**Application 23-05-010**
**Exhibit No. _____**

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

| | |
|---|---|
| **Application of Southern California Edison Company (U 338-E) For Authority to Increase Its Authorized Revenues for Electric Service In 2025, Among Other Things, and to Reflect That Increase in Rates.** | **Application 23-05-010**<br>**(Filed May 12, 2023)** |

**Testimony of**

**Sam Harper**

**on Behalf of**

**California Large Energy Consumers Association, Agricultural Energy Consumers Association, California Farm Bureau Federation, California Manufacturers & Technology Association, California Metals Coalition, Energy Users Forum, and Energy Producers and Users Coalition**

February 29, 2024

HARPER
ADVISORY

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## EXECUTIVE SUMMARY

California has embarked on an unprecedented and ambitious endeavor to reshape huge swaths of its state economy in the interest of environmental stewardship, with far reaching impacts across nearly every aspect of daily life. However noble the intent, ultimate success is not guaranteed. The outcome of this proceeding may prove pivotal to electric rate affordability and the ultimate success or failure of the state's long-term policy goals.

Prudent investments to build out electrical infrastructure are no doubt necessary to improve reliability, facilitate load growth, and integrate new resources. Electrification of transportation, buildings, and industrial processes is an essential element of the state's climate initiative. If these electrification efforts are implemented properly, the associated growth holds the promise of enabling significant rate reductions by expanding the customer base and providing opportunities for improved asset utilization.

Nonetheless, massive "proactive" investments that are not aligned with the magnitude and timing of hoped-for, yet uncertain load growth are not prudent. Investments that are anticipated to increase revenue requirements by double-digit percentages amidst an existing affordability crisis are not prudent. Furthermore, investments to integrate substantial yet uncertain new loads before there is sufficient clean reliable energy to support existing load are not prudent. Massively increasing electricity rates right before capital constrained companies and individual consumers are expected to make long term investments to electrify is not realistic. The situation is much too tenuous for such a "build it and they will come" approach.

The electrification of transportation, buildings, and industrial processes is perhaps a once in a generation opportunity to return affordability to the California energy sector. Growing the customer base and achieving scale are key to lower prices in most industries, including electricity, but sensible implementation is essential, and the state must get the timing right. The Commission has undertaken significant reform efforts to address future grid needs, including resource adequacy slice of day reform[1] and the extension of dynamic rate pilots[2] — both efforts hold great promise for improved reliability. Similarly, the California Independent System Operator (CAISO) is reforming its interconnection queue to work through unprecedented levels of proposed clean energy resources[3]. The Commission, through its Integrated Resource Planning (IRP) process informs the billions of dollars of new transmission infrastructure that will be needed to achieve carbon neutrality by 2045. In addition, organizations across the energy

[1] D.22-06-050, *Decision Adopting Local Capacity Obligations for 2023-2025, Flexible Capacity Obligations for 2023, and Reform Track Framework*, Jun. 23, 2022.
[2] D.24-01-032, *Decision to Expand System Reliability Pilots of Pacific Gas and Electric Company and Southern California Edison Company*, R.22-07-005, Jan. 26, 2024.
[3] *See* CAISO*, 2023 Interconnection Process Enhancements Track 2 Draft Final Proposal*, Feb. 8, 2024.

landscape are undertaking related endeavors to build the California energy grid of the future. Collectively, these efforts hold great promise for an energy grid that can provide clean, reliable electricity at affordable rates to a growing customer base that is responsive to grid conditions. However, these efforts will take time and the state cannot "put the cart before the horse."

Currently, the state lacks sufficient clean, reliable energy resources needed to supply the load growth anticipated from electrification efforts. Building out the distribution grid to power massive new electrification loads before there are sufficient clean generation resources to support the new loads would exacerbate current grid management challenges. Such premature investment would also create new long-term costs without sufficient new loads to absorb those costs, causing an increase to existing customers' rates, and potentially hindering long-term electrification targets, even after sufficient cheap clean energy eventually becomes available.

The promise of electrification is real, but to achieve this promise, the state must properly align and time electrification investment costs with load growth through pragmatic implementation. The goal post for success must be meaningful electricity rate stabilization and reduction in a reasonably certain near-term horizon.

## INTRODUCTION

**Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

**A** Sam Harper. My business address is Harper Advisory LLC, 1401 Lake Plaza Drive, Suite 200, Spring, TX 77389.

**Q WHAT IS YOUR OCCUPATION?**

**A** I am a consultant in the field of energy markets and policy.

**Q PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.**

**A** Please see Appendix A to this testimony.

**Q ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?**

**A** I am appearing on behalf of the California Large Energy Consumers Association (CLECA),[4] Agricultural Energy Consumers Association (AECA),[5] California Farm Bureau Federation (CFBF),[6] California Manufacturers & Technology Association (CMTA),[7]

[4] CLECA member companies produce goods essential for daily life including critical infrastructure, oxygen for hospitals and food distribution. CLECA's members represent the steel, cement, industrial and medical gas, beverage, minerals processing, cold storage, and pipeline transportation industries. Their aggregate electrical demand exceeds 500 Megawatts, which is equivalent to the electricity consumption of approximately 470,000 average California households. CLECA members are large, high load factor and high voltage industrial electric customers in California for whom the price of electricity is essential to their competitiveness and for whom the reliability of electricity service is critically important. For both reasons, CLECA member companies have participated for decades in the Base Interruptible Program (BIP), providing reliability demand response to the grid in times of need.

[5] AECA is a nonprofit organization that represents the energy interests of California agriculture. AECA was founded in 1991 by growers and other members of the agricultural community concerned about rapidly rising electricity costs. AECA represents the collective interests of the state's leading agricultural associations and works on behalf of the combined interests of several county Farm Bureaus and more than forty agricultural water districts. AECA's membership is broad-based, reflecting family farmers from Redding in the north to San Diego in the south who grow crops ranging from alfalfa to walnuts. Through its members and membership associations, AECA represents in excess of 40,000 California agricultural producers.

[6] CFBF is California's largest farm organization, working to protect family farms and ranches on behalf of its more than 26,000 members statewide and as part of a nationwide network of nearly 5.8 million members. Organized over 100 years ago as a voluntary, nongovernmental and nonpartisan organization, it advances its mission throughout the state together with its 54 county Farm Bureaus. CFBF works closely with its county Farm Bureaus to advance their concerns with matters arising at the Commission.

[7] CMTA represents the interests of 25,000 large and small manufacturers in California with 1.2 million employees, about 8% of total state employment and about 11% of gross state product. Manufacturing creates the most wealth of any sector – for every $1 invested in manufacturing, another $1.35 is added to the economy, and every one manufacturing job supports an additional 2.5 jobs in the local region. Since 1918, CMTA has supported state laws and regulations to maintain a competitive business climate to encourage manufacturing investment and job growth.

California Metals Coalition (CMC),[8] Energy Users Forum (EUF),[9] Energy Producers and Users Coalition (EPUC),[10] (collectively, the Joint Ratepayers). The Joint Ratepayers represent a broad array of customers across various economic sectors. These customers are responsible for providing essential goods and services necessary for daily life, make up a sizable portion of the state economy, pay hundreds of millions of dollars in state and local taxes and provide desperately needed high quality jobs in California. Their long term success is essential to achieving the state's policy goals. Notably, most of the organizations comprising the Joint Ratepayers have not typically participated in the base revenue requirement setting phase of an electric utility General Rate Case (GRC) due to the significant costs required to do so. These entities' decisions to participate now underscores the magnitude of concern with the revenue requirement request in this proceeding and the potential impact on these customers' operations.

**Q WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

**A** The purpose of my testimony is to address policy concerns with Southern California Edison's (SCE) test year (TY) 2025 GRC Application (A.) 23-05-010 (the Application). Specifically, my testimony provides an assessment of the current

[8] CMC is a full-service, statewide organization supported by hundreds of metalworking companies throughout California. CMC was founded in 1972 to establish a unified voice for proactive metalworking businesses when engaging California's government on rulemaking and proposed laws. CMC members represent all sectors of the state's diverse metals industry, an economic sector that accounts for $87 billion in total economic activity and generates over 350,000 jobs in the state.

[9] EUF is an ad hoc coalition that represents the interests of medium and large bundled service, DA, and CCA customers in California, taking service on rate schedules for accounts with demands above approximately 50 kW.

[10] EPUC represents the electricity end-use interests of the following companies in this proceeding: California Resources Corp., Chevron U.S.A. Inc., PBF Holding Company, Phillips 66 Company, and Tesoro Refining & Marketing Company LLC.

affordability crisis before highlighting the impact of SCE's proposed revenue requirement increases on affordability, and the associated policy consequences.

**Q HOW IS YOUR TESTIMONY ORGANIZED?**

**A** First, I provide an overview of Joint Ratepayers' operations and interests in this proceeding, followed by a discussion of the Joint Ratepayers' electric rate affordability and policy concerns.

Second, I respond to Scoping Issue 1,[11] with a review of SCE's electric rate affordability, and the impact of this Application on customer rates. Next, I assess the assumptions and uncertainties surrounding transportation electrification timing and location. Finally, I discuss the availability of clean, reliable electricity generation resources, and the regulatory reforms necessary to reasonably and cost-effectively support electrification load growth to achieve state decarbonization goals.

## SUMMARY OF RECOMMENDATIONS

**Q PROVIDE A SUMMARY OF YOUR POSITIONS IN THIS TESTIMONY.**

**A** The Joint Ratepayers recommend the Commission consider and find as follows:

1. The Commission should acknowledge the seriousness of current electric rate unaffordability.
2. The Commission should acknowledge the uncertainty of the timing and location of anticipated load growth associated with transportation electrification.

[11] *Assigned Commissioner's Scoping Memo and Ruling*, Application (A.) 23-05-010, September 5, 2023 at p. 3 (Issue 1. Whether SCE's proposed revenue requirements, proposed costs, and proposed recovery mechanisms for TY 2025 are just and reasonable, and whether they should be approved by the Commission.).

3. SCE should not be allowed to dramatically increase its revenue requirement in this rate case and hinder the individual decisions by ratepayers to invest in electrification that could lead to cost effective load growth and a net decrease on overall electric rates.
4. The Commission should only approve investments that will promote load growth that results in reduced electricity rates within the TY 2025 GRC cycle.
5. The Commission should establish broadly available dynamic price tariffs and related rate reforms before approving massive distribution investments to connect new loads.
6. The Commission should be bold in protecting ratepayers from SCE's incessant rate increases and stalwart in setting just and reasonable electricity rates for the TY 2025 GRC cycle based upon a more realistic pace for electrification adoption.

## JOINT RATEPAYERS' OPERATIONS AND INTERESTS

**Q WHO ARE THE JOINT RATEPAYERS?**

**A** The Joint Ratepayers are a diverse group of SCE customers that are interested in safe, reliable, clean, and affordable electricity. Joint Ratepayers member companies comprise a significant portion of the California economy across numerous sectors including manufacturing, technology, heavy industry, metals processing, and agriculture. Joint Ratepayers member companies provide goods and services essential to the well-being of all Californians, including materials for critical infrastructure, medical grade oxygen for hospitals, food production, processing and distribution, and technologies essential to addressing climate challenges.

**Q WHAT ARE THE INTERESTS OF THE JOINT RATEPAYERS IN THIS CASE?**

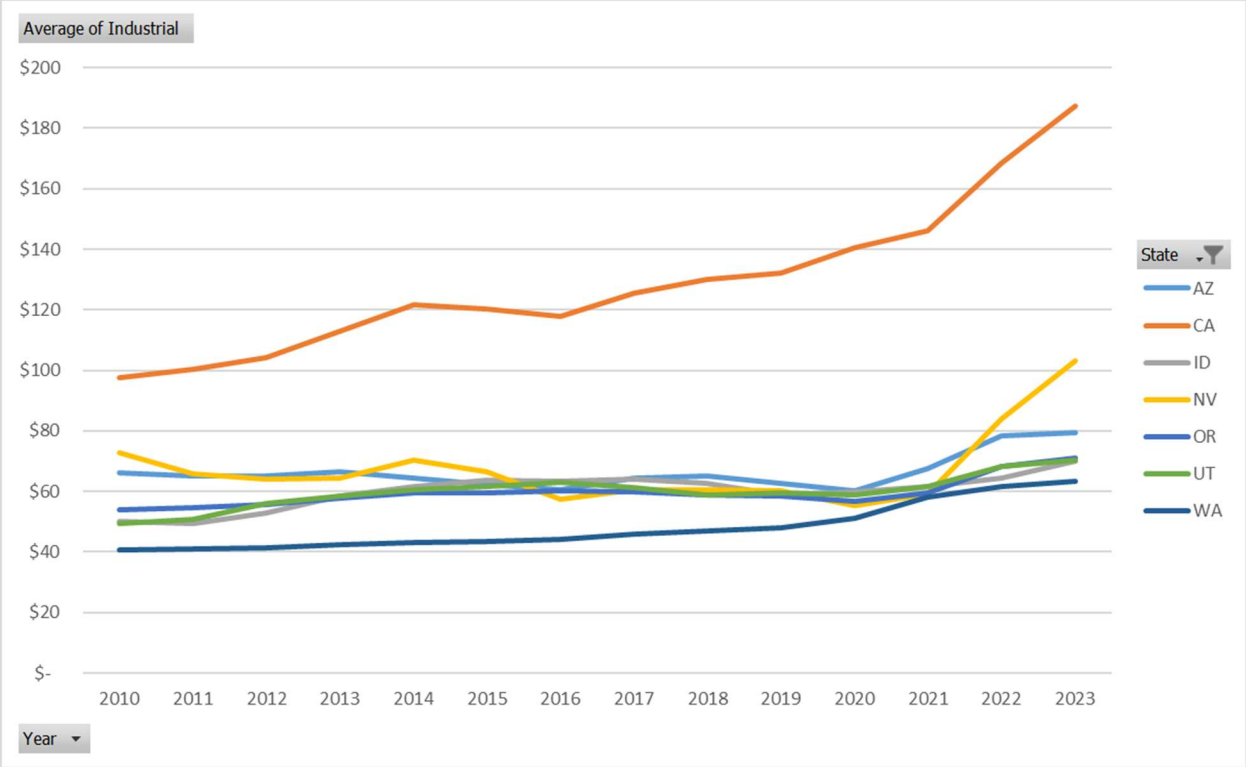
**A** The Joint Ratepayers, like many other California ratepayers, are facing an affordability crisis. The Joint Ratepayers member companies compete with operations located in neighboring western states, across the country, and in some cases, internationally. Energy costs are a significant driver of the Joint Ratepayers member companies' competitiveness and impact their ability to maintain or expand operations within the state. Additionally, many member companies have set individual environmental targets that involve electrifying portions of their operations, or adopting carbon capture or other technologies that involve consuming significantly more electricity. Joint Ratepayers' ability to competitively execute these environmental strategies depends directly on the price of electricity.

## JOINT RATEPAYER ELECTRIC RATE AFFORDABILITY AND IMPACTS

**Q WHAT IS THE CURRENT STATE OF INDUSTRIAL SECTOR ELECTRIC RATE AFFORDABILITY?**

**A** California electric rates for industrial sector customers are approximately **2.5 times** the average industrial sector rates of neighboring western states. This gap has grown dramatically in recent years. Many of the Joint Ratepayers primarily compete with operations located in neighboring states; these neighboring, lower electric rates provide a strong incentive to move energy intensive operations out of state, and put tremendous competitive pressure on operations looking to remain, expand, or electrify in California. This potential for economic and emissions leakage should be of great concern to the Commission.

**Figure 1**
**Industrial Sector Average Electricity Rate by State $/MWH[12]**




**Q HAVE COMPANIES ACTUALLY LEFT THE STATE DUE TO ENERGY COST?**

**A** Yes, although there are typically several reasons for an operation to close, high energy cost has been a primary driver of operations closing in the state. For example, the last steel melting facility in the state, which produced seismic reinforcing bar located in Rancho Cucamonga within SCE's territory, closed its operations in 2020 citing high costs.[13] California did not stop consuming seismic reinforcing bars, it just stopped producing them. Other losses of operations are more subtle, with California companies

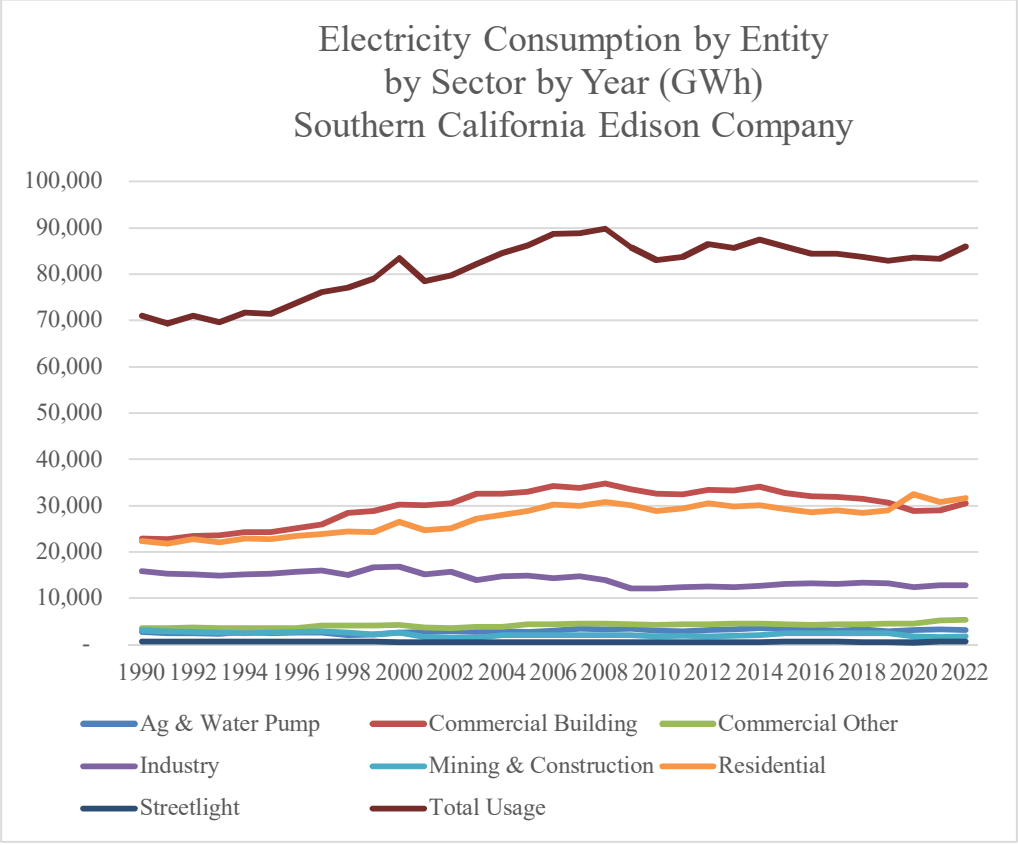
[12] Source: Energy Information Agency (EIA), EIA-861M Monthly Electric Power Industry Report, Monthly sales to ultimate customers by state for all sectors, January 2010 – November 2023.
[13] Kevin Smith, *Commercial Metals to Shutter Rancho Cucamonga Steel Mill, Citing High Costs in California*, San Gabriel Valley Tribune, Oct. 16, 2020, (available at: https://www.dailybulletin.com/2020/10/16/commercial-metals-to-shutter-rancho-cucamonga-steel-mill-citing-high-costs-in-california/.).

choosing to shift some portion of operations to, or prioritize investments in, out-of-state facilities.

**Q WHAT IS THE LONG-TERM TREND OF INDUSTRIAL SECTOR ENERGY CONSUMPTION IN SCE'S TERRITORY?**

**A** Electricity consumption for the industrial sector within SCE's service territory has been stagnating over the recent decades. According to the California Energy Commission (CEC), the industrial sector's annual statewide energy consumption declined 19% from 1990 through 2022. Yet, over the same period, the overall energy consumption in SCE's territory has increased by 20%.

**Figure 2**[14]




[14] Source: CEC, *Electricity Consumption by Entity* (available at: https://ecdms.energy.ca.gov/elecbyutil.aspx).

**Q WHAT ARE THE POLICY IMPACTS OF RATE AFFORDABILITY ISSUES FACED BY THE JOINT RATEPAYERS?**

**A** Joint Ratepayers members provide critical goods and services; their inability to compete due to electric rate affordability limits their ability to remain or expand in California and meet the needs of their customers. Many Joint Ratepayers, like the agricultural customers and producers of commodities, are price takers for their production output and cannot pass on the additional cost they incur to customers. Loss of local production capacity of these critical goods and services moves jobs, tax revenue, and economic activity out of state. In addition, the loss of in-state production imposes supply chain challenges, potential delays, and logistics costs on consumers, and places upward pressure on price inflation.

Some Joint Ratepayer members are pursuing electrification, carbon capture, and other technologies to achieve individual environmental and decarbonization targets that involve consuming significantly more electricity. Increasingly unaffordable electric rates will be a significant barrier to Joint Ratepayer members' ability to competitively achieve their individual company goals, especially if competitors in other states are not subject to decarbonization mandates. The specter of both economic and emissions leakage is real.

Many Joint Ratepayer member companies are Energy Intensive and Trade Exposed (EITE), with the associated risk of emissions leakage. Emissions leakage occurs when emissions apparently decrease within California but increase globally. The Commission explains, "[e]missions leakage could occur if a production facility moved out of California to a jurisdiction without a Cap-and-Trade Program or other climate

goals."[15] One example of emissions leakage would be an instance where an industrial facility that produces an essential good is no longer able to compete in California and forced to close its facility or move a portion of that facility's production out of state. To meet California's demand for that essential good, that good must now be imported from an out-of-state jurisdiction with less robust environmental regulations or climate goals, and shipped over longer distances by truck, rail, or ship with greater supply chain vulnerability. Similarly, unaffordable electric rates may force California food producers to go out of business. This would drive a shift to imported out-of-state agricultural and other food products, and the associated food price and environmental impacts.

Furthermore, some Joint Ratepayer member companies are involved in developing the technology that is vital to addressing climate challenges in the future. Some Joint Ratepayers, like agricultural customers, cannot leave the state and continue operations elsewhere, like other businesses can. California is unique in its variety and volume of agricultural output, but electricity rates threaten the state's economy and food security. The loss of these companies may not be replaceable.

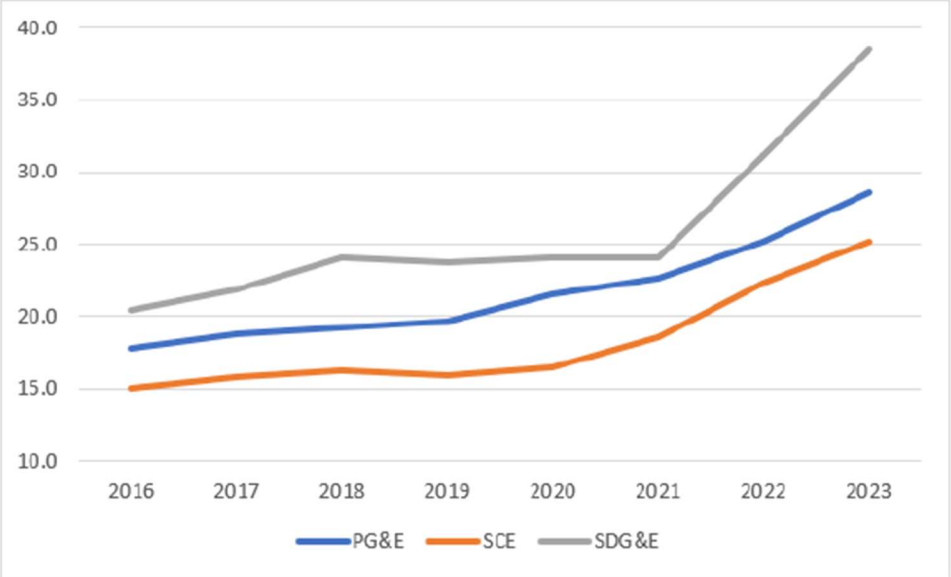
[15] *See,* CPUC, *California Industry* Assistance (available at: www.cpuc.ca.gov/industries-and-topics/natural-gas/greenhouse-gas-cap-and-trade-program/california-industry-assistance#:~:text=Eligible%20EITE%20facilities%20that%20report%20to%20CARB%20%28California,works%20with%20the%20utilities%20to%20deliver%20the%20credit).

## SCE AFFORDABILITY AND IMPACT OF THIS APPLICATION ON RATES

**Q HOW AFFORDABLE ARE SCE'S ELECTRIC RATES?**

**A** SCE compares itself favorably to Pacific Gas & Electric Company (PG&E) and San Diego Gas & Electric Company (SDG&E). Even so, SCE's system average rates have increased dramatically in the last several years.

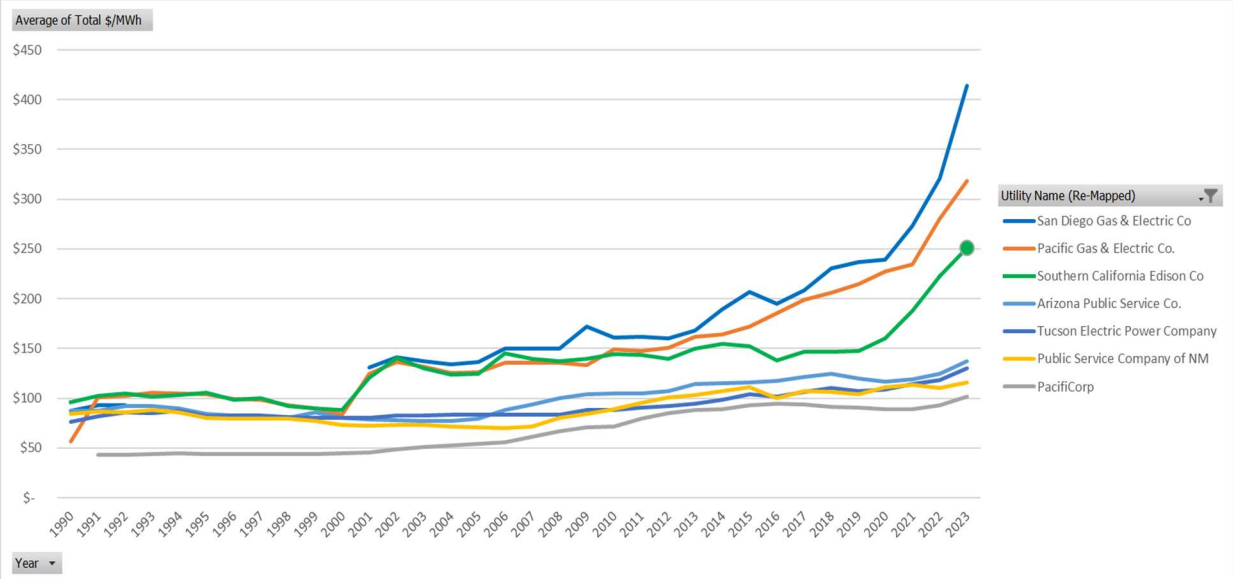
**Figure 3**
**IOU System Average Rates (c/kWh)[16]**




The worsening situation becomes even clearer by expanding the context for comparison. The three major investor-owned utilities (IOUs) in California are the outliers compared to other utilities in surrounding states. The gap between SCE's average rates and those of utilities in neighboring states has grown from a 15% premium in 1990 to over **200%** in 2023. The SCE total rate for all customers has increased by over **2.5 times** since 1990.

[16] Exh. SCE-07, Vol. 4 (Affordability) at p. 11 (Table V-5).

**Figure 4**
**Total System Average Electricity Rate by Utility $/MWH[17]**

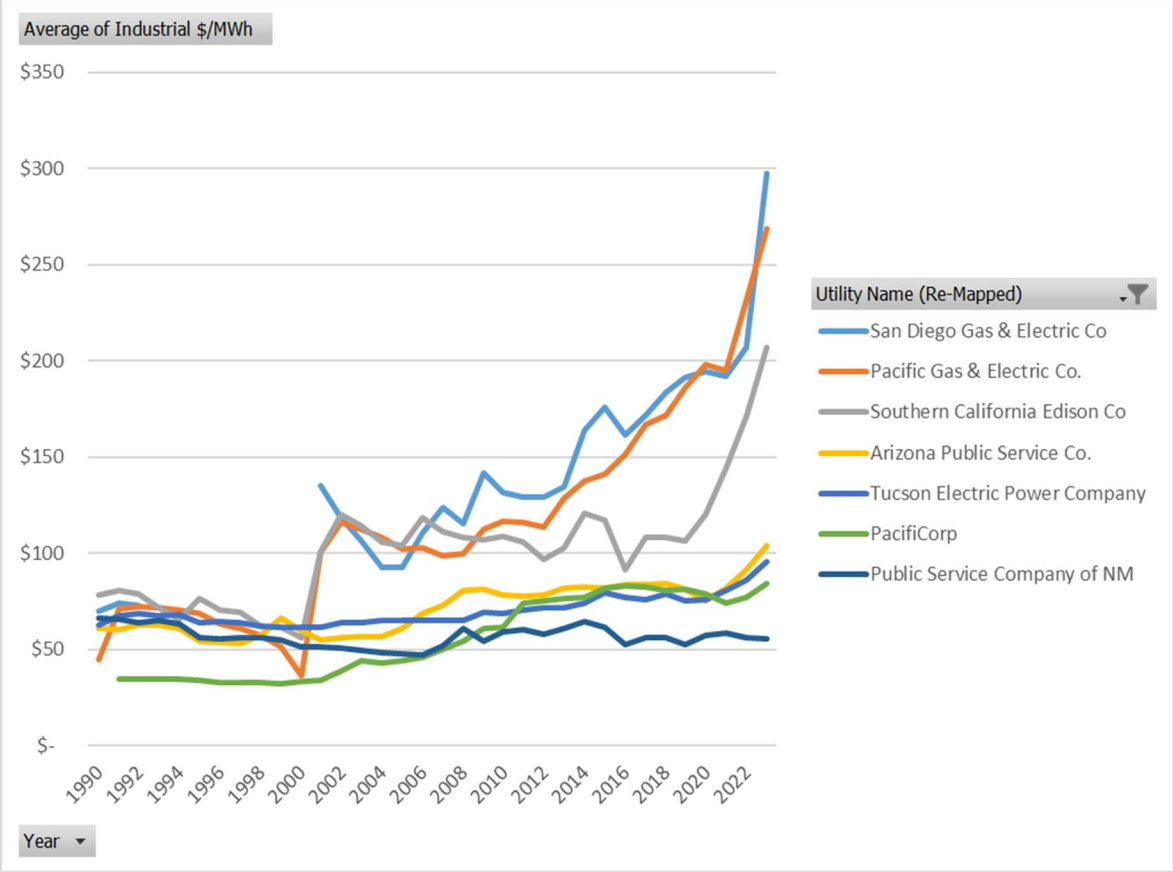



**Q HOW AFFORDABLE ARE SCE'S ELECTRIC RATES FOR THE INDUSTRIAL SECTOR?**

**A** SCE industrial sector rates are also much higher than neighboring state utilities' industrial rates. SCE industrial customers' 2023 rates are **two to four times higher** than the rates charged by most neighboring state utilities. The gap has exploded in recent years. As recently as 2016, SCE rates were *only* about 50% higher. Given this disparity, when Joint Ratepayer member companies are considering shifting production or investment dollars due to cost pressures, it is understandable that they seriously consider shifting operations and investments outside of California.

[17] Source: EIA data January 1990 through November 2023: compilation of Report 861M (available at: https://www.eia.gov/electricity/data/eia861m/).

**Figure 5**
**Industrial Sector Average Electricity Rate by Utility $/MWH[18]**




**Q WHAT IS THE PROJECTED IMPACT ON RATES FROM THIS APPLICATION?**

**A** SCE projects that its proposed revenue requirement increase will result in a 9% overall rate increase from 2024 to 2025 based on a System Average Percentage Change basis.

[18] Source: EIA data January 1990 through November 2023 (compilation of Report 861M available at: https://www.eia.gov/electricity/data/eia861m/).

**Table 1**
**SCE's Estimated Impact on Customer Rates[19]**

| Bundled Average Rates (¢/kWh)* | | | | |
|---|---|---|---|---|
| Customer Group | 2024** | Proposed Change | Proposed Rates | % Change*** |
| Residential | 32.29 | 3.42 | 35.71 | 10.6% |
| Lighting - Small and Medium Power | 28.38 | 2.89 | 31.26 | 10.2% |
| Large Power | 19.92 | 1.37 | 21.29 | 6.9% |
| Agricultural and Pumping | 23.44 | 2.00 | 25.44 | 8.5% |
| Street and Area Lighting | 29.11 | 1.36 | 30.48 | 4.7% |
| Standby | 17.24 | 1.07 | 18.31 | 6.2% |
| **Total** | **27.11** | **2.45** | **29.56** | **9.0%** |

Notably, the proposed 9% increase from 2024 to 2025 is on top of an approximate 8% increase from 2023 to 2024, based on the 2023 overall rate from **Figure 3** of 25 ¢/kWh to the 2024 figure from **Table 1** of 27.11 ¢/kWh.

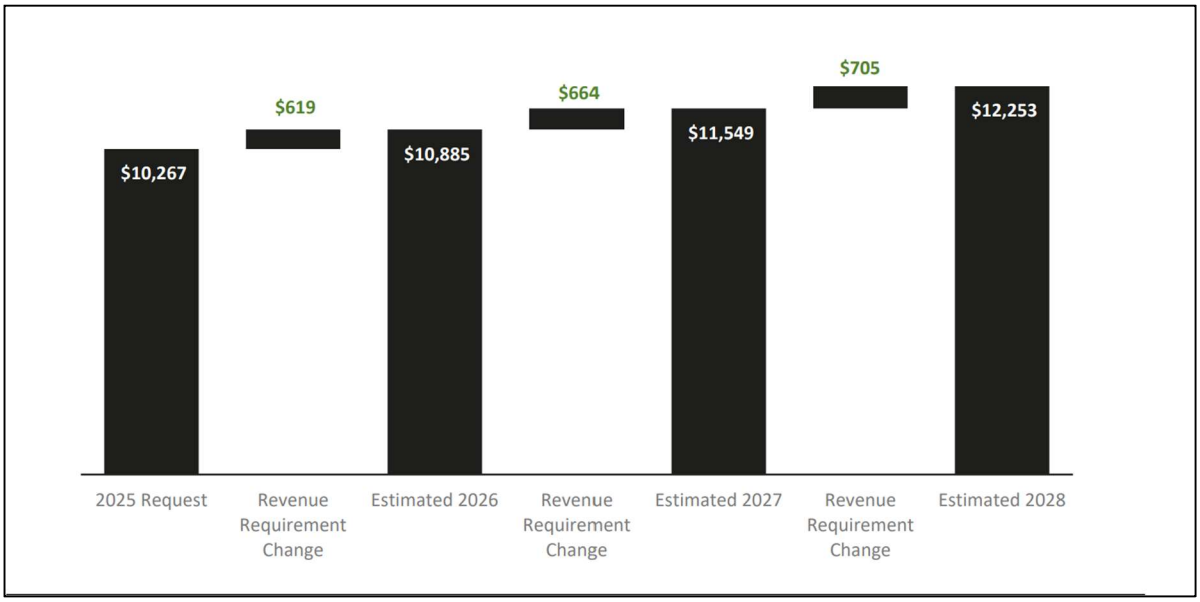
These projected increases in percentage terms appear smaller than they really are given that SCE's rates are *already* so high. Similar magnitude increases on a ¢/kWh basis applied to neighboring state utilities would be multiple times higher in percentage terms. The absolute cost of electricity matters more than percentages because that is what customers pay.

**Q IS SCE PROPOSING INCREASES TO REVENUE REQUIREMENTS AFTER 2025?**

**A** Yes, SCE is proposing higher revenue requirements for each year from 2025 through 2028. SCE's cumulative estimated CPUC-jurisdictional revenue requirement in 2028 is approximately 20% higher than the proposed 2025 revenue requirement used to project the rate increases from **Table 1**.

[19] Application at p. 44.

**Figure 6**
**SCE Requested CPUC-Jurisdictional Revenue Requirements ($/millions)[20]**

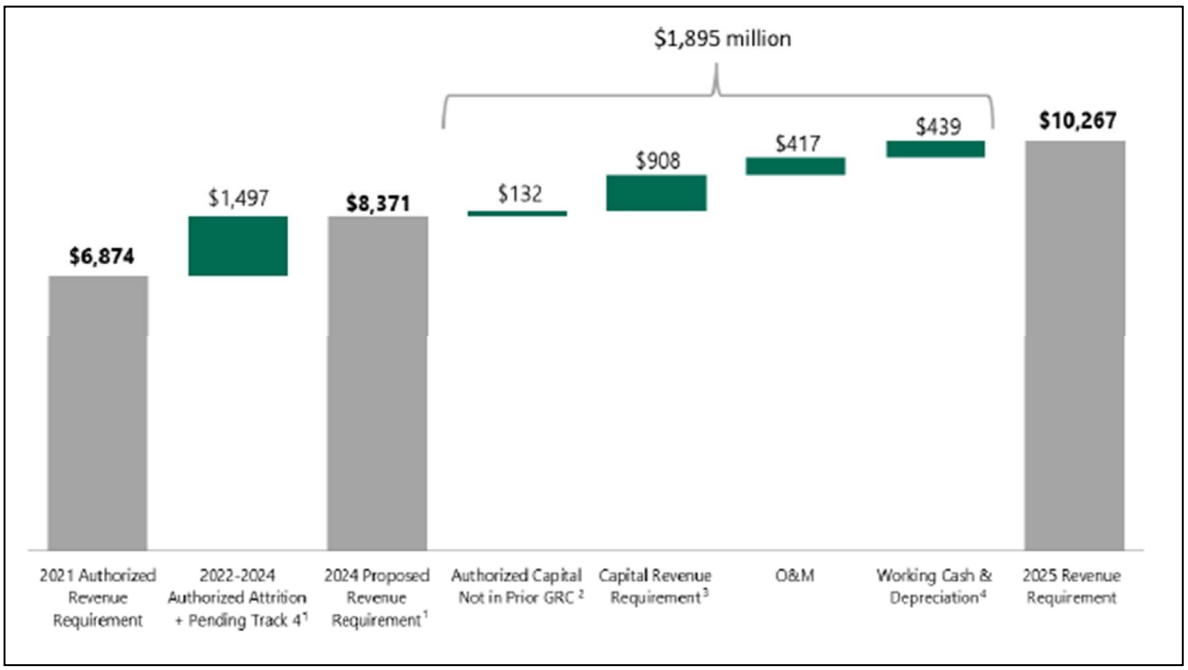



**Q HOW DOES SCE'S CURRENT PROPOSED REVENUE REQUIREMENT INCREASE COMPARE TO SCE'S PAST GRC PROPOSALS?**

**A** SCE's testimony includes a history of its recent CPUC-jurisdictional revenue requirement changes, reproduced in **Figure 7**, below.

[20] Exh. SCE-07, Vol. 01 (Results of Operations) at p. 3 (Figure II-1).

**Figure 7**
**Change in GRC Revenue Requirement from 2021-2025 (CPUC, $ in millions)[21]**

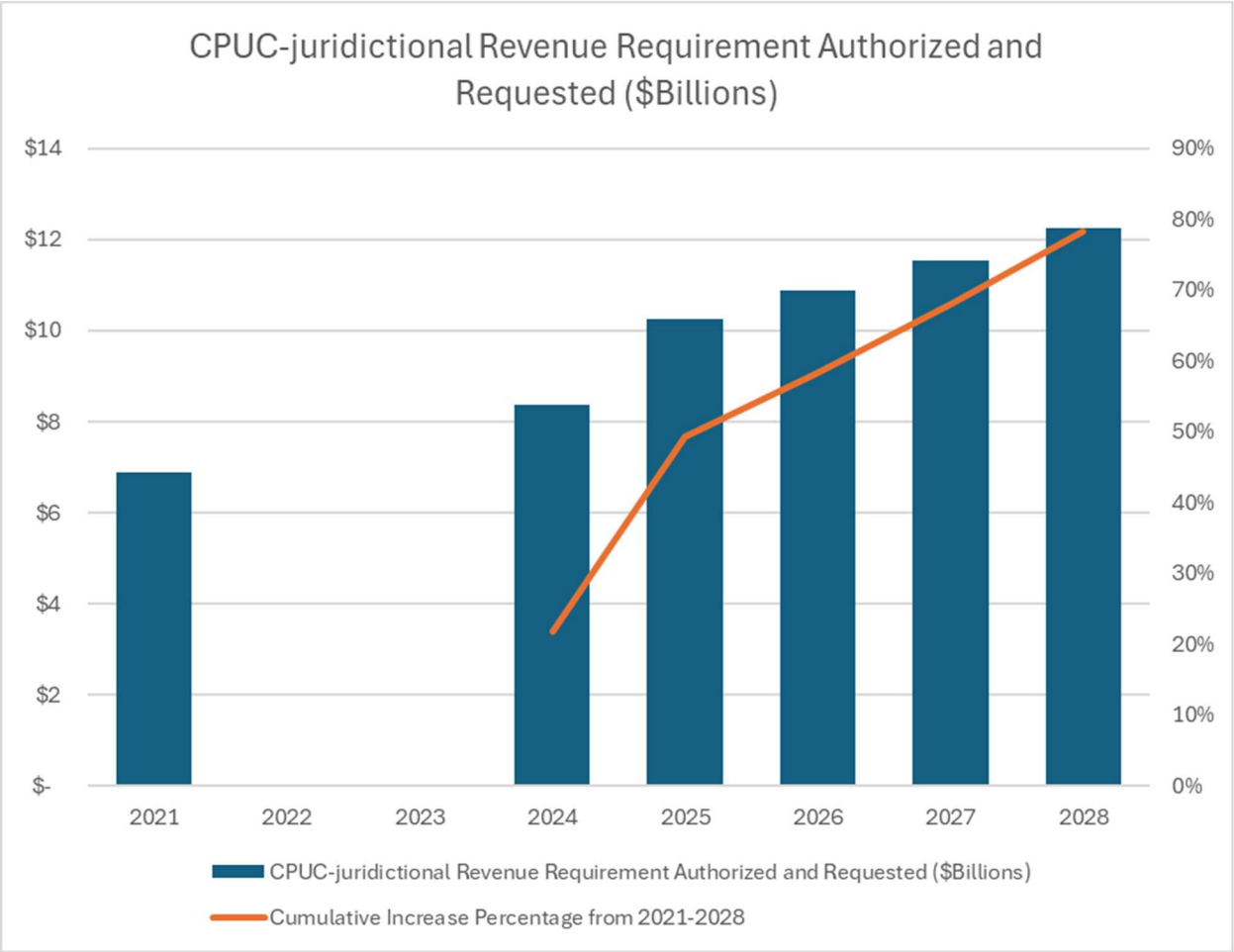



The CPUC-jurisdictional revenue requirement increases are astounding. The 2021 Authorized Revenue Requirement was $6.9 Billion. The 2024 proposed revenue requirement is $8.4 Billion, the increase primarily driven by wildfire and grid hardening investment. SCE now proposes to increase the revenue requirement to $10.2 Billion in 2025, with successive annual increases culminating in an estimated revenue requirement of $12.2 Billion in 2028.

The annual revenue requirement data from Figure I-1 and Figure II-1 in SCE's Application are combined below to show the annual CPUC-jurisdictional revenue requirement from 2021 to 2028. The cumulative increase over the 8-year period (2021-2028) is 78%.

[21] Exh. SCE-01, Vol. 01 (Policy) at p. 7 (Figure I-1).

**Figure 8** [22]




**Q ARE THE ESTIMATED REVENUE REQUIREMENT INCREASES AFTER 2025 LIKELY TO LEAD TO FURTHER RATE INCREASES?**

**A** Yes, SCE provides a forecast of revenue requirements in Table III-5, including projected offsetting increased GWh sales growth. Without addressing the merits of SCE's sales growth projections, I note that the GRC revenue change is positive each year from 2025 through 2028 as shown on line 27, in **Table 2**, below.

[22] Source: Exh. SCE-01, Vol. 01 (Policy) at p. 7 (Figure I-1); Exh. SCE-07, Vol. 01 (Results of Operations) at p. 3 (Figure II-1) (2022 and 2022 are interpolated linearly from Figure I-1).

**Table 2[23]**

***Southern California Edison Company***
***2025, 2026, 2027 and 2028 Revenue Changes Resulting From the 2025 Test Year and 2026, 2027 and 2028 PTYR GRC Request***
***CPUC-Jurisdictional***
*($000)*

| ABRR and Revenue Change Including Impact of Previously Approved & Forecast ABRR Changes | | | | | | | |
|---|---|---|---|---|---|---|---|
| Line | Item | | 2025 | 2026 | 2027 | 2028 | Reference |
| 1. | Proposed GRC Base Revenue Requirement | | 10,266,672 | 10,885,338 | 11,548,972 | 12,253,484 | Table II-4 |
| 2. | Estimated Present (Prior Year) Revenue Requirement | | 8,371,337 | 10,266,672 | 10,885,338 | 11,548,972 | 2025: Table II-2 |
| 3. | **Change in Authorized Base Revenue Requirement** | | **1,895,334** | **618,666** | **663,634** | **704,512** | |
| 4. | **Less Sales-Driven GRC Revenue Growth:** | **GWhs** | | | | | |
| 5. | 2024 | 83,762 | 7,804,322 | | | | Table VI-25 |
| 6. | 2025 | 84,689 | 7,890,693 | | | | Table VI-25 |
| 7. | 2025 | 84,689 | | 7,890,693 | | | Table VI-25 |
| 8. | 2026 | 86,287 | | 8,039,583 | | | Table VI-25 |
| 9. | 2026 | 86,287 | | | 8,039,583 | | Table VI-25 |
| 10. | 2027 | 88,295 | | | 8,226,673 | | Table VI-25 |
| 11. | 2027 | 88,295 | | | | 8,226,673 | Table VI-25 |
| 12. | 2028 | 90,334 | | | | 8,416,652 | Table VI-25 |
| 13. | **Sales-Driven GRC Revenue Growth** | | **86,371** | **148,890** | **187,091** | **189,979** | |
| 14. | **One-Time Memorandum Account Recovery *(Including FF&U)*** | | | | | | |
| 15. | Seismic Retrofit for Non-Electric Facilities Memorandum Account (SRNEFMA) | | 3,440 | (3,440) | | | Table V-13 |
| 16. | Customer Service Re-Platform Memorandum Account (CSRPMA) | | 35,637 | (35,637) | | | Table V-13 |
| 17. | Service Center Modernization Projects Memorandum Account (SCMPMA) | | 24,556 | (24,556) | | | Table V-13 |
| 18. | Distribution Deferral Administrative Costs Memorandum Accounts (DDACMA) | | 771 | (771) | | | Table V-13 |
| 19. | Emergency Customer Protections Memorandum Account (ECPMA) | | 73 | (73) | | | Table V-13 |
| 20. | Residential Disconnections Implementation Cost Memorandum Account (RDICMA) | | 7,640 | (7,640) | | | Table V-13 |
| 21. | NEM Online Application System Memorandum Account (NEMOASMA) | | 1,267 | (1,267) | | | Table V-13 |
| 22. | California Consumer Privacy Act Memorandum Account (CCPAMA) | | 4,893 | (4,893) | | | Table V-13 |
| 23. | Avoided Cost Calculator Memorandum Account (ACCMA) | | 740 | (740) | | | Table V-13 |
| 24. | Community Choice Aggregators Audit Memorandum Account (CCAAMA) | | 494 | (494) | | | Table V-13 |
| 25. | Wildfire Mitigation Plan Memorandum Account (WMPMA) | | 17,143 | (17,143) | | | Table V-13 |
| 26. | **Balancing & Memorandum Account Recovery** | | **96,653** | **(96,653)** | **–** | **–** | |
| 27. | **GRC Revenue Change** | | **1,905,616** | **373,123** | **476,544** | **514,533** | |
| 28. | Percent GRC Revenue Change | | 22.76% | 3.63% | 4.38% | 4.46% | |
| 29. | Total System Present Rate Revenues | | 16,367,266 | 16,578,703 | 16,960,119 | 17,356,678 | Table VII-29 |
| 30. | 2025 GRC Revenue Change | | | 1,905,616 | 1,905,616 | 1,905,616 | Line 27 (2025) |
| 31. | 2026 GRC Revenue Change | | | | 373,123 | 373,123 | Line 27 (2026) |
| 32. | 2027 GRC Revenue Change | | | | | 476,544 | Line 27 (2027) |
| 33. | **Total System Present Rate Revenues (Including GRC Revenue Change)** | | **16,367,266** | **18,484,319** | **19,238,859** | **20,111,961** | Line 29 through Line 32 |
| 34. | Percent Total Revenue Change | | 11.64% | 2.02% | 2.48% | 2.56% | Line 27 / Line 33 |

**Q DOES SCE PROJECT ELECTRIC RATE RELIEF IN THE FUTURE?**

**A** No, SCE admits that its proposals mean "electric bills will increase in the near-term." Although SCE considers that growing customer load could create "downward pressure" on electric rates, SCE is clear that any decrease would not occur until the 2030s based on "total ***energy* bills** despite an **increase in *electricity* bills.**"[24] Projections

[23] Exh. SCE-07, Vol. 01 (Results of Operations) at p. 10 (Table III-5).
[24] Exh. SCE-07, Vol. 04, (Affordability) at pp. 4-5 (emphasis added).

of total energy costs in the 2030s is speculative, but the increased electricity rates proposed in this Application are quantifiable.

This is an example of intergenerational inequity. SCE is proposing to saddle current businesses with unaffordable rates in hopes of creating a more competitive business landscape for future businesses despite the fact that many current businesses may not survive to see those lower rates.

The Commission has a duty in this proceeding to approve just and reasonable electricity rates that will be in effect during the 2025-2028 GRC cycle, it should not authorize rates based on speculation about overall business and household transportation and fuel choices in the 2030s. As the Commission has rightly stated, a "key element" of just and reasonable rates is the utility's proof that a "charge or rate is affordable."[25] The rates that would result from authorizing SCE's massive proposed increased revenue requirements are simply not affordable for households or businesses.

## TRANSPORTATION ELECTRIFICATION TIMING AND LOCATION UNCERTAINTY

**Q WHAT IS THE PRIMARY DRIVER OF SCE'S PROPOSED REVENUE REQUIREMENT INCREASE?**

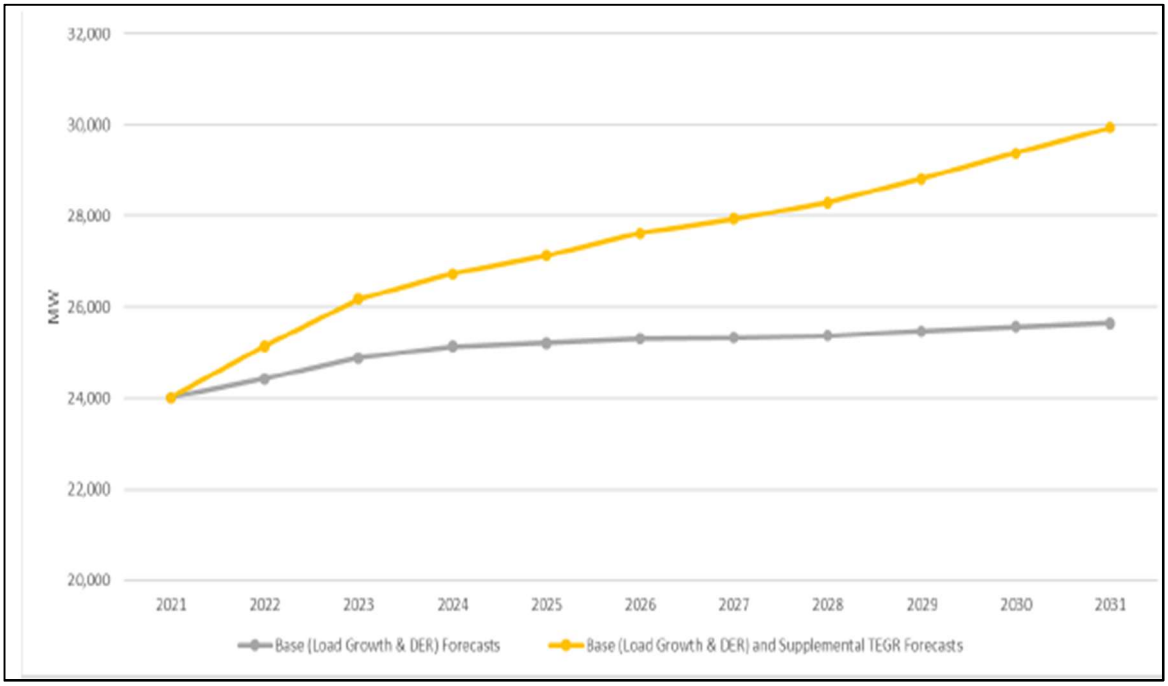
**A** SCE proposes to make massive investments in its system for a variety of purposes. One primary purpose of SCE's proposed investments is to connect new electric loads associated with transportation electrification efforts. SCE explains that its

> GRC request reflects that urgent need for the State to expeditiously electrify vast swaths of the economy. We are facing the fastest electricity demand growth in decades, and with long lead times for

[25] D.24-01-004, *Decision on Southern California Edison Company Proposed Building Electrification Programs*, A.21-12-009 at p. 16.

constructing critical facilities like new substations, we must invest in California's electrified future now rather than trying to implement a 'just in time solution' to meet the new customer demand.[26]

**Figure 9**
**SCE's Base (Load Growth & DER) and Supplemental TEGR Forecasts[27]**




Thus, this Application is largely about determining a prudent and cost-effective approach to powering and facilitating electrification load growth, primarily from transportation electrification.

**Q HOW CERTAIN IS THE MAGNITUDE, TIMING AND LOCATION OF THESE NEW ELECTRIFICATION LOADS?**

**A** SCE readily acknowledges the uncertainty related to the timing and location of load growth associated with electrification. Despite this uncertainty, SCE wrongly argues

[26] Exh. SCE-01, Vol. 01 (Policy) at p. 3.
[27] Exh. SCE-02, Vol. 07 (Load Growth, Transmission Projects, and Engineering) at p. 17.

that the overall magnitude of the expected load growth and long lead times of larger projects justify proactive investment. SCE states:

> ***While there is uncertainty as to the specific locations where, as well as the exact timing of when, this growth will appear****, it is clear from the magnitude and rapid pace expected that SCE will need to begin larger projects, with long lead times, to serve the areas with the high levels of TE adoption that are expected.* ***Given the long lead times to respond to this growing demand****, we cannot wait until the need is acute to act.*[28]

There is a fine line between proactive and speculative. Large projects that take a long time to plan, build, and commission also carry the most risk of not meeting the needs of the grid when and where they are finally built. The risk is very real that these massive investments will increase rates for years to come and end up underutilized when the load growth eventually materializes differently than expected.

SCE further clarifies that large projects envisioned in this Application are intended to serve load that will not materialize until future GRC cycles. SCE states that it "needs to begin the planning and engineering design process in this GRC cycle in order to bring the projects online **in future cycles, as the load materializes.**[29] In discussing medium and heavy-duty vehicles (MDHD), SCE explains there "remains a degree of uncertainty in pinpointing exactly where and when customers will seek to interconnect these loads."[30]

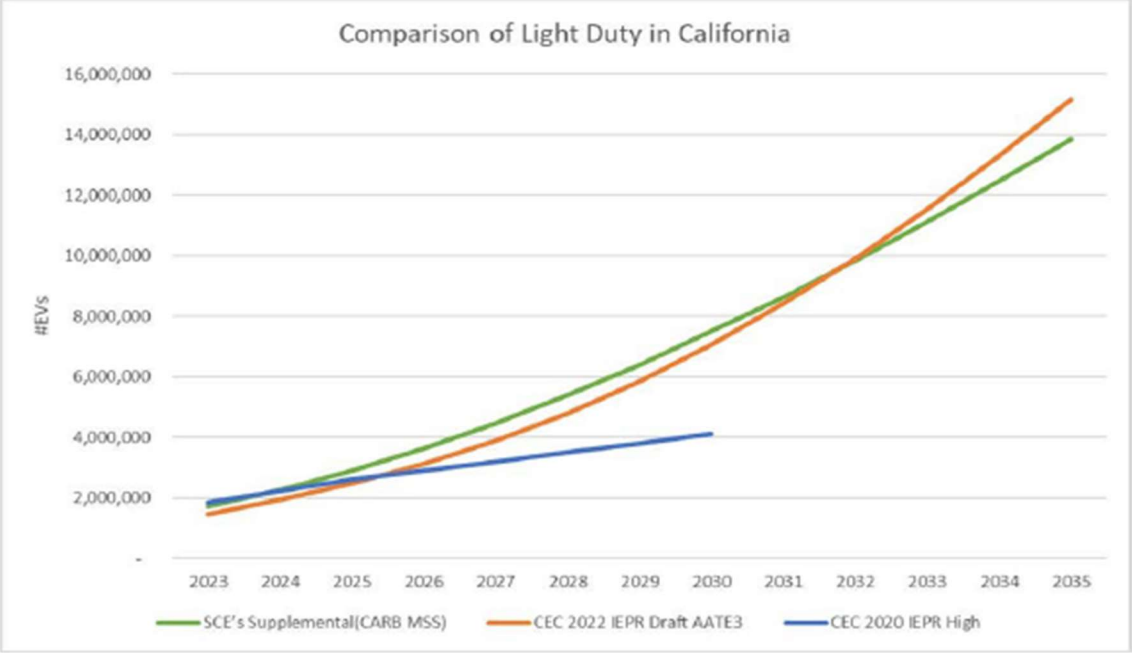
SCE explains that the uncertainties related to timing and location of transportation electrification load growth:

[28] Exh. SCE-01, Vol. 01 (Policy) at p. 18 (emphasis added).
[29] Exh. SCE-02, Vol. 01 Pt 1 (Grid Policy) at p. 17 (emphasis added).
[30] *Id.* at pp. 14-15.

> are highlighted by the rapid evolution of load forecasts in recent years. SCE's annual planning cycle for this GRC was based on the CEC [Integrated Energy Policy Report (IEPR)] forecasts from 2020 due to calendar constraints. However, since that time, the CEC has increased the IEPR forecast twice, in part due to the uncertainties regarding how fast and how much transportation electrification is arriving within the State as well as SCE's service territory.[31]

SCE provides Figure III-5, reproduced as **Figure 10**, below, to illustrate the uncertainty associated with the rapid evolution of forecasts.

**Figure 10**
**SCE's Projected Light-Duty ZEV Adoption Across California [32]**




SCE argues that increases in projected light-duty zero-emissions vehicle adoption in more recent models justifies proactive investment. On the other hand, the high

[31] *Id.* at p. 15.
[32] Exh. SCE-07, Vol. 01 (Results of Operations) at p. 10 (Figure III-5).

variability in projections from one model to the next illustrates the inherent uncertainty in predicting the individual transportation decisions of millions of consumers.

**Q HOW CERTAIN IS THE PACE OF CONSUMER ADOPTION OF ELECTRIC VEHICLES?**

**A** Although large scale of adoption of electric vehicles is highly likely in the long term, and a key pillar of the state's climate policies, the exact timing and pace of adoption is not at all certain. Recently, electric vehicles sales in California have fallen short of expectations; in the third quarter of 2023, "EV sales in California experienced their first quarterly drop since 2012. Additionally, fourth-quarter sales declined by 10.2%, falling from 100,151 to 89,933 units."[33]

> *California is facing a potential market saturation. The overall EV market is still far from saturation. In 2023, 15.6 million cars and light trucks sold in the U.S., most gas-powered. Electric vehicles made up 7.6% of those sales. Yet, California's EV market share already stands at 20.1%, aiming for a theoretical 100% by 2035. There is definitely a consumer base of early EV adopters who buy electric vehicles for various reasons: appeal, performance and environmental concerns. But for most car buyers, EVs remain a tough sell. Experts say EVs need to be cheaper for mass market appeal, and charging presents a challenge*.[34]

In February 2024, the Wall Street Journal reported, that major automakers nationally are slowing their electric vehicle production programs in response to changing consumer preferences, related to interest rates among other factors.[35]

[33] Anthony De Leon, *First EV Sales Decline in a Decade; Hiccup or Lasting Trend?,* Los Angeles Tines, Feb. 15, 2024.
[34] *Id.*
[35] Colias et al., *The Six Months That Short-Circuited the Electric-Vehicle Revolution*, The Wall Street Journal, Feb. 13, 2024.

California consumers will make the decision to adopt electric vehicles for a variety of reasons, but the next phase of consumers—post-early adopters—will depend increasingly on the economics of purchasing and charging an electric vehicle.

**Q COULD NEAR TERM ELECTRIC RATE HIKES SLOW ADOPTION OF ELECTRIC VEHICLES AND OTHER ELECTRIFICATION PROJECTS?**

**A** Yes, individual consumers' purchasing decisions are based on many factors, but economics play a significant role in driving consumer behavior. Electric rate hikes will deter consumers from making decisions that will further electrification efforts. Similarly, many Joint Ratepayers members are considering electrification or decarbonization programs, but high electric rates pose a significant barrier to their ability to do so while remaining competitive. High and incessantly increasing electric rates threaten the long-term viability of many businesses, making long term capital investments such as electrification difficult to justify. Furthermore, converting major industrial processes to high electric rates is difficult to justify and remain competitive compared with other sources of energy that have lower current and expected future prices. Thus, the Commission must endeavor to align the timing of SCE's electrification investments and load growth as to mitigate prohibitively unaffordable rate increases.

**Q IS THE COMMISSION FOCUSED ON IDENTIFYING THE TIME, LOCATION, AND SIZE OF ELECTRIC VEHICLE CHARGING LOAD IN ANOTHER PROCEEDING?**

**A** Yes, the Commission recently initiated the Transportation Electrification successor proceeding (R.23-12-008). That order instituting rulemaking (OIR) indicates that the initial phase of the multi-phase proceeding will be focused on data requirements to inform transportation electrification grid planning. The proceeding will

address the uncertainty surrounding timing, location, and size, and how to "effectively and affordably support the pace and scale of transportation electrification growth" necessary to meet the state's transportation electrification goals.[36] The findings from that multi-phase proceeding should help the Commission to ascertain which load growth investments in SCE's territory will be most effective and affordable. SCE will be able to take advantage of these findings in its next GRC, unlike this GRC.

## SUFFICIENT CLEAN RELIABLE ELECTRICITY TO SUPPORT ELECTRIFICATION LOAD GROWTH

**Q DOES CALIFORNIA HAVE SUFFICIENT RELIABLE ELECTRICITY GENERATION TO SUPPORT MASSIVE NEW ELECTRIFICATION LOADS?**

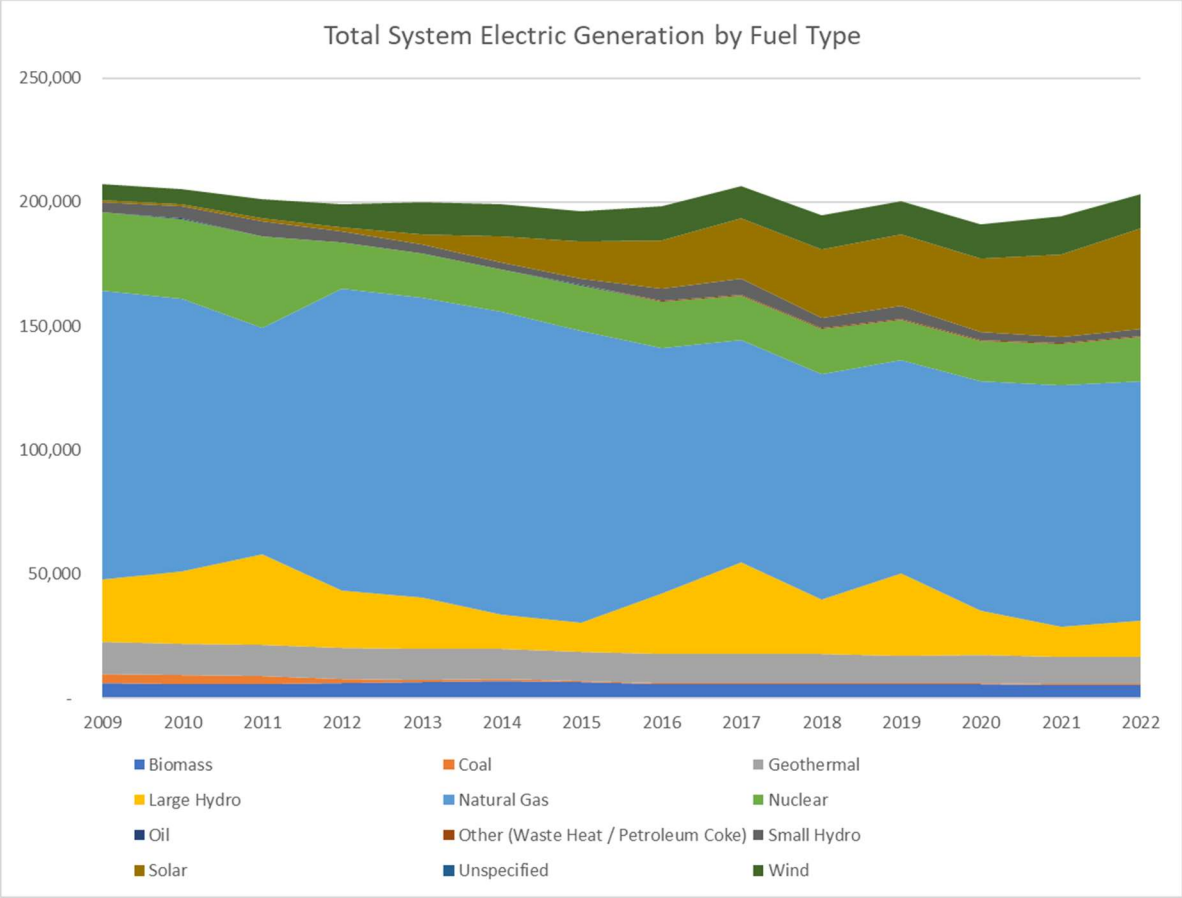
**A** No, California is currently undergoing a severe electricity supply crunch. The state is not currently awash in reliable, around the clock generation looking for a load to serve. Rather, the opposite is true, as evidenced by the reliability emergency events of 2020 and 2022.[37] Resource Adequacy (RA) capacity (system, local and flex) is extremely tight, and Load Serving Entities (LSEs) are struggling to procure enough capacity to meet their current customer load requirements. Indeed, the "Energy Division notes that the purpose of the RA penalty program and citations is to deter non-compliance but in recent years, there has been a large increase in non-compliant LSEs."[38]

**Q DOES CALIFORNIA HAVE SUFFICIENT CLEAN ELECTRICITY GENERATION TO SUPPORT MASSIVE NEW ELECTRIFICATION LOADS?**

[36] *Order Instituting Rulemaking Regarding Transportation Electrification Policy and Infrastructure and Closing Rulemaking 18-12-006*, R.23-12-008, Dec. 20, 2023 at pp. 7-8.
[37] *See* CAISO, *Grid Emergencies History Report*, Dec. 15, 2023 (available at: https://www.caiso.com/Documents/Grid-Emergencies-History-Report-1998-Present.pdf).
[38] D.23-06-029, *Decision Adopting Local Capacity Obligations for 2024-2026, Flexible Capacity Obligations for 2024, and Program Refinements*, R.21-10-002, Jul. 5, 2023 at p. 63.

**A** No, natural gas continues to be the number one source of electricity generated in California, contributing to about 47% of all electricity generated in the state in 2022. The share of natural gas used to meet the state's power needs has declined only marginally— from 56% in 2009—despite the growth in solar and wind, partly due to the need to offset an overall reduction in nuclear and large hydro generation.

**Figure 11**[39]




Furthermore, the dispatch mechanism for generation resources in the CAISO territory is based on marginal cost. Solar and wind resources typically have a zero or negative marginal cost due to tax credits, and are typically dispatched first, subject to

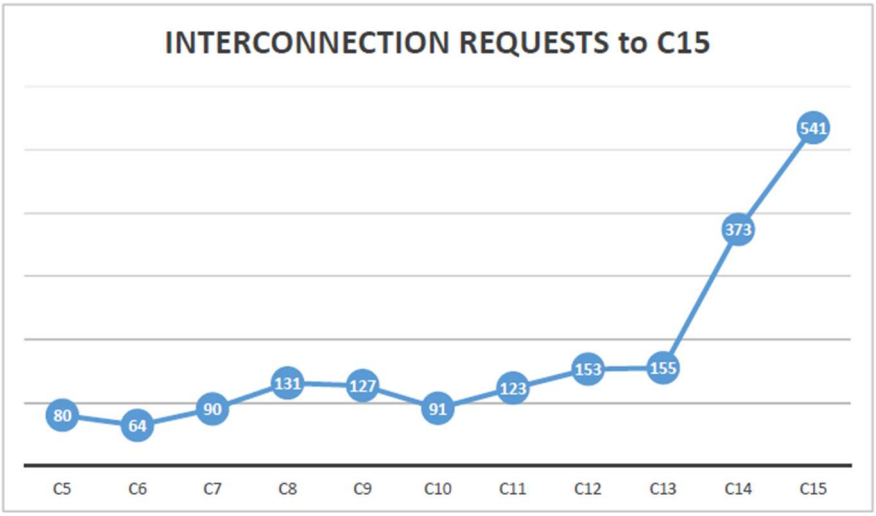
[39] CEC, *2022 Total Electric System Generation* (available at https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2022-total-system-electric-generation).

physical grid operating constraints. A new marginal load will cause the next marginal generation resource to be dispatched, which is more likely to be a fossil-based resource with higher marginal costs.

**Q WHEN MIGHT CALIFORNIA HAVE SUFFICIENT CLEAN RELIABLE ELECTRICITY TO SUPPORT MASSIVE NEW ELECTRIFICATION LOADS?**

**A** CAISO recently filed a proposal with the Federal Energy Regulatory Commission (FERC) seeking "to forgo a new interconnection request window in 2024."[40] The request stems from an overwhelming number of generation interconnection requests in CAISO's previous two "Clusters," most of which constitute zero emissions resources. According to CAISO, "Cluster 15 represents over 350,000 MW in new capacity, nearly seven times the CAISO's peak demand."[41]

**Figure 12**

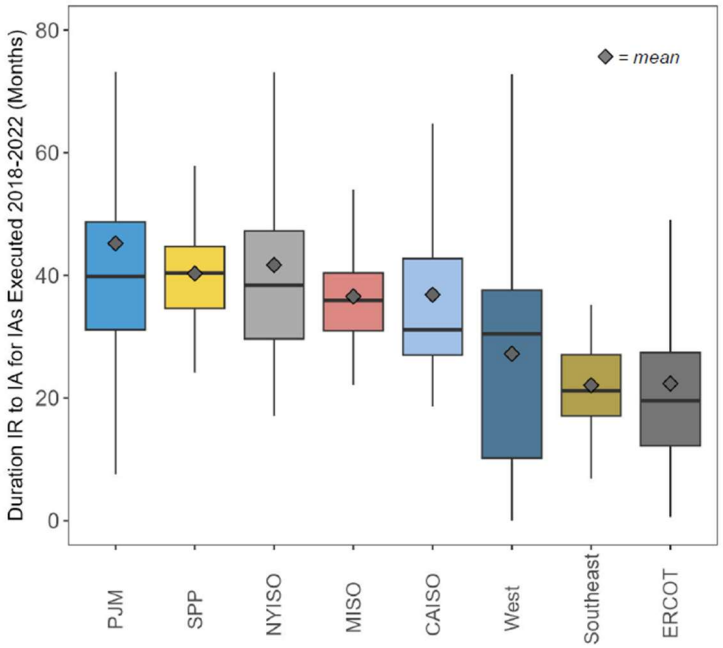



[40] CAISO, *Tariff Amendment to Forgo 2024 Interconnection Request Window*, Feb. 8, 2024 at p. 1.
[41] *Id.* at p. 6.

CAISO is undertaking significant interconnection process enhancements to study and process this unprecedented volume of new clean resources.[42] Although not all of these resources in the interconnection queue will be built, the flood of interest engenders optimism that eventually CAISO will indeed be awash in clean, reliable resources.

However, this process will take time before resources and the required high-voltage transmission capacity are actually available to serve existing or new loads. The average duration for a resource in the CAISO territory to progress from Interconnection Request (IR) to Interconnection Agreement (IA) is approximately 3 years.

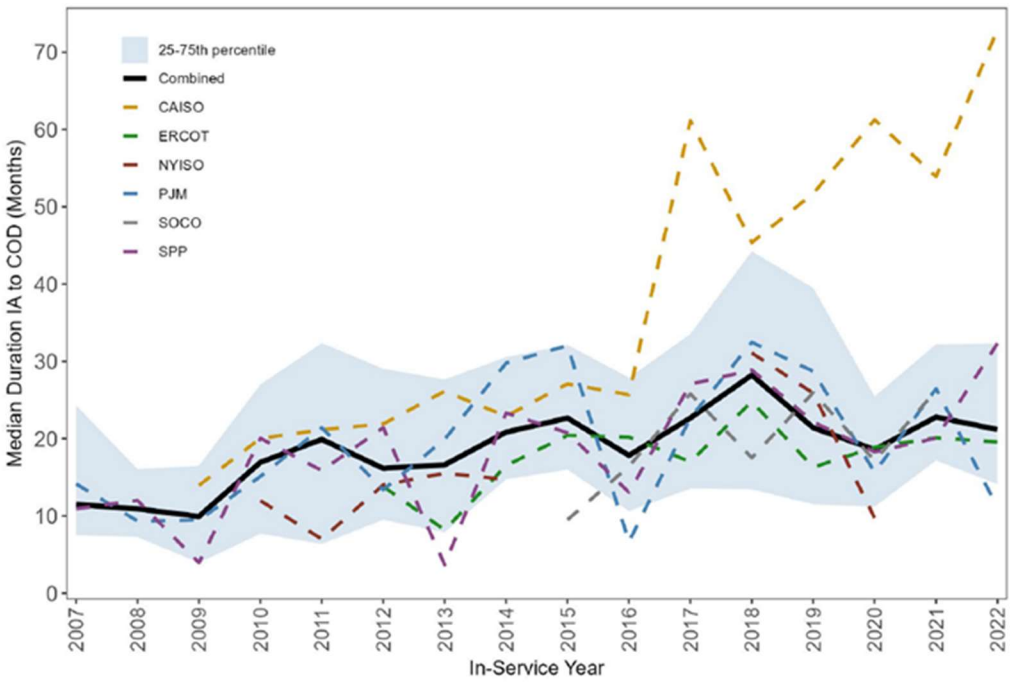
**Figure 13[43]**




[42] CAISO, *2023 Interconnection Process Enhancements, Track 2 Draft Final Proposal*, Feb. 8 2024.
[43] Rand et al., *Queued Up: Characteristics of Power Plants Seeking Transmission Interconnection as of the End of 2022*, Lawrence Berkeley National Laboratory, Apr. 6, 2023 at slide 27 (available at: https://emp.lbl.gov/sites/default/files/emp-files/queued_up_2022_04-06-2023.pdf).

Once a resource secures an IA, the project must be built and commissioned to achieve commercial operation date (COD). In CAISO, "recently built solar projects took 4-6 years after securing an IA" to achieve COD. Transmission projects can take even longer to build.

**Figure 14**[44]




The trend for CAISO projects coming online after IA is up and to the right. Adding up ~3 years from IR to IA and ~4-6 years from IA to COD, it may take nearly a decade for recently submitted CAISO projects to serve load. There is a tremendous opportunity for clean generation growth in California driven by the Inflation Reduction Act (IRA) and other policy and macroeconomic trends. But the opportunities will take time to develop. The build out of distribution wires is not currently the critical path to achieve universal

[44] *Id.* at slide 30.

zero emissions transportation, allowing some room for caution and circumspection on distribution investments today.

**Q ARE TOOLS BEING DEVELOPED TO BETTER UTILIZE EXISTING ASSETS?**

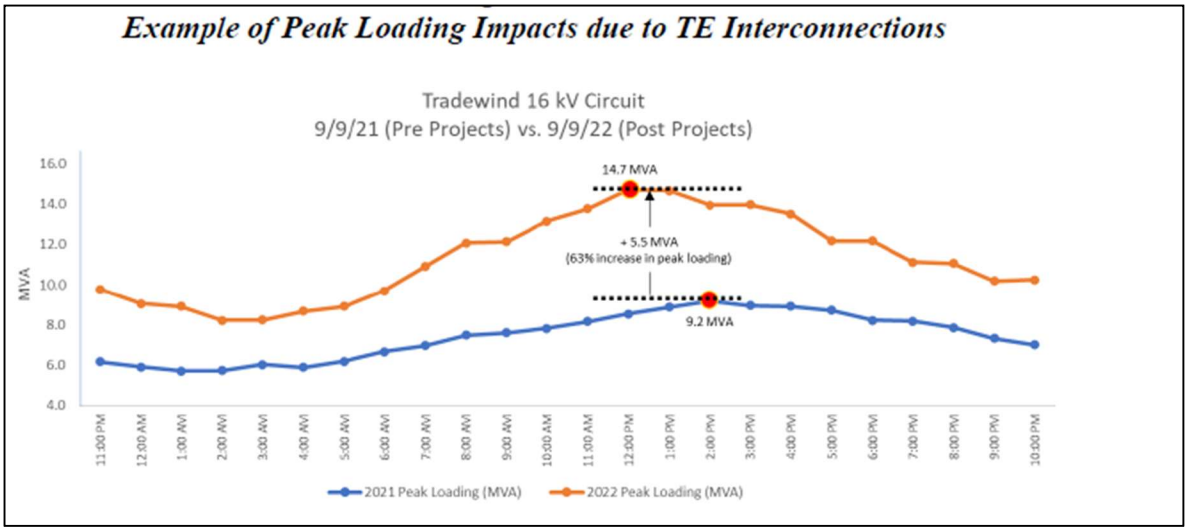
**A** Yes, the Commission has rightly invested considerable attention on dynamic price rates and recently extended several dynamic rate pilots, including a pilot administered by SCE. Dynamic rates hold great promise to maximize utilization of utility assets and renewable energy generation profiles, but they are still early in development. Before spending literally billions of dollars on new distribution assets to integrate new loads, the Commission should ensure that effective dynamic rates are broadly available and encouraged, especially for new electrification loads. With effective dynamic rates in place, new electrification loads could be incredibly price responsive both with respect to time and location for appropriate planning and operational decisions.

In its Application, SCE discusses time-of-use rates and electric vehicle charging patterns. SCE notes that:

> the TEGR forecast conservatively incorporates [transportation electrification] load profile assumptions that closely resemble a time-of-use rate responsive load profile, which models a form of managed charging. SCE has also assessed an "unmanaged" charging load profile, which is an unconstrained charging profile (e.g., customers' EV charging not dependent or informed by time of use rates). The "unmanaged" case, as to be expected, would result in the need for significantly more infrastructure.[45]

[45] Exh. SCE-02, Vol. 7 (Load Growth, Transmission Projects, and Engineering) at pp. 26-27.

**Figure 15**[46]




Clearly, time-of-use rate assumptions impact infrastructure need projections. Notably, the example provided in Figure II-10 of SCE's Application shows an individual circuit demand peaking outside of the traditional 4pm - 9pm on-peak period. Utility assets are stressed dynamically, and the hope for dynamic rates is to reflect dynamic scarcity to improve distribution asset and renewable generation utilization.

Finally, SCE observes that, "The investments needed to support these planning and operational capabilities are captured in SCE's Grid Modernization request in SCE-02, Volume 6."[47]

Building out these planning and operational capabilities, as proposed in SCE's Grid Modernization request, should precede the proposed investment of billions of dollars in new infrastructure.

[46] *Id.* (Figure II-10).
[47] *Id.* at pp. 26-27.

## CONCLUSION

**Q** **WAS THIS MATERIAL PREPARED BY YOU OR UNDER YOUR SUPERVISION?**

**A** Yes, it was.

**Q** **INSOFAR AS THIS MATERIAL IS FACTUAL IN NATURE, DO YOU BELIEVE IT TO BE CORRECT?**

**A** Yes, I do.

**Q** **INSOFAR AS THIS MATERIAL IS IN THE NATURE OF PROFESSIONAL OPINION OR JUDGMENT, DOES IT REPRESENT YOUR BEST PROFESSIONAL OPINION OR JUDGEMENT?**

**A** Yes, it does.

**Q** **DO YOU ADOPT THIS TESTIMONY AS YOUR SWORN TESTIMONY IN THESE CONSOLIDATED PROCEEDINGS?**

**A** Yes.

**Q** **DOES THIS CONCLUDE YOUR TESTIMONY?**

**A** Yes.

## APPENDIX A

## QUALIFICATIONS OF SAM HARPER

**Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

**A** Sam Harper. My business address is Harper Advisory LLC, 1401 Lake Plaza Drive, Suite 200, Spring, TX 77389.

**Q WHAT IS YOUR OCCUPATION AND BY WHOM ARE YOU EMPLOYED?**

**A** I am a consultant in the field of energy markets and policy. I am employed by Harper Advisory LLC.

**Q PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.**

**A** I have extensive experience in energy procurement, utility regulation, ISO/RTO governance, renewable energy development, and demand response. I have direct experience with commercial energy arrangements, demand response, and the stakeholder processes in PJM, MISO, ERCOT, CAISO, IESO, CENACE, and various unorganized markets. In my current role as a consultant, I advise organizations that engage across the energy supply chain, including large energy consumers for whom energy is a significant percentage of their cost of production.

Prior to consulting, I was the Director of Energy of North American operations for Gerdau, a major steel producer with significant energy requirements and active demand response participation. From 2013-2022, I held a variety of positions for Gerdau, which included Regional Energy Manager and Assistant Vice President of Operations for Gerdau's subsidiary load serving entity. My responsibilities included demand response operations, RTO/ISO stakeholder process, utility regulatory

intervention, commercial energy contract negotiations, commodity risk management, and renewable energy development.

I was elected each year from 2016 through 2021 to the Board of Directors of the Electric Reliability Council of Texas (ERCOT). I served on the Human Resources and Governance Committee throughout my tenure, and in 2021 was elected Vice-Chair. I served during the Storm Uri reliability crisis in February 2021 and its aftermath.

I served on the Advisory Board for the Renewable Development Fund of Minnesota from 2017-2020, ensuring renewable energy grants were awarded and executed prudently and consistent with state policy goals.

From 2008-2013, I was employed by ArcelorMittal, a global steel producer, ending as the Sourcing Manager of Electricity for US Operations. During that time, I created and managed a load serving entity and curtailment service provider in the PJM territory.

I earned a Bachelor of Science degree in Business Administration from the University of Illinois at Urbana-Champaign in 2008, graduating with Honors.

CERTIFICATION

I, the undersigned, hereby certify, pursuant to Rule 13.7(e) of the Rules of Practice and Procedure of the CPUC, under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge, and that this Certification was executed on this 29th day of February 2024 at Spring, TX.

By: 

Name: Sam Harper

Title: Principal, Harper Advisory LLC