are expected but might not yet fully implemented. This approach aligns with the pending loads framework, preserves the intended rigor of Category C, and allows utilities to reasonably incorporate credible policy-driven load signals that fall outside of strict Category B2 classifications.

G. Utilities Should Report How Policies and Regulations Are Reflected in Category B2 and C Studies

Finding 31 outlines a robust set of reporting requirements for study-based pending loads, but the body of the body of the Resolution does not clearly require utilities to articulate how state policies, regulatory requirements, and §740.21 triggers were incorporated into their studies. To ensure transparency, consistency, and replicability across utilities, NRDC recommends that utilities be required to report how state policies, regulatory compliance obligations, and local plans were incorporated into each study used to derive Category B2 or C pending loads. Standardized reporting – including data sources, methodologies, assumptions, and hot-spot mapping – will facilitate Energy Division review and support a statewide, policy-aligned application of the pending-loads framework.

H. Policy-Driven and Regulatory-Compliance Studies Should Be Explicitly Included in Category B2

Many drivers of TE load arise not from discretionary customer decisions but from enforceable regulatory mandates. CARB's regulations - including the Advanced Clean Fleets rule, Advanced Clean Trucks, Innovative Clean Transit rule, Zero-Emission Airport Shuttle rule, Off-Road regulations, and drayage and port-related ZEV requirements – establish binding and time-specific fleet transition schedules that generate predictable and geographically concentrated TE load. SIP measures impose required emissions reductions in specific air basins, and local air districts' attainment plans and SIP implementation analyses often assume or in many case explicitly require accelerated electrification in determined subregions, creating additional policy-required TE load signals. AB 2700 requires the utilities, CPUC, and CEC to proactively plan for TE. Local governments and transit agencies also have mandatory fleet transition plans. Additional policy-driven data sources – including regional climate action plans, goods movement and port electrification plans, MPO clean transportation strategies, and airport or seaport ZEV deployment schedules – provide further medium-confidence, geographically specific signals of TE load growth.

Studies based on these requirements – including CARB modeling, SIP implementation analyses, AB 2700 compliance studies, and TEPP outputs – provide highly credible and policy-aligned forecasts of where and when TE load will develop. Yet Draft Resolution E-5413 does not explicitly confirm that these studies qualify as Category B2. Without such clarity, utilities may treat these studies as Category C, limiting their inclusion under IEPR caps and significantly understating load. Affirmatively designating policy-driven studies as Category B2 ensures that distribution planning incorporates enforceable electrification requirements and aligns with the state's statutory planning obligations. Explicit recognition is also consistent with Pub. Util. Code § 740.21, which requires utilities to account for CARB regulations and other state-policy compliance obligations when planning for transportation electrification.

I. The Category B2 Threshold Structure Should Be Refined to Avoid Distorting Emerging Transportation Electrification Loads

The current design of Category B2 includes fixed threshold values that determine whether study-based pending load is incorporated into planning. This creates a "cliff effect" in

which planning treatment changes abruptly depending on whether a forecasted load is just above or below a threshold. For TE projects – which often scale in phases or modular increments – such thresholds do not reflect reality and can distort the recognition of credible, emerging load.

A more flexible, proportional, or tiered approach would better reflect the incremental nature of TE adoption and would allow the planning process to incorporate partial or phased build-outs without over- or underweighting their significance. This refinement would improve the stability and accuracy of load incorporation, especially for fleet-scale TE projects that grow over multiple years.

III. CONCLUSION

Draft Resolution E-5413 establishes a strong foundation for identifying and incorporating pending loads into distribution planning. With the refinements recommended above and detailed in the Appendix below – including adopting a 10-year horizon, refining the hot-spot definition, requiring use of TEPP, incorporating both short- and long-term hot spots, affirming the use of B1 and B2 above IEPR where justified, and explicitly recognizing policy-driven studies – the framework will more accurately reflect transportation electrification, align with statutory requirements, and support timely, cost-effective, and equitable grid investments. NRDC appreciates the Commission's efforts and look forward to continued collaboration as the framework is implemented.

Respectfully submitted,

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Appendix:

Findings and Conclusions

9. It is reasonable to restrict pending loads based on studies not to exceed the IEPR, except where that study is 1) geographically specific and 2) estimates load growth associated with compliance with state policies for which regulatory compliance obligations are expected but not yet implemented.

13. Hot spots are appropriately defined as specific geographical and capacity-constrained areas within the ten-year planning period with forecasted load growth from multiple sources including known loads, Category A, and Category B1 pending loads. Hot Spots are further defined in detail in the Hot Spots section. It is reasonable for less certain pending loads in Category B2 and Category C to exceed the IEPR if they are in a hot spot. This hot spot definition will help identify least regrets investment areas where it is appropriate to include lower certainty pending loads data from Category B2 above the IEPR forecast.

17. The Transportation Electrification Proactive Planning (TEPP) work product originating from R.23-12-008, Transportation Electrification Policy and Infrastructure proceeding, is a potential future source of pending load data focused on transportation corridors. Additional work product that aligns transportation electrification assumptions and models used by industry, academia and government would be useful to potentially improve the pending load framework, potentially change the definition of hot spots and identify hotspots in 2031 to 2045 in corridors and outside of corridors (e.g., areas with logistics, seaports, bus routes, airports and other freight and goods movement hubs).

31. PG&E, and all utilities should report, at minimum, the following data fields in their spreadsheet for study-based pending loads: Source of information (e.g., study, forecasting models, etc.) , how policies (regulations, plans and orders from PU code §740.21) were included in the study or model, Data Access (e.g., links to public data, or provider of data if not publicly available), Detailed Methodology, including how data sources are translated into Pending Loads. Categorization of Pending Loads obtained from the study (B2 or C), and Hot Spot location, if any.

xxx. It is reasonable to define "compliance with state policies for which regulatory compliance obligations are expected but not yet implemented" as the CARB regulations covered under PU code §740.21.

THEREFORE IT IS ORDERED THAT:

6. Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company shall define hot spots as:

(v) a geographical area that is served by electrical infrastructure that is expected to experience substantial forecasted load growth from multiple sources including-known loads, Category A, and Category B1 pending loads, and/or

(v) that area includes specific electrical infrastructure, i.e., substations and circuits which are forecasted to be capacity-constrained within the ~~five-year~~ ten-year planning period.

~~(v)~~ An area is capacity constrained if the total capability of its infrastructure is only marginally greater than the demand served by the infrastructure after all low cost/no cost solutions have been considered. A hot spot will be considered a constrained area if the ~~difference between the total capacity and~~ total demand from current loads, known loads, and Category A, B1, and B2 pending loads is equal to or greater than total capacity. ~~is less than or equal to half the total amount of Category B2 pending loads.~~

(v) A Category C pending load study may also be used in determining capacity constrained areas in (iii) if the study is 1) geographically specific and 2) estimates load growth associated with compliance with state policies for which regulatory compliance obligations are expected but not yet implemented.

(v) If this occurs, half of all Category B2 and state policy compliance Category C pending loads served in the specific capacity constrained area above may exceed the California Energy Commission's Integrated Energy Policy Report.

All utilities shall report, in their annual Grid Needs Assessment (GNA) and Distribution Upgrade Progress Report (DUPR) filings, a list of identified capacity constrained areas and which of these are designated as hot spots with sufficient detail to connect known loads and pending loads to each hot spot. The utilities in their GNA/DUPR filings shall provide quantitative support for each forecast year of the ~~five-~~ten year planning period for each hot spot: (i) the list of Known Loads and Pending Loads in the hot spot, and (ii) the calculations used for determining that the hot spot is capacity constrained including the list of infrastructure (including but not limited to substation banks, circuits and ties) and their capabilities, the forecasted demand within the hot spot and the available margin between the two. The IOUs must consult with Energy Division prior to the GNA/DUPR filing date to confirm the fields and formats for how pending loads should be reported in the GNA/DUPR.

13. Southern California Edison Company, Pacific Gas and Electric Company, and San Diego Gas & Electric Company shall report in their annual Grid Needs Assessment and Distribution Upgrade Project Reports, at minimum, data on studies used as the basis of pending loads: Source

of information (e.g., study, forecasting models, etc.), how policies (all regulations, plans and orders from PU code §740.21) were included in the study or model, Data Access (e.g., links to public data, or provider of data if not publicly available), Detailed Methodology (including how data sources are translated into Pending Loads), and Categorization of Pending Loads obtained from the study (Category B2 or C), hot spot location, if applicable.