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BEFORE THE PUBLIC UTILITIES COMMISSION
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Order Instituting Rulemaking to Modernize the Electric Grid for a High Distributed Energy Resources Future.	Rulemaking 21-06-017 (Filed July 2, 2021)

ENVIRONMENTAL DEFENSE FUND COMMENTS ON DISTRIBUTION GRID ELECTRIFICATION MODEL 2025 STUDY AND REPORT

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I. INTRODUCTION

On December 22, 2025, the California Public Advocates Office ("Cal Advocates") filed a motion to admit its Distribution Grid Electrification Model 2025 Study and Report ("2025 DGEM") into the record of the California Public Utilities Commission's ("CPUC") High DER proceeding.[1] On January 6, 2026, Pacific Gas & Electric ("PG&E") filed a response supporting the motion and requesting that stakeholders have an opportunity to comment on the 2025 DGEM.[2] On January 8, 2026, Administrative Law Judge Jack Chang issued a ruling granting Cal Advocates' motion to admit the study and PG&E's request for a comment opportunity.[3] The ruling directs parties filing comments to "address how the DGEM 2025 Study and Report should be balanced against other studies in the record."[4] These comments of Environmental Defense Fund ("EDF") are responsive to that ruling. In summary, EDF makes the following points:

- The Commission should consider the results of the 2025 DGEM as mutually complementary to the Electrification Impact Study Part 2 ("EIS") reports developed by the utilities; and
- The Commission should recognize that despite varying assumptions, the EIS and 2025 DGEM reports all show significant potential benefits to well-managed load growth, including transportation electrification load growth in particular.

II. DISCUSSION

The 2025 DGEM and the EIS reports tell largely the same story: preparing California's electric grids to support end-use electrification will be expensive, but can be a net benefit for ratepayers without even considering the massive societal benefits of decarbonization.

The 2025 DGEM's base scenario estimates a total grid upgrade cost of $25 billion through 2040 to support electric vehicles ("EVs") and building electrification ("BE").[5] The EIS reports of

[1] R.21-06-017, *Order Instituting Rulemaking to Modernize the Electric Grid for a High Distributed Energy Resources Future*, Motion of the Public Advocates Office to Admit its Distribution Grid Electrification Model 2025 Study and Report into the Record (Dec. 22, 2025) [hereinafter "2025 DGEM"]
[2] R.21-06-017, *Order Instituting Rulemaking to Modernize the Electric Grid for a High Distributed Energy Resources Future*, Pacific Gas and Electric Company's (U 39 E) Response to The Public Advocates Office's Motion to Admit its Distribution Grid Electrification Model 2025 Study and Report into the Record (Jan. 6, 2026).
[3] R.21-06-017, *Order Instituting Rulemaking to Modernize the Electric Grid for a High Distributed Energy Resources Future*, Administrative Law Judge's Ruling Soliciting Comments on the Public Advocates Office's 2025 Distribution Grid Electrification Model 2025 Study and Report (Jan. 8, 2026).
[4] *Id.* at 3.
[5] 2025 DGEM at 14.

PG&E,[6] Southern California Edison ("SCE"),[7] and San Diego Gas & Electric ("SDG&E"),[8] finalized on January 28th, 2026, cumulatively estimate a base scenario cost of approximately $41.8 billion. While this is a large difference, the Commission should recognize the significant uncertainties associated with forecasting costs for a system as complex as the electric grid, particularly when looking as far as 15 years into the future. Much of the difference between the utilities' and Cal Advocates' results can be attributed to differences in the assumptions and methodologies underlying their reports.

The models' treatment of secondary distribution infrastructure upgrade needs is a good example of this. The 2025 DGEM estimates secondary system costs as a percentage of primary system costs.[9] SDG&E relied on its 2024 transformer loading report to conduct a bottom-up forecast.[10] PG&E conducted a geospatial analysis to estimate the impact of forecasted load growth within each equally sized hexagons across its territory and allocate upgrade needs accordingly.[11] And SCE used the 2023 IEPR DER forecast, disaggregating circuit-level data to individual customer meters to forecast future upgrade needs.[12] Each of these represents a distinct method of estimating secondary system upgrade costs, and we should not be surprised that they produced different results.

The results of these varied methods are striking. Table 1 below shows the percentage of secondary system costs as a percentage of primary system costs through 2040 for the base scenario for each study. These results are not just different, but orders of magnitude apart. While differences in each utility's system design likely contribute to a portion of the variation seen in these results, the varying assumptions and methodologies underlying each study also play a major role.

[6] R.21-06-017, Pacific Gas and Electric Company's (U 39 E) Electrification Impacts Study Part 2 Report (Jan. 28, 2026) [hereinafter "PG&E EIS Part 2"].
[7] R.21-06-017, Southern California Edison Company's (U 338-E) Electrification Impacts Study Part 2 Final Report (Jan. 28, 2026) [hereinafter "SCE EIS Part 2"].
[8] R.21-06-017, San Diego Gas & Electric Company's (U 902 E) Final Electrification Impact Study Part 2 (Jan. 28, 2026) [hereinafter "SDG&E EIS Part 2"].
[9] 2025 DGEM at 48. The DGEM recognizes that further work is needed on "[e]ffectively modeling the costs associated with upgrading secondary distribution infrastructure such as service transformers." *Id.* at 17.
[10] SDG&E EIS Part 2 at 17-18.
[11] PG&E EIS Part 2 at 99-110.
[12] SCE EIS Part 2 at 49.

Table 1.

Study	Secondary distribution costs as a percentage of primary distribution costs
2025 DGEM[13]	47.56%
SDG&E EIS Part 2[14]	23.49%
PG&E EIS Part 2[15]	165.6%
SCE EIS Part 2[16]	6.25%

And this variation significantly affects the headline cost estimate for the studies. Changing PG&E's secondary costs to match the share of primary costs used in the 2025 DGEM, without making any other changes, would lower PG&E's total base scenario cost estimate by more than $11 billion, or 44 percent. This one example underscores the reality that this type of modeling is challenging, and the Commission should focus on the general direction of the results, rather than expecting an unreasonable (and functionally unnecessary) degree of precision at this stage.

When viewed holistically, however, the consistency across these studies is more apparent. The studies consistently find that preparing California's electric system for widespread end-use electrification will cost tens of billions of dollars over the next 15 years statewide. But, the studies are also in agreement that this transition can save ratepayers money, and implementing effective programs to manage load is the key to this outcome.

The studies all agree that load growth paired with load flexibility can reduce ratepayer costs. The 2025 DGEM concluded that electrification can put downward pressure on rates by as much as ¢4.5 per kilowatt-hour as increased consumption offsets grid upgrade costs.[17] PG&E's EIS estimated electrification could produce as much as 25% downward pressure on rates by 2040, with additional demand flexibility efforts adding another 7% on top of this.[18] And SCE and SDG&E, while not estimating rate impacts, both estimated substantial cost reductions from demand flexibility, with SCE's most aggressive demand flexibility scenario showing costs $1.38

[13] 2025 DGEM at 50.
[14] SDG&E EIS Part 2 at 27.
[15] PG&E EIS Part 2 at 15.
[16] SCE EIS Part 2 at A-7.
[17] 2025 DGEM at 15-16.
[18] PG&E EIS Part 2 at 14-17.

billion or 10.5% below the base scenario,[19] and SDG&E's demand flexibility scenario showing costs $697 million or 21.8% below the base scenario.[20]

The studies are also consistent in finding that the management of EV charging can play a significant role in producing these cost savings. The 2025 DGEM estimated that managed EV charging could produce benefits of $5-18 billion in avoided grid upgrade costs through 2040.[21] PG&E lists actively managed EV charging and vehicle-to-grid as technologies that "contributed to significant peak load reductions over time" in its enhanced demand flexibility scenario.[22] SCE's Alternate Demand Flexibility Case, which shows the greatest potential for peak load reduction of its four scenarios, relies on full participation in managed charging programs by light-duty and medium-/heavy-duty EVs.[23] And SDG&E found that the load shape changes between its base scenario and demand flexibility scenario were "primarily driven by changes in EV charging behavior."[24]

These results, therefore, support the work the Commission and the utilities have been undertaking to support and accelerate end-use electrification, including recent work on energization timelines, improving the utilities' forecasting and planning, and accelerating energization through flexible service connections. The studies also underscore the central role of transportation electrification in the coming decades as a source of beneficial load growth, supporting continued efforts by the Commission to address barriers to EV deployments, including in particular EV charging energization delays. Lastly, these reports highlight the importance of continuing efforts to leverage load flexibility that can benefit both individual participating customers and ratepayers as a whole. The Commission should consider what further efforts it can undertake to increase the availability and uptake of load flexibility programs, rates, and other price signals in order to maximize these benefits.

III. CONCLUSION

EDF thanks the Commission and utilities for the opportunity to provide these comments.

[19] SCE EIS Part 2 at A-7, A-12.
[20] SDG&E EIS Part 2 at 1.
[21] 2025 DGEM at 16.
[22] PG&E EIS Part 2 at 34.
[23] SCE EIS Part 2 at 11, 14-15.
[24] SDG&E EIS Part 2 at 21.

Respectfully submitted,
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