BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Continue Electric Integrated Resource Planning and Related Procurement Processes.	Rulemaking 20-05-003

2022 INTEGRATED RESOURCE PLAN OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E)

PUBLIC VERSION

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Pursuant to Ordering Paragraph ("OP") 14 of Decision ("D.") 22-02-004, Southern California Edison Company ("SCE") respectfully submits its 2022 Integrated Resource Plan ("IRP") to the California Public Utilities Commission ("Commission" or "CPUC").

I.

EXECUTIVE SUMMARY

A. The IRP Process Continues to Play a Critical Role in Decarbonizing California While Maintaining Electric System Reliability

The Commission continues to make progress in planning for California's decarbonized future and addressing the many steps that must be taken in the electric sector to achieve the state's 2030 and 2045 greenhouse gas ("GHG") and clean energy goals. In the IRP proceeding, the Commission has already taken several encouraging actions to help decarbonize the electric sector, including adopting a 2021 Preferred System Plan ("PSP") portfolio based on a 38 million metric tons ("MMT") by 2030 GHG target for the electric sector (instead of the higher 46 MMT target) and a high electric vehicle demand forecast;[1] transmitting a policy-driven sensitivity portfolio to the California Independent System Operator ("CAISO") for study in the 2022-2023 Transmission Planning Process ("TPP") based on a lower GHG target of 30 MMT by 2030 and

[1] *See* D.22-02-004 at OP 7.

the California Energy Commission's ("CEC") 2021 Integrated Energy Policy Report ("IEPR") Additional Transportation Electrification ("Additional TE") scenario;[2] requiring that each load-serving entity's ("LSE") 2022 IRP filing include a plan and preferred portfolio that meets its share of both the 38 MMT 2030 GHG target and a lower 30 MMT 2030 GHG target;[3] and recommending a reliability and policy-driven base case portfolio for the CAISO's 2023-2024 TPP that meets a 30 MMT 2030 GHG target and uses the CEC's 2021 IEPR Additional TE scenario.[4]

Commission staff's 2045 Framing Study, considering the implications on the electric system of deep decarbonization and serving as a clean fuel to decarbonize other sectors, demonstrates that California must adopt an electric sector GHG target between 30 MMT and 38 MMT by 2030 (equivalent to a target between 25 MMT and 30 MMT by 2035) to most economically and feasibly reach the state's overall GHG reduction and clean energy goals.[5] SCE's Pathway 2045 analysis supports the same conclusion.[6] SCE's Pathway 2045 analysis also shows the need for widespread transportation electrification by 2045, in line with Governor Newsom's recently established state goal that 100 percent of in-state sales of new passenger cars and trucks will be zero-emission by 2035.[7]

The Commission's requirements that LSEs' 2022 IRPs include preferred portfolios meeting both 25 MMT and 30 MMT by 2035 GHG targets and address high electrification planning[8] provide the opportunity for the Commission to develop a PSP with an electric sector

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2 *See id.* at OP 8; Transmittal Letter to CAISO for 2022-23 TPP High Electrification Portfolio, July 1, 2022, available at: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2019-2020-irp-events-and-materials/tpp-portfolio-transmittal-letter.pdf.

3 *See* D.22-02-004 at Conclusion of Law ("COL") 10.

4 *See* Administrative Law Judge's Ruling Seeking Comments on Electricity Resource Portfolios for 2023-2024 Transmission Planning Process, Rulemaking ("R.") 20-05-003, October 7, 2022, at 3-9.

5 *See* Administrative Law Judge's Ruling Seeking Comment on Proposed Reference System Portfolio and Related Policy Actions, R.16-02-007, November 6, 2019, Attachment A at 148-166.

6 SCE's 2045 Pathway analysis white paper and appendices are available at: https://www.edison.com/home/our-perspective/pathway-2045.html.

7 *See id.*; Executive Order N-79-20 (2022).

8 *See* Narrative Template at 14.

GHG target and level of transportation electrification necessary to meet California's climate change goals. In particular, SCE urges the Commission to adopt a 25 MMT 2035 GHG target for the PSP and the 25 MMT conforming portfolios in LSEs' IRPs to put the state on a viable trajectory toward 100 percent of electricity retail sales from zero-carbon resources and carbon neutrality by 2045. Accordingly, SCE submits its 25 MMT- and 30 MMT-compliant bundled conforming portfolios (the "25 MMT Bundled Portfolio" and "30 MMT Bundled Portfolio"), but requests the Commission approve SCE's 25 MMT Bundled Portfolio.[9] The Commission should also use higher electrification assumptions, such as the Additional TE scenario, in IRP base case planning and the PSP.

The CAISO system maintained reliability during the 2022 heat storm between September 5 and September 8, 2022, but the resource margin was thin. Such events highlight the need for effective planning in the IRP proceeding with a strong focus on decarbonizing the power system and maintaining system reliability even under extreme circumstances. California must continue to make progress towards a decarbonized and clean air future to combat climate change and its associated extreme weather events, as well as the health impacts of air pollution. In doing so, the Commission must also plan for ensuring system reliability during this transition.

SCE appreciates the Commission's ongoing focus on system reliability. However, additional Commission action is necessary to ensure system reliability on both a near- and longer-term basis in a least-cost fashion. First, rather than continuing with the untested perfect capacity ("PCAP")-based reliability standard focusing on a single-point planning reserve margin ("PRM") and counting resources' contribution to reliability based on their annual marginal effective load carrying capability ("ELCC") value,[10] SCE urges the Commission to move to the 24-hour slice reliability framework for IRP reliability planning, which has already been vetted

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[9] As discussed below, SCE did not develop any alternative bundled portfolios. SCE's 25 MMT Bundled Portfolio is SCE's 25 MMT Preferred Conforming Portfolio and SCE's 30 MMT Bundled Portfolio is SCE's 30 MMT Preferred Conforming Portfolio.

[10] *See* Inputs and Assumptions (I&A), Modeling Advisory Group Webinar, Energy Division, September 22, 2022 ("2022 I&A"), at 93-118.

through a robust workshop process and adopted by the Commission for the resource adequacy ("RA") program.[11] Incorporating a 24-hour slice reliability framework into the IRP process will better identify the resources that can meet system capacity and energy needs and better align the planning process with the RA program. As further explained below, SCE used a 24-hour slice framework to assess the reliability of its 25 MMT by 2035 CAISO system-wide resource plan (the "25 MMT CAISO System-Wide Portfolio"). SCE's modeling results show that applying a PRM constraint across all 24 hours during the highest load day of the year, instead of a single hour, considering resource expected hourly contribution to reliability and energy sufficiency for storage devices, achieves an optimal resource mix to satisfy both system reliability and clean energy needs.

Second, in the filing requirements for the next IRPs, the Commission should direct LSEs not to exceed their load share of existing system resources in their IRP portfolios. In the last IRP cycle the aggregated LSE plan portfolios failed to meet GHG and loss-of-load expectation ("LOLE") targets. This indicates an over-reliance on existing resources by some LSEs.[12] This problem can be resolved by requiring LSEs' portfolios not to exceed their load share of existing system resources, which is the approach used by SCE in its bundled portfolio modeling. The Commission should also provide LSEs with sufficient information on the available baseline resources as part of IRP filing requirements so they can determine their load share of existing system resources.

Third, with the increasing effects of climate change in California and throughout the west and the new statutory requirement that LSEs "require sufficient, predictable resource procurement and development to avoid unplanned energy supply shortfalls by taking into account impacts due to climate change …,"[13] the Commission should also begin including climate change impacts in its IRP modeling and analysis. In SCE's modeling of its 25 MMT

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[11] *See* D.22-06-050 at OP 14, Appendix A.
[12] *See* D.22-02-004 at 80.
[13] Cal. Pub. Util. Code § 454.52 (a)(1)(E).

CAISO System-Wide Portfolio, SCE created a sensitivity scenario for 2035 in its LOLE reliability analysis that models the impact of climate change on gas and solar available generating capacity, which is the first step of considering climate change impacts in this reliability analysis. In future IRP cycles, the Commission should incorporate climate change effects in its modeling, including temperature impacts on demand forecasts, import assumptions, hydro production forecasts informed by climate projections, and other system-level risks, as California experiences more frequent extreme weather conditions.

Finally, SCE continues to advocate for a clearer link between planning and procurement that includes a flexible procurement program that addresses reliability and clean energy need determination, allocation, and procurement compliance requirements. SCE appreciates Commission staff's recently issued Reliable and Clean Power Procurement Program Staff Options Paper and the accompanying Administrative Law Judge's Ruling requesting party comments on a proposed procurement program and will provide its detailed recommendations in comments on the staff paper.[14] However, SCE strongly recommends the Commission act expeditiously to adopt and implement a flexible procurement program so that LSEs can meet resource needs identified in this IRP cycle through the procurement program, rather than additional "one-off" procurement requirements.

In summary, SCE requests the following in this IRP filing, as discussed further below:

- The Commission should adopt an electric sector 2035 GHG target of 25 MMT for all LSEs and the PSP.
- The Commission should approve SCE's 25 MMT Bundled Portfolio.
- The Commission should adopt a high electrification demand forecast, such as the Additional TE scenario, for base case planning and the PSP.
- The Commission should adopt a 24-hour slice framework for IRP reliability planning.

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[14] *See* Administrative Law Judge's Ruling Seeking Comments on Staff Paper on Procurement Program and Potential Near-Term Actions to Encourage Additional Procurement, R.20-05-003, September 8, 2022, Attachment A.

- In future IRP cycles, the Commission should incorporate climate change effects in it modeling, including temperature impacts on demand forecasts, import assumptions, hydro production forecasts, and other system-level risks.
- Inputs affecting resource procurement decisions contemplated in other proceedings such as higher demand forecasts, reliability planning framework, and climate change impact assumptions should be evaluated in the IRP proceeding and not solely in those proceedings.
- In the filing requirements for the next IRPs, the Commission should direct LSEs not to exceed their load share of existing system resources in their IRP portfolios and provide LSEs with sufficient information on the baseline resources so they can determine their load share of existing system resources.
- The Commission should adopt a flexible procurement program that links planning and procurement in time for any procurement authorized in this IRP cycle.

B. A 25 MMT GHG Target in 2035 is Necessary to Enable the Electric Sector to Reasonably Plan to Achieve California's Decarbonization Goals

California has set ambitious climate goals to reduce GHG emissions to 40 percent below 1990 levels by 2030 and achieve carbon neutrality by 2045.[15] On September 16, 2022, the state enacted 85 percent below 1990 levels and net zero GHG emissions by 2045 targets in statute.[16] Similarly, Senate Bill ("SB") 100 established an aggressive clean energy goal to achieve 100 percent of electricity retail sales from zero-carbon resources by 2045, and SB 1020 recently set interim goals of 90 percent by 2035 and 95 percent by 2040.[17] Helping California to meet its GHG reduction targets is one of the principal objectives of the IRP process.[18] Furthermore, the

[15] *See* Cal. Health & Safety Code § 38566; Executive Order B-55-18 (2018).
[16] *See* Assembly Bill ("AB") 1279 (2022).
[17] *See* Cal. Pub. Util. Code § 454.53(a); SB 1020 (2022).
[18] *See* Cal. Pub. Util. Code §§ 454.51(a), 454.52(a)(1)(A).

Commission has stated the IRP proceeding "will be the ongoing venue for handling any planning and/or procurement necessary to meet SB 100 goals."[19]

SCE's CAISO system-wide modeling in this IRP is grounded in SCE's economy-wide Pathway 2045 analysis and confirmed by Commission staff's 2045 Framing Study, which show that reaching the state's 2045 SB 100 goal requires the electric sector to achieve GHG emissions between 30 MMT and 38 MMT by 2030 (equivalent to between 25 MMT and 30 MMT by 2035).[20] Governor Newsom recently called for "a laser focus on implementation and acceleration of California's climate goals," noting that "because of the severity of the impacts California faces, we need to up our game."[21] With this urgency and the recently enacted interim goals of 90 and 95 percent of electricity retail sales from zero-carbon resources by 2035 and 2040, respectively, the Commission should adopt the lower bound of this range and establish electric sector GHG targets of 30 MMT by 2030 and 25 MMT by 2035. This is consistent with the Commission transmitting a 30 MMT by 2030 portfolio as a policy-driven sensitivity for the CAISO's 2022-2023 TPP and recommending a 30 MMT by 2030 portfolio as the reliability and policy-driven base case for the CAISO's 2023-2024 TPP.[22] The Commission, CAISO, and CEC "have been progressing toward portfolios that meet tighter GHG requirements in each subsequent IRP and TPP cycle."[23] The Commission should continue moving toward a more

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[19] R.20-05-003, Order Instituting Rulemaking to Continue Electric Integrated Resource Planning and Related Procurement Processes (May 14, 2020) at 8.

[20] *See* SCE's 2045 Pathway analysis white paper and appendices, available at: https://www.edison.com/home/our-perspective/pathway-2045.html; Administrative Law Judge's Ruling Seeking Comment on Proposed Reference System Portfolio and Related Policy Actions, R.16-02-007, November 6, 2019, Attachment A at 148-166.

[21] Letter from Governor Gavin Newsom to Liane Randolph, Chair, California Air Resources Board ("CARB"), July 22, 2022, available at: https://www.gov.ca.gov/wp-content/uploads/2022/07/07.22.2022-Governors-Letter-to-CARB.pdf?emrc=1054d6.

[22] *See* D.22-02-004 at OP 8; Transmittal Letter to CAISO for 2022-23 TPP High Electrification Portfolio, July 1, 2022, available at: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2019-2020-irp-events-and-materials/tpp-portfolio-transmittal-letter.pdf; Administrative Law Judge's Ruling Seeking Comments on Electricity Resource Portfolios for 2023-2024 Transmission Planning Process, R.20-05-003, October 7, 2022, at 3-9.

[23] Administrative Law Judge's Ruling Seeking Comments on Electricity Resource Portfolios for 2023-2024 Transmission Planning Process, R.20-05-003, October 7, 2022, at 3.

stringent GHG target by establishing a 25 MMT electric sector 2035 GHG target for LSEs' IRPs and the PSP.

Planning for the level of clean resources and grid investments needed through 2035 and beyond is necessary now and should span the next decade rather than accumulate at the end of the decade. The SB 100 Joint Agency Report found that reaching California's SB 100 goals in a high electrification future will require sustained record-breaking new resource build rates.[24] SCE's 25 MMT CAISO System-Wide Portfolio identifies over 21,000 MW of incremental capacity beyond the MTR order by 2035. In addition, SCE's 25 MMT Bundled Portfolio requires approximately 1,500 MW more capacity than the buildout identified in SCE's 30 MMT Bundled Portfolio in 2035. It is critical to adopt ambitious electric sector GHG targets and aggressive electrification forecasts now so appropriate transmission infrastructure and clean energy resources can be built to meet California's environmental and energy reliability goals. The longer insufficient targets are in place, the greater the challenge becomes to feasibly and affordably reach the state's goals. For California to achieve its decarbonization goals, the Commission must use the IRP proceeding to position the electric sector on a trajectory to deeply decarbonize and facilitate the decarbonization of the state's heavy emitting sectors through electrification.

Adopting the 25 MMT 2035 GHG target for the electric sector will put California on a path to meet its overall GHG reduction goals and ensure all LSEs and CAISO are planning for the investments needed to build a cleaner California. Setting a less ambitious electric sector GHG target will mean other sectors will need to make up the difference as California moves toward net-zero emissions, potentially driving up costs through more expensive GHG abatement alternatives. While it is critical other sectors of the economy do their part to help the state meet its GHG emission reduction goals affordably the electric sector continues to drive necessary

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[24] *See* 2021 SB 100 Joint Agency Report, Achieving 100 Percent Clean Electricity in California: An Initial Assessment, March 2021, at 11, 17, 103, available at: https://efiling.energy.ca.gov/EFiling/GetFile.aspx?tn=237167&DocumentContentId=70349.

GHG reduction to more affordably enable decarbonization of other sectors through electrification.

For the portfolios considered in the 2021 adopted PSP, the Commission found a minimal cost difference between the 30 MMT Core scenario (equivalent to 25 MMT by 2035) and the 38 MMT Core scenario (equivalent to 30 MMT by 2035). Both 2021 adopted PSP scenarios resulted in a levelized average rate of 19.3 cents per kilowatt-hour ("kWh").[25] This matches SCE's findings detailed in Section III.E that SCE's 25 MMT Bundled Portfolio 2035 system average rate is only 0.8 percent higher than SCE's 30 MMT Bundled Portfolio. Adopting a 25 MMT electric sector GHG target can significantly reduce criteria pollution and GHG emissions at a small overall cost to electricity users.

For these reasons the Commission should adopt a 25 MMT 2035 electric sector GHG target for all LSEs and the PSP. The Commission should also approve SCE's 25 MMT Bundled Portfolio and the 25 MMT conforming portfolios of other LSEs.

C. The Commission Should Adopt a High Electrification Demand Forecast for Base Case Planning and the PSP

LSEs' 2022 IRP conforming portfolios are required to be based on their share of the 2021 IEPR mid case demand forecast; however, "to reflect the likelihood of higher load," LSEs' IRPs are also required to discuss what additional resource planning and procurement the LSE would do under the higher electrification Additional TE scenario.[26] Similar to the 2021 PSP, "the Commission may consider in the development of the next PSP whether a higher electrification load forecast should be used as the basis for the updated statewide portfolio of resources and any associated procurement."[27]

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[25] *See* D.22-02-004, Table 3, at 90.

[26] Administrative Law Judge's Ruling Finalizing Load Forecasts and Greenhouse Gas Emissions Benchmarks for 2022 Integrated Resource Plan Filings, R.20-05-003, June 15, 2022, at 3; Narrative Template at 14.

[27] Administrative Law Judge's Ruling Finalizing Load Forecasts and Greenhouse Gas Emissions Benchmarks for 2022 Integrated Resource Plan Filings, R.20-05-003, June 15, 2022, at 4.

The Commission should adopt a high electrification demand forecast, such as the Additional TE scenario, for base case planning in the IRP proceeding and the PSP. Higher levels of electrification than those reflected in the IEPR mid case are needed to achieve California's decarbonization goals.[28] SCE's Pathway 2045 analysis found that three-quarters of light-duty vehicles, two-thirds of medium-duty vehicles, and one-third of heavy-duty vehicles will need to be electric by 2045.[29] Moreover, Governor Newsom's Executive Order N-79-20 recently established state goals that 100 percent of in-state sales of new passenger cars and trucks will be zero-emission by 2035 and 100 percent of medium- and heavy-duty vehicles in the state will be zero-emission by 2045 for all operations where feasible.[30] SB 846 also recently modified the requirements in Public Utilities Code Section 454.52(a)(1)(E) to include that the Commission's IRP process shall "[e]nsure system and local reliability on both a near-term and long-term basis, including meeting the near-term and forecast long-term resource adequacy requirements of Section 380, and require sufficient, predictable resource procurement and development to avoid unplanned energy supply shortfalls *by taking into account impacts due to climate change, forecasted levels of building and transportation electrification, and other factors that can result in those shortfalls*."[31]

The Commission should start planning now for California's high electrification future. SCE's sensitivity analysis of its 25 MMT CAISO System-Wide Portfolio using the Additional TE scenario found the increased energy requirement increases the required build-out of new capacity to meet GHG emissions and reliability requirements. If the Commission does not begin planning for this increased load and the resulting required resource additions now, it may put at

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28 Even in the Additional TE scenario, the near-term electrification is lower than SCE anticipates.

29 SCE's 2045 Pathway analysis white paper and appendices are available at: https://www.edison.com/home/our-perspective/pathway-2045.html.

30 *See* Executive Order N-79-20 (2022). Additionally, Executive Order N-79-20 establishes state goals of 100 percent zero-emission for drayage trucks by 2035 for all operations where feasible and a transition to 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible.

31 SB 846 (2022) (emphasis added).

risk system reliability and jeopardize the electric sector's ability to help achieve California's overall climate goals by decarbonizing other sectors through electrification.

Adopting a high electrification demand forecast for IRP base case planning and the PSP is consistent with the Commission's approval of a 2021 PSP with a high electric vehicle demand forecast and a policy-driven sensitivity portfolio for the CAISO's 2022-2023 TPP based on the Additional TE scenario, as well as the recent recommendation of a reliability and policy-driven base case portfolio for the CAISO's 2023-2024 TPP based on the Additional TE scenario.[32] In addition, on July 28, 2022, the Commission approved the joint investor-owned utilities' ("IOUs") proposal to use higher transportation electrification forecasts in their respective distribution planning processes for the 2022-2023 planning cycle. The IRP process will quickly become out-of-step with transmission and distribution planning if a high electrification demand forecast is not used for base case planning.

In discussing the policy-driven sensitivity portfolio for the CAISO's 2022-2023 TPP, the Commission stated: "Combining these sets of aggressive assumptions was designed to push the transmission system to its limits and identify the next potential transmission investments needed to achieve higher penetrations of zero-emissions resources at the same time as load is increasing due to electrification of buildings and transportation, as California proceeds on the trajectory toward a carbon neutral electricity system by 2045."[33] These same type of ambitious assumptions are needed in IRP base case planning and the PSP to identify the resource additions needed to achieve higher penetrations of zero-emissions resources at the same time as load is increasing due to electrification of buildings and transportation.

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[32] *See* D.22-02-004 at OP 7-8; Transmittal Letter to CAISO for 2022-23 TPP High Electrification Portfolio, July 1, 2022, available at: tpp-portfolio-transmittal-letter.pdf (ca.gov); Administrative Law Judge's Ruling Seeking Comments on Electricity Resource Portfolios for 2023-2024 Transmission Planning Process, R.20-05-003, October 7, 2022, at 3-9.

[33] D.22-02-004 at 110.

D. The Commission Should Adopt a 24-Hour Slice Framework for IRP Reliability Planning

A fundamental purpose of the IRP process is to make certain that LSEs are planning for adequate resources to meet electric system reliability needs and the state's decarbonization goals. Reliable PSPs and individual IRPs are crucial to determining potential system capacity needs. However, without the right standards to assess system reliability needs and allocate such needs to LSEs, the IRP process will fall short of this important objective. The Commission should adopt a 24-hour slice reliability planning standard for determining system reliability needs and allocating those needs to LSEs that ensures alignment with the broader structural changes adopted in the RA proceeding.

SCE continues to be concerned that the Commission's modeling approaches, especially the proposed PCAP methodology,[34] focus on a single-point PRM requirement and rely on pre-calculated, annual ELCC values for determining resource' reliability contributions. The Commission's reliability planning standards must evolve as the electric system changes over time, the duration of the peak extends to multiple hours, and other reliability concerns (e.g., charging energy sufficiency) arise. The Commission has already adopted a 24-hour slice framework for the RA program.[35] In deciding on a 24-hour slice approach, the Commission stated "[t]he 24-hour proposal … represents a durable framework that can evolve as the state's energy and environmental policy goals, which include widespread electrification, transform the generation supply portfolio and demand requirements."[36] A 24-hour slice reliability framework should also be implemented in the IRP process to ensure long-term reliability needs are correctly identified and addressed.

The single-point reliability construct narrowly focuses on the need during a single hour and thus fails to identify other potential reliability needs. The single-point reliability construct

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[34] *See* 2022 I&A at 93-118.
[35] *See* D.22-06-050 at OP 14, Appendix A.
[36] *Id.* at 75.

also relies on a complicated and resource mix-dependent pre-calculation to establish static resource ELCC values that measure resources' contribution to reliability, despite acknowledgement of the flaws of the current methodology.[37] The ELCC values for different resource types are highly dependent on the underlying load and resource mix. Accordingly, the pre-calculated ELCCs used in the IRP process, which are based on a fixed and assumed resource mix that differs from the modeled system portfolio, do not accurately represent selected resources' hourly expected reliability contribution.

This single-point reliability framework may not lead to the optimal mix of resources because: (1) it does not identify reliability needs that exist outside of the single point, and (2) its resource selection criteria is flawed as the annual ELCC values do not reflect the resources' hourly contribution to reliability, and it does not ensure the energy sufficiency for storage devices. These limitations of the single-point framework result in the selection of resources in the Commission's capacity expansion modeling that may not economically contribute to reliability compared to other available resources and over-builds storage devices. Continued use of the single-point PCAP ELCC framework or a similar single-point ELCC method in the IRP proceeding also risks further divorcing IRP from the RA program despite the need for reliability-related resource counting mechanisms to be tightly aligned in both proceedings.

By contrast, the 24-hour slice framework provides a more complete accounting of hourly resource contributions to reliability whether for old or new resources, conventional or renewable, as long as resources can contribute hourly to reliability on an expected basis that is consistent with the reliability assessment conducted by production cost modeling in the IRP process. The 24-hour slice framework accounts for the energy sufficiency for storage devices and their ability to contribute to reliability. The 24-hour slice framework also directly accounts for

[37] Specifically, the Commission stated: "For example, the current solar ELCC values represent aggregate contributions within the month (in the form of one value); this value, however, does not capture hourly granularity, where solar can fairly reliably meet load in the middle of the day but provide little or no contribution later in the evening. Likewise, a storage ELCC, if one were to be adopted, would also have one value but would not reflect the significant charge and discharge limitations of the storage resource over the course of the day." *Id.* at 76.

resources' use-limitations by using expected hourly energy (e.g., solar and wind resources) and incorporating an explicit charging capacity requirement instead of attempting to capture these limitations through complicated adjustments to a single ELCC value.[38] Moreover, the 24-hour slice framework identifies and addresses other challenging hours, which is critical as the peak lengthens into the evening and late-night hours, ensuring energy needs are met throughout the 24-hour period.

These features of the 24-hour slice framework enable it to identify the most economic mix of resources, which differs significantly from the resource portfolio identified in the Updated 2021 PSP[39] under a single-point framework. SCE urges the Commission to establish consistent reliability standards in the IRP process by adopting a 24-hour slice reliability framework. It is crucial that the reliability construct used in long-term planning considers capacity needs throughout the day as the grid evolves and the state plans for a high electrification future. Using a 24-hour slice reliability framework will help ensure long-term reliability needs are timely identified and addressed in an economic manner, and better align the IRP process with the RA program.

E. Summary of SCE's Modeling Results for the 25 MMT CAISO System-Wide Portfolio, the 25 MMT and 30 MMT Bundled Portfolios, and Associated Action Plans

1. SCE's 25 MMT CAISO System-Wide Portfolio

SCE developed a least-cost, operable, and reliable resource plan for the CAISO system to meet the 25 MMT electric sector GHG target in 2035 – the 25 MMT CAISO System-Wide

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[38] The resource counting methodology under a 24-hour slice framework will provide LSEs with more certainty on the reliability contribution of their existing resources because those values do not frequently change in the same way ELCC values fluctuate – sometimes dramatically – from forecast to forecast.

[39] The Updated 2021 PSP refers to the updated portfolio provided in the August 17, 2022 "LSE Filing Requirement RESOLVE Package," available at: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/long-term-procurement-planning/2022-irp-cycle-events-and-materials.

Portfolio, which can be used as a reference point as the Commission develops its next PSP. SCE used its CAISO system-wide modeling to incorporate a 24-hour slice reliability planning standard and create a least-cost resource portfolio considering all baseline and candidate resources under the 24-hour slice framework to serve load operably and reliably. SCE also identified a CAISO system PRM and optimal portfolio under the 24-hour slice framework that can be compared to the results of the Commission's single-point PRM and ELCC-based approach. Additionally, SCE developed a sensitivity portfolio for the year 2035 assuming additional transportation electrification load, and a climate impact scenario for the year 2035 that was modeled as a sensitivity in the LOLE analysis to assess the impact of a limited set of climate-related changes on supply-side resources and system reliability.

SCE employed a three-step iterative process to develop its CAISO system portfolio including capacity expansion modeling to build the least-cost resource portfolio satisfying the required constraints, production cost modeling to evaluate the portfolio's operational feasibility and validate the GHG emissions, and LOLE analysis to assess the reliability performance of the CAISO system-wide portfolio. The resulting 25 MMT CAISO System-Wide Portfolio builds the least-cost resource portfolio to achieve the 25 MMT 2035 GHG target and other constraints, is operable (i.e., satisfies energy demand, ancillary services, and ramping requirements in an expected load and energy delivery case), and meets a 1-in-10 LOLE reliability standard.

This section summarizes some of the key findings from SCE's CAISO system-wide modeling including:

- SCE's results confirm the recent decisive action by the Commission along with the assumed timely procurement of the ordered resources effectively eliminates mid-term reliability concerns. SCE's analysis shows no additional stand-alone energy storage beyond the D.19-11-016 and D.21-06-035 procurement is needed in the study window.
- SCE's analysis shows new clean energy resources are needed after 2026 to achieve the 25 MMT GHG target by 2035 and meet a 1-in-10 LOLE reliability metric. SCE's

modeling finds the most economic resource build-out, incremental to the D.19-11-016 and D.21-06-035 procurement, is a combination of wind and solar before 2030 and offshore wind in 2030 and beyond.[40]

- SCE's 25 MMT CAISO System-Wide Portfolio passes both the 1-in-10 LOLE reliability assessment and the feasibility and operability (emissions) checks in production cost modeling despite being significantly smaller and less expensive than the Low Emissions Scenario. SCE's 25 MMT CAISO System-Wide Portfolio also passes the test in the Commission's reliability checking tool.
- SCE's analysis identifies the economic selection of 2,820 MW of solar and 1,884 MW of wind in 2026 to meet energy requirements.
- SCE's analysis finds the selected clean energy resources provide enough "charging capacity" for the energy storage resources from D.19-11-016 and D.21-06-035 procurement to satisfy the 24-hour slice reliability constraint in 2026, 2030, and 2035 without additional energy storage additions.
- SCE's 25 MMT CAISO System-Wide Portfolio identifies approximately 15,100 MW less incremental capacity in 2035 than the Low Emissions Scenario of the Updated 2021 PSP, which corresponds to a savings of $1.7 billion annually.
- Replacement of the single-point reliability framework with a 24-hour slice framework affects the resources that are economically selected. For example, based on the Commission's assumptions on resource cost and hourly profile, offshore wind, when available, is found to be more economic than solar paired with existing storage when energy needs across 24 hours are considered.

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[40] Offshore wind is selected in SCE's capacity expansion modeling based on the Commission's modeling assumptions for offshore wind. Deep water floating offshore wind is a nascent and emerging technology with no operational commercial-scale projects globally. Additional data and research are needed to validate the technical viability, energy delivery profiles, and resource costs assumed in the Commission's offshore wind input data set.

- Resources selected under a 24-hour slice framework better support a high electrification future that will have increased energy needs throughout the day. SCE's Additional TE sensitivity shows an offshore wind build-out of 14.4 gigawatts ("GW") compared to the 7.3 GW identified in the base case.
- SCE's climate impact sensitivity on solar and gas generating unit output in 2035 identifies an increase in the LOLE value, but finds the portfolio is still considered to be reliable.
- SCE's analysis finds that a PRM of 16 percent in 2026, 17 percent in 2030, and 18 percent in 2035 is sufficient to maintain reliability under the 24-hour slice framework.

2. SCE's 25 MMT Bundled Portfolio and Action Plan

Based on its Commission-assigned bundled load forecast, SCE developed a least-cost resource portfolio for its bundled service customers to meet its share of the 25 MMT 2035 GHG target using capacity expansion modeling and verifying the Commission's GHG emissions and reliability requirements are met using the Clean System Power ("CSP") Calculator and Resource Data Template ("RDT"). The result was SCE's 25 MMT Bundled Portfolio, which is also SCE's 25 MMT Preferred Conforming Portfolio.[41] SCE's 25 MMT Bundled Portfolio achieves its share of the electric sector 25 MMT target by reaching 3.88 MMT of GHG emissions in 2035, a 76 percent Renewables Portfolio Standard ("RPS") in 2030, and 99 percent clean energy by 2035.[42] As explained in Section I.B, a 25 MMT 2035 GHG target is needed to feasibly and cost-effectively achieve the state's long-term 2045 decarbonization goals. Thus, the 25 MMT Bundled Portfolio is SCE's preferred portfolio and it should be approved by the Commission.

The resource mix of SCE's 25 MMT Bundled Portfolio is comparable to SCE's share of the 25 MMT CAISO System-Wide Portfolio and meets GHG emissions and reliability

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[41] SCE did not develop any alternative portfolios for either the 25 MMT or 30 MMT GHG target.

[42] SCE's 25 MMT Bundled Portfolio also meets SCE's share of the 25 MMT GHG target by 2030, with 4.33 MMT in 2030.

requirements cost-effectively.[43] SCE's 25 MMT Bundled Portfolio also demonstrates no economic selection of additional short-duration storage or baseload renewables beyond the amounts required in D.19-11-016 and D.21-06-035. Like the system analysis, SCE's 25 MMT Bundled Portfolio identifies a need for incremental clean energy resources after 2026 to meet the lower GHG emissions target. However, unlike the system portfolio, SCE's 25 MMT Bundled Portfolio identifies 664 MW of long-duration storage[44] by 2035 above the D.19-11-016 and D.21-06-035 procurement, which may be attributed to SCE's peakier load and different baseline resource assumptions.[45] By 2035, SCE's 25 MMT Bundled Portfolio also includes incremental capacity additions beyond D.19-11-016 and D.21-06-035 procurement of 6,927 MW of solar, 460 MW of onshore wind, and 1,798 MW of offshore wind.

SCE is currently procuring to meet its D.21-06-035 requirements. SCE requests Commission authority to conduct procurement to meet the incremental needs identified in SCE's 25 MMT Bundled Portfolio so that it can begin that procurement after completion of SCE's Midterm Reliability Requests for Offers ("RFOs"). As addressed in Section I.F, the Commission should adopt a flexible procurement program in time for any procurement authorized in this IRP cycle so that LSEs can procure pursuant to that program, and IOUs can receive procurement authority under the program. If the flexible procurement program is not in place upon approval of SCE's IRP, SCE requests authority to begin procuring to meet the incremental resource needs identified in SCE's 25 MMT Bundled Portfolio with the option to hold annual solicitations and make a final determination on whether to hold a solicitation and how much to procure in each

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43 For SCE's 25 MMT and 30 MMT Bundled Portfolios, the candidate resource pool included both new and existing but uncontracted resources; therefore, the incremental capacity additions could be met with new or existing but uncontracted resources.

44 In this IRP, the Commission has defined long-duration storage as a resource able to discharge at maximum capacity over at least an eight-hour period from a single resource. At this time, SCE's modeling does not show incremental benefits for stand-alone storage resources with durations longer than 8-10 hours.

45 The resources listed in SCE Bundled Portfolios are indicative of the resource attributes needed to meet SCE's share of the statewide target. Resource availability, commercial viability, costs, and other factors will determine which resources would be selected in a procurement process for meeting the GHG and reliability-based targets.

solicitation based on market response. Flexibly distributing procurement over a longer period affords SCE increased optionality to procure higher quantities when solicitations return competitive prices (or less when prices are higher than expected), which will allow SCE to pursue the most cost-competitive resources for its bundled service customers.

3. SCE's 30 MMT Bundled Portfolio and Action Plan

SCE's 30 MMT Bundled Portfolio was developed using the same process as SCE's 25 MMT Bundled Portfolio, but to meet SCE's share of a 30 MMT 2035 GHG target. SCE's 30 MMT Bundled Portfolio achieves its share of the electric sector 30 MMT target by reaching 4.89 MMT of GHG emissions in 2035, a 67 percent RPS in 2030, and 93 percent clean energy in 2035.[46]

SCE's 30 MMT Bundled Portfolio adds fewer clean energy resources when compared with SCE's 25 MMT Bundled Portfolio. Comparable amounts of onshore and offshore wind are added in both the 25 MMT and 30 MMT Bundled Portfolios, and both portfolios find no additional short-duration storage or baseload renewables are needed beyond those already included for D.19-11-016 and D.21-06-035 procurement. The primary difference between the two portfolios is the expected incremental solar and long-duration storage capacity. Specifically, the incremental solar capacity selected in the 30 MMT Bundled Portfolio is 1,200 MW less than the amount selected in the 25 MMT Bundled Portfolio (5,727 MW vs. 6,927 MW by 2035, respectively, incremental to solar capacity being procured to meet D.19-11-016 and D.21-06-035 requirements). The 30 MMT Bundled Portfolio does not select any additional long-duration storage after 2030, but instead selects 100 MW of additional offshore wind. By 2035, SCE's 30 MMT Bundled Portfolio includes incremental capacity additions beyond D.19-11-016 and D.21-06-035 procurement of 5,727 MW of solar, 460 MW of onshore wind, 1,898 MW of offshore wind, and 275 MW of long-duration storage.

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[46] SCE's 30 MMT Bundled Portfolio also meets SCE's share of the 30 MMT GHG target by 2030, with 6.58 MMT in 2030.

SCE advocates that the Commission approve SCE's 25 MMT Bundled Portfolio. Nevertheless, if the Commission were to approve SCE's 30 MMT Bundled Portfolio, SCE requests the same authority to procure pursuant to its 30 MMT Bundled Portfolio as discussed above with respect to SCE's 25 MMT Bundled Portfolio.

F. The Commission Should Expeditiously Adopt a Flexible IRP Procurement Program

Without a clearer link between planning and procurement that provides well-defined guidelines on how LSEs' IRPs will be operationalized, LSEs' responsibilities to enact their plans, and requirements for ensuring that LSEs are pursuing the procurement and other action plans set forth in their IRPs and that those resources are coming online as expected, it is not clear how the IRP proceeding's planning activities will actually translate into the procurement and new resource development needed to maintain grid reliability and reach California's decarbonization goals. The Commission must launch an IRP procurement program to ensure the plans developed in the IRP process are being executed.

SCE supports a procurement program that addresses reliability and clean energy need determination, allocation, and procurement compliance requirements. Deliberate procurement decisions resulting from robust modeling paired with a framework with clear compliance and enforcement mechanisms will help the Commission ensure LSEs plan to procure their share of clean energy and reliability resources. The procurement program should allow LSEs to procure based on their IRPs, but provide flexibility to adjust resource types and quantities based on market demand or operating variables such as hydro fluctuations due to drought years. Further, the Commission should avoid establishing resource-specific technology carve-outs since such carve-outs often result in uneconomic procurement with increased costs to customers. An all-source, technology agnostic approach to procurement is the more optimal approach and would provide some of the flexibility needed to ensure LSEs can procure the most cost-effective resources that meet their portfolio needs and attributes.

Once the requirements are set, the market can play the important role of offering resources that can be selected based on cost and attributes. Each LSE should be responsible to meet the energy, GHG emissions targets, and reliability needs of their portfolio. This program would ideally provide a broad authorization for procurement with both interim and milestone-year targets, but with flexibility and a process to allow for procurement deviations. The PSP can provide some guideposts on the directional path the procurement should take. Finally, the IRP procurement program should also help seek to optimize procurement processes, planning, and required reporting across all ongoing procurement programs (e.g., RPS and RA) to reduce potential reporting and other redundancies.

SCE appreciates Commission staff's recently issued Reliable and Clean Power Procurement Program Staff Options Paper and the accompanying Administrative Law Judge's Ruling requesting party comments on a proposed procurement program as a good first step toward developing a flexible procurement program.[47] SCE will discuss its detailed recommendations in comments on the staff paper. To avoid additional "one-off" procurement requirements, SCE urges the Commission act expeditiously to adopt and implement a flexible procurement program to provide LSEs and the market enough time to meet resource needs identified in this IRP cycle.

G. Organization of SCE's IRP

SCE's IRP follows the Narrative Template provided by Commission staff. Section II – Study Design describes how SCE approached the process of developing its IRP and discusses the objectives and methodology for SCE's IRP analytical work, including modeling tools, modeling approach, and assumptions. Section III – Study Results presents the results of SCE's IRP analytical work as described in Section II, including portfolio results and detailed information on SCE's 25 MMT CAISO System-Wide Portfolio, SCE's 25 MMT Bundled Portfolio, and SCE's

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[47] *See* Administrative Law Judge's Ruling Seeking Comments on Staff Paper on Procurement Program and Potential Near-Term Actions to Encourage Additional Procurement, R.20-05-003, September 8, 2022, Attachment A.

30 MMT Bundled Portfolio and discusses GHG emissions results and local air pollutant minimization and disadvantaged communities. Section IV – Action Plan describes the action plans, barrier analysis, and requests for Commission action associated with SCE's bundled portfolios, as well as the status of various categories of procurement, programs, and other activities addressed in the Narrative Template. Section V – Lessons Learned discusses SCE's suggested changes to the IRP process for consideration by the Commission.

Finally, SCE includes the RDTs as Appendix B.1 (for the 25 MMT Bundled Portfolio) and Appendix B.2 (for the 30 MMT Bundled Portfolio). SCE also includes the required CSP Calculators as Appendix C.1 (for the 25 MMT Bundled Portfolio) and Appendix C.2 (for the 30 MMT Bundled Portfolio).

II.
STUDY DESIGN

This section describes the objectives and methodology used to develop SCE's 25 MMT CAISO System-Wide Portfolio, 25 MMT Bundled Portfolio, and 30 MMT Bundled Portfolio.

SCE's 25 MMT CAISO System-Wide Portfolio is a comprehensive CAISO system-wide resource plan designed to meet a 25 MMT GHG target in 2035, is operable and feasible on an expected basis, and achieves a 1-in-10 LOLE reliability standard. SCE's 25 MMT CAISO System-Wide Portfolio was developed through a three-step iterative process to: (1) identify a least-cost portfolio using capacity expansion ("CE") modeling; (2) validate that the portfolio can operate on an expected and deterministic basis and satisfy various constraints and targets, including emissions and RPS/zero-carbon targets, using production cost modeling ("PCM") simulation; and (3) assess system reliability using an LOLE analysis.

SCE also modeled two additional scenarios on the 25 MMT CAISO System-Wide Portfolio. The first is a high electrification scenario for the year 2035 that was modeled as a sensitivity in the CE process to measure the impact of increased electrification on the resource portfolio. The second is a climate impact scenario for the year 2035 that was modeled as a sensitivity in the LOLE analysis to assess the impact of a limited set of climate-related changes on supply-side resources and system reliability.

For SCE's bundled load, SCE's 25 MMT Bundled Portfolio and 30 MMT Bundled Portfolio are designed to meet SCE's bundled load share of the 25 MMT and 30 MMT GHG targets in 2035, respectively, and satisfy certain reliability criteria. These bundled portfolios were developed using CE modeling to identify the least-cost bundled resource portfolios that satisfy SCE's bundled load share of the GHG emissions and reliability targets. SCE then used the Commission's RDT and CSP Calculator to verify the portfolios meet the Commission's reliability criteria and GHG emissions targets. If the initial bundled portfolios developed in SCE's CE modeling process did not "pass" the GHG emissions and/or reliability tests in the CSP Calculator and RDT, they were sent back to CE modeling for refinement iteratively.

A. Objectives

SCE's overall objectives for its IRP analytical work are consistent with the state's goals for the IRP process. Namely, SCE's intent is to develop optimized portfolios that meet California's goal of reducing economy-wide GHG emissions levels in a reliable and cost-effective manner, while also meeting other state goals[48] and operational requirements of the CAISO system.

1. Objectives in Developing the 25 MMT CAISO System-Wide Portfolio

SCE's primary analytical objectives in developing the 25 MMT CAISO System-Wide Portfolio are to:

1. Achieve a California electric sector 2035 GHG target of 25 MMT that enables the state to feasibly and cost-effectively meet its 2030 and 2045 GHG emissions limits and puts California on the right trajectory to reach its 2045 goal of powering 100

[48] *See* Cal. Pub. Util. Code §§ 454.51(a), 454.52(a)(1).

percent of electricity retail sales with carbon-free electricity as further described in Section I.B.

2. Identify annual near-term, mid-term, and long-term system capacity needs through 2035, if any.
3. Identify annual near-term, mid-term, and long-term clean energy resource needs through 2035, if any.
4. Incorporate a 24-hour slice framework into the IRP reliability planning standards. Create least-cost resource portfolios considering all baseline and candidate resources under the 24-hour slice framework to serve load operably and reliably.
5. Establish a CAISO system annual PRM and optimal resource portfolio under the 24-hour slice framework that can be compared to the results of Commission staff's single-point PRM and ELCC-based approach that are the basis for the 2022 IRP filing requirements.
6. Integrate certain climate projections in 2035 to start understanding the system-wide implications of climate change impacts in supply and identify optimized system-wide investment solutions that are most cost-effective for California electricity customers.
7. Develop a scenario with higher transportation electrification to understand the supply-side resource additions with higher transportation electrification.
8. Develop lessons learned, suggestions for improvement, or additional requirements for IRP CAISO system-wide modeling to improve its effectiveness and efficiency.

2. <u>Objectives in Developing SCE's Bundled Portfolios</u>

SCE's objectives in developing its 25 MMT Bundled Portfolio and 30 MMT Bundled Portfolio are to:

1. Achieve SCE's 2035 GHG emissions benchmarks of 3.993 MMT (for the 25 MMT Bundled Portfolio) and 5.025 MMT (for the 30 MMT Bundled Portfolio), which are consistent with SCE's share of the relevant electric sector 2035 GHG targets.

2. Ensure SCE's bundled portfolios meet SCE's bundled energy and capacity needs and properly contribute to CAISO system needs annually through 2035.
3. Limit the selection of shared system resources, such as existing transmission and import and export capability, to SCE's bundled service customers' share of overall system load. This was done to allow SCE's bundled portfolios to use its bundled load share of system resources without over-relying on the system.
4. Generally, limit SCE's candidate generation resources, as identified in the RESOLVE model, to its bundled load share to prevent over-subscribing the technical potential of economic resources, which helps avoid potential difficulties in combining all LSEs' portfolios into the Commission's PSP.
5. Identify differences, if any, between bundled resource portfolios that satisfy SCE's internal modeling criteria and bundled resource portfolios that satisfy the Commission's RDT and CSP Calculator criteria.
6. Develop lessons learned, suggestions for improvement, or additional requirements for IRP modeling to improve its effectiveness.

B. Methodology

This section discusses the methodology used to develop SCE's resource portfolios. First, SCE describes the modeling tools, assumptions, and approach used for its CAISO system-wide modeling to develop the 25 MMT CAISO System-Wide Portfolio. Second, SCE describes the modeling tools, assumptions, and approach used for its bundled modeling to the develop the 25 MMT and 30 MMT Bundled Portfolios. SCE generally used the same methodology to develop its CAISO system-wide and bundled portfolios and has identified any differences in the sections below.

1. <u>CAISO System-Wide Portfolio Methodology</u>

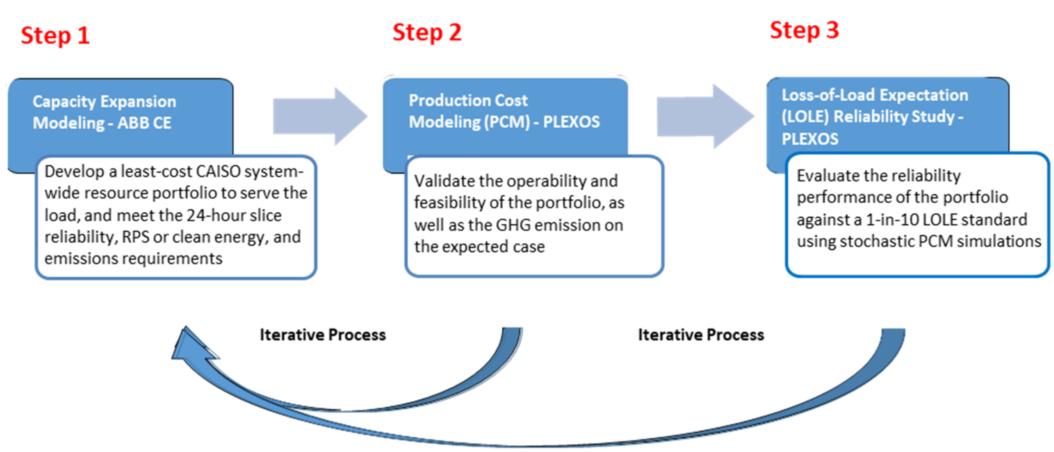
SCE utilized ABB CE capacity expansion modeling and PLEXOS PCM simulation software for its CAISO system-wide modeling. Table II-1 below provides information on specific modeling software used by SCE to develop its IRP.

Table II-1
Modeling Software Specifications

Model Type	Model	Vendor	Version number
Capacity Expansion	ABB CE	ABB	19.4
Production Cost	PLEXOS	Energy Exemplar	8.3 R09

The following Figure II-1 provides an overview of the process that SCE used to ensure its 25 MMT CAISO System-Wide Portfolio is operable and feasible in terms of sufficient generating resources to serve the CAISO hourly load and satisfy the ancillary services requirements, meeting the CAISO system share of the 25 MMT GHG target and RPS/zero-carbon requirements, and being reliable while meeting the 1-in-10 LOLE reliability standard.

Figure II-1
Modeling Tools and Approach Used in Development of SCE's
25 MMT CAISO-System Wide Portfolio



Specifically, SCE used the following three-step iterative process:

1. Step 1: Build the optimized CAISO system-wide resource portfolio using the ABB CE model to meet the CAISO system share of a 25 MMT GHG target,[49] RPS/zero-carbon requirements, 24-hour slice reliability requirement, and to serve the load of the CAISO system, based on all assumptions for baseline and candidate resources, transmission system limitations, etc. To effectively obtain the optimal solution, the 8760-hourly load on an annual basis is simplified.
2. Step 2: Perform the detailed PLEXOS PCM simulation to validate if the CAISO system-wide resource portfolio produced by the ABB CE model can operate on an expected and deterministic basis, while meeting the 2021 IEPR mid-mid load and associated ancillary services and ramping requirements in each hour, satisfying transmission limitations and individual generation constraints, and incorporating more detailed emissions calculations to reflect the variation of load and generation and meet the annual GHG target. This step of the analysis used detailed generator characteristics, operating constraints, and ancillary service requirements. If there are any unserved load or violations of the above limitations, constraints, and targets, the ABB CE model will be rerun with adjusted constraints to ensure the final resource portfolio meets all the requirements.
3. Step 3: Assess system reliability by the LOLE study using 500 PLEXOS Monte Carlo simulations considering the uncertainties on load, wind and solar generation, and gas generation outages. If the CAISO system-wide generation portfolio does not meet the 1-in-10 LOLE reliability standard, the 24-hour slice reliability requirement will be increased to rerun the ABB CE model and create a new system-wide resource portfolio, and finally establish the required annual PRM to meet the 1-in-10 LOLE reliability standard under the 24-hour slice reliability construct

[49] SCE used a straight-line approach to apply declining GHG targets as annual constraints for its CAISO system-wide portfolio development, consistent with the Administrative Law Judge's Ruling Finalizing Load Forecasts and Greenhouse Gas Emissions Benchmarks for 2022 Integrated Resource Plan Filings, R.20-05-003, June 15, 2022.

Each step is described in further detail in the sections below.

a) **Step 1: CE Methodology to Identify Least-Cost Resource Portfolio**

The CE model is critical in the IRP process because it is utilized to develop the least-cost resource portfolio that is able to serve the load of the CAISO system, meet GHG, RPS/zero-carbon, and reliability requirements, and consider transmission and import/export limits.

(1) **Modeling Tool(s) Used for CE**

SCE continues to use the ABB CE model to develop its CAISO system-wide resource portfolios. ABB CE is a commercially available, long-term resource planning tool developed by ABB Enterprise Software Company.[50] ABB CE is capable of optimizing a well-defined power system to meet GHG requirements, transmission and import/export limits, reliability requirements, and energy balance requirements at least cost.

SCE selected ABB CE over the Commission's RESOLVE tool because of ABB CE's additional functionalities. For example, ABB CE can consider all study years instead of relying on the seven sample years in RESOLVE. It also models each thermal generating unit individually and is capable of simultaneously co-optimizing the investment, dispatch, and retirement/refurbishment. Additionally, ABB CE directly uses 8,760 hourly load, renewables, and hydropower data to calculate the "typical week" of each month for optimization. SCE has observed more economical CAISO system-wide resource buildouts from ABB CE compared to RESOLVE.[51]

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[50] In 2020, Hitachi Energy acquired 80% of ABB, which included ABB Enterprise Software Company. Hitachi Energy is scheduled to acquire the remaining 20% of ABB in 2023.

[51] For example, SCE's 2020 IRP identified a 38 MMT CAISO System-Wide Portfolio from the ABB CE model that achieved a 15 percent savings of new resource costs in 2030 compared to the Commission's 38 MMT portfolio while meeting both reliability and clean energy targets. *See* Integrated Resources Plan of Southern California Edison Company (U 338-E), R.20-05-003, September 1, 2020, at 24. *See also* Integrated Resources Plan of Southern California Edison Company (U 338-E), R.16-02-007, August 1, 2018, at 35-36. SCE discusses how its 25 MMT CAISO System-Wide Portfolio compares to the 2021 PSP in Section III.A.1.

Table II-2 provides a summary of differences between the ABB CE model and RESOLVE and an explanation of how those differences should be considered during evaluation of SCE’s portfolios.

Table II-2
Differences Between RESOLVE and ABB CE Models

RESOLVE	ABB CE	How differences should be considered during evaluation of portfolios
Aggregated super thermal generators	Detailed individual generator modeling	ABB CE enables a more detailed thermal supply stack representation by modeling each thermal generator individually. The result is a more realistic estimate of fuel use and GHG emissions.
Includes ancillary service requirements	Does not include ancillary service requirements	Ancillary service requirements, as operational reliability requirements, are better evaluated in PCM simulations where detailed generator characteristics and 8,760 hourly demand is evaluated. SCE evaluates these requirements in PLEXOS PCM simulations.
Investment decisions on: • New generation (gas and renewables) • New storage • Generation retirement • New demand response	Investment decisions on: • New generation (gas and renewables) • New storage • Generation retirement • Generation refurbishments • Purchase and sale power contracts • Demand-side management programs • New transmission • Cap-and-trade emission allowance transactions • Fuel purchases	ABB CE has additional functionality when considering investment decisions. Although SCE did not use all functionalities in this IRP, the additional functionality makes ABB CE a more integrated model that would help the Commission achieve its goals for the IRP process if it were adopted as the IRP's primary modeling tool for future cycles.
For each year in the analysis horizon, RESOLVE models operations for 37 typical days	For each year in the analysis horizon, ABB CE model applies the "typical week" method to scale down the number of hours	ABB CE provides a better representation of electrical load and renewable generation because there is greater variability from its "typical week" sampling method compared to RESOLVE's 37 days. "Typical week" sampling results in 84 types of days (one week for each month) – more than twice as many as RESOLVE. Some months in RESOLVE have only one type of day associated, leaving no room for even a weekday-weekend differentiation.

Correlated 37 shapes for load, renewables, and hydropower	37 days mapped to 8,760 shapes for load, renewables, and hydropower	Loads between the two models are comparable because SCE translated the RESOLVE 37 load, renewables, and hydropower shapes into 8,760 hourly shapes before populating ABB CE.
Aggregated hydropower with daily energy limit corresponding to 37 days	Allows individual hydropower modeling as either baseload, peak shaving, or limited energy. Both or either or daily or monthly energy limits are available.	SCE converted the RESOLVE daily energy limit into a monthly energy limit in ABB CE. The annual hydropower generation between RESOLVE and ABB CE are consistent.
Financial model minimizes Net Present Value ("NPV") of all-in resource cost	Financial model minimizes resources' Real Economic Carrying Charge	ABB CE has a comparable financial valuation method to RESOLVE. ABB CE values costs based on the difference of NPVs from purchasing resources in perpetuity when resource life is longer than 2035. Similarly, RESOLVE calculates an additional weight on the NPVs incurred in 2035.
Simulates selected sample years. In this IRP cycle, RESOLVE simulated years 2022-2026, 2028, 2030 and 2032	Simulates every single year in the planning horizon	ABB CE optimizes the resource build-out and has the capability to closely examine the 24-hour slice reliability requirement for each individual year. In this IRP cycle, SCE implemented 24-hour slice modeling on years 2026, 2030, and 2035.
Uses the single-hour PRM for reliability planning requirement	Replaces the single hour PRM with 24-hour slice reliability requirement	The 24-hour slice reliability requirement ensures the system has enough capacity to satisfy its load and PRM in all 24 hours on the CAISO's highest load day in that year and results in an optimal resource portfolio than the single-hour PRM reliability requirement.

(2) <u>Modeling Assumptions</u>

Table II-3 summarizes the assumptions used by SCE in its CAISO system-wide CE modeling, including any differences from the assumptions used by the Commission in RESOLVE.

Table II-3
Assumptions Used in SCE's CAISO System-Wide CE Modeling

CAISO System	2022 IRP Assumptions
Run Horizon	• 2023-2035, 24-hour slice modeling in 2026, 2030, and 2035
Load	• 2021 CAISO mid-mid IEPR load on a managed load basis
RPS/Zero-Carbon Regulation	• 60% RPS in 2030; beyond 2030, SCE used linear interpolation to reach 100% renewable and zero-carbon target in 2045, which also met 90% by 2035 and 95% by 2040 targets in SB 1020 • RESOLVE Tx loss assumption applied to RPS or clean energy regulation

Emissions Regulation	• 25 MMT * 78% - 4.43 MMT behind-the-meter Combined Heat and Power (15 MMT equivalent) in 2035
Reliability Constraint	• 24-hour slice reliability modeling in 2026, 2030, and 2035
Existing RPS	• Reliability contribution based on 24-hourly slice analysis • 2022 RESOLVE shape and capacity • No contracting assumptions – constant existing resource totals through 2030
Hydro	• Non-CAISO and CAISO Hydro calibrated with 2022 RESOLVE
Existing Gas	• Calibrated with CAISO generator master file • Does not optimize for economic retirement
Retirement and Procurement Requirement Assumptions	• D.19-11-016 and D.21-06-035 procurement requirements enforced • Once-through cooling units assumed to retire by 2024 as scheduled • Diablo Canyon assumed to retire by 2025 (Unit 1) and 2026 (Unit 2) • All additional retirements calibrated with RESOLVE and the Commission generator list

(3) Approach to Incorporating a 24-Hour Slice Reliability Framework

SCE modified its CE modeling in this IRP cycle to incorporate a 24-hour slice framework to replace the single-hour PRM requirement as the reliability planning standard in addition to other constraints such as energy, GHG emissions, and RPS/zero-carbon constraints. In this IRP cycle, SCE implemented a 24-hour slice constraint that applied a PRM across all 24 hours during the "worst" day of the year for critical years 2026, 2030, and 2035. The CE model selects the most economical resource portfolio to ensure all the constraints are met for individual years in the planning horizon. Because the process for modeling the emissions, RPS/zero-carbon target, load, and generation balance requirements is unchanged from SCE's 2020 IRP and generally consistent with RESOLVE, the following section focuses on the method used to incorporate the new 24-hour slice reliability framework.

The 24-hourly slice framework, which is consistent with the 24-hour slice framework adopted by the Commission for the RA program,[52] replaces the single-point PRM constraint historically used in the CE process to ensure the CAISO system-wide portfolio meets the reliability planning standard, among other requirements.

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[52] *See* D.22-06-050 at OP 14, Appendix A.

The 24-hour slice approach assesses reliability across all hours on the highest load day of the year to ensure that the CAISO system has enough capacity to satisfy its load profile plus PRM in all 24 hours. It also performs an additional feasibility test to ensure both capacity and energy are sufficient for the use-limited resources. In particular, the 24-hour slice approach ensures sufficient excess capacity during the 24-hour period to meet the charging needs of stand-alone storage resources. SCE scaled up the hourly load forecast for the highest load day of the year (i.e., the day containing the highest managed peak load forecast for the year) in all hours using an assumed PRM of 16 percent for 2026, 17 percent for 2030, and 18 percent for 2035.[53] Resources' contribution to this reliability framework is based on their availability in each hour. For example, the expected contribution from solar and wind resources is based on their hourly profiles on the highest load day of the year.[54] Later, the PRM of 16 percent for 2026, 17 percent for 2030, and 18 percent for 2035 were confirmed by the LOLE analysis to meet the 1-in-10 reliability standard for these years.

SCE's 24-hour slice approach differs from the reliability modeling approach used by the Commission. First, as mentioned above, the Commission's method checks the single managed peak hour while SCE's method checks every hour for the highest load day of the year. Second, the Commission uses a PCAP PRM applied to the gross peak while SCE uses an installed capacity ("ICAP") PRM applied to the managed peak. Third, resource contribution under the Commission's method is based on unforced capacity ("UCAP") for thermal resources and marginal ELCC for renewable and storage resources, while SCE uses expected hourly profiles for wind and solar resources, applies derates to thermal, hydro, and non-solar and wind renewables consistent with assumptions provided by the Commission for use in the 2020 IRP

[53] SCE confirms the portfolios developed using these assumed PRMs meet the 0.1 standard in the LOLE analysis. If the assumed starting-point PRMs used in CE did not result in a reliable portfolio, SCE would have iteratively adjusted the PRMs to identify the level needed to meet the 0.1 industry LOLE reliability standard.

[54] SCE aggregates solar and wind performance data to create hourly profiles for a "typical week" in each month (i.e., seven profiles for each month, or 84 sets of hourly profiles). The profile used in this reliability modeling analysis captures the expected hourly output on the day-of-the-week and month in which the highest load day of the year occurs.

cycle,[55] and uses nameplate capacity for storage resources but also confirms there is sufficient "excess capacity" in other hours for charging. Compared to the Commission's existing method based on the single-hour PRM requirement, the 24-hour slice approach effectively addresses challenges related to solar, wind, storage resources, and load variability and ensures energy sufficiency for reliable system operations while advancing California's environmental goals.

b) <u>Step 2: PCM to Validate Feasibility and Operability of Portfolio</u>

PCM simulations were conducted on the 25 MMT CAISO System-Wide Portfolio to validate the operational feasibility and performance of the portfolio built by the CE model for the CAISO system. A PCM simulation approach is used to dispatch generation resources to meet the demand and ancillary service requirements of the system on an hourly basis, while satisfying all the generator operational constraints, transmission constraints, and other system reliability requirements. Ancillary services, such as operating reserves and frequency response, are necessary requirements managed by the CAISO to ensure operational reliability and stability of the power system. Compared to the CE model, the PCM, which considers the detailed generator characteristics, ramping capabilities, and load balancing requirements on an hourly basis, is an effective tool to assess the operational feasibility of resource portfolios in a power system.

SCE used PLEXOS, a commercial software program with a mixed integer programming optimization engine, to perform the PCM simulation for the CAISO system and mimic CAISO day-ahead market operations and conduct a LOLE analysis. PLEXOS co-optimizes energy and ancillary services and generates the commitment and dispatch of available generation resources to meet demand and reserve requirements at least cost, subject to transmission and individual generation resource constraints. SCE's PLEXOS model is set to a CAISO-only, zonal/nodal model based on the full network model CAISO publishes on a regular basis.

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55 As described above, the Commission's use of the UCAP resource counting methodology for thermal resources effectively derates the nameplate capacity to account for unforced outages and typical maximum capacity. Thus, the 2022 RESOLVE model does not include any explicit derate assumptions. SCE has used derate assumptions from the 2020 IRP cycle because SCE continues to use installed capacity values for thermal resources (i.e., not adjusted for UCAP).

c) Step 3: LOLE Analysis to Validate Reliability of Portfolio

To assess the reliability of SCE's 25 MMT CAISO System-Wide Portfolio, SCE conducted a LOLE analysis using PLEXOS Monte Carlo simulations of 500 trials considering the uncertainties of load, wind and solar generation, and gas generation outages. SCE leveraged the Commission's Unified RA and IRP Modeling Datasets,[56] including load, solar, and wind profiles to conduct the stochastic analysis. Additionally, SCE adopted the Commission's interpretation of a 1-in-10 LOLE reliability standard, where a loss-of-load event is defined as a day in which at least one hour has insufficient capacity to meet load and/or reserve requirements.[57] SCE used a CAISO zonal modeling approach in the PLEXOS PCM platform to conduct the study.

d) Sensitivity Analysis on the 25 MMT CAISO System-Wide Portfolio

SCE performed two sensitivity analyses on the 25 MMT CAISO System-Wide Portfolio, as described below.

(1) Additional TE Scenario

First, consistent with the Commission's requirement for bundled IRP portfolios,[58] SCE developed a CAISO system-wide resource portfolio in CE for year 2035 based on the system-wide Additional TE scenario load forecast developed by the CEC and used in the 2022-2023 CAISO TPP. SCE did not validate the operability, feasibility, or reliability of the Additional TE CAISO system-wide portfolio using PCM and LOLE analysis. See Section III.G for additional information on this sensitivity.

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[56] *See* Unified RA and IRP Modeling Datasets 2022, available at: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/long-term-procurement-planning/2022-irp-cycle-events-and-materials/unified-ra-and-irp-modeling-datasets-2022.

[57] *See* Energy Resource Modeling Section, Energy Division, Unified Resource Adequacy and Integrated Resource Plan Inputs and Assumptions – Guidance for Production Cost Modeling and Network Reliability Studies, March 29, 2019, at 12.

[58] *See* Narrative Template at 14.

(2) Climate Impact Sensitivity

Second, SCE created a sensitivity scenario for 2035 in its LOLE analysis that models the impact of rising temperatures on gas and solar available generating capacity. As described in SCE's CAVA,[59] regional heat waves are a primary driver of system-wide reliability challenges because they affect electricity demand, import capabilities, transmission and distribution asset efficiency, forced generation outages, generating capacity, and battery charging. For purposes of this IRP, SCE focused on the effects extreme heat could have on system reliability through efficiency losses in generation using the LOLE metric.

SCE developed hourly temperature projections using daily temperature projections from California's Fourth Climate Change Assessment and weather station data. These estimates provided sufficient granularity to directionally assess the marginal impact of extreme heat on generating capacity factors through hourly marginal derates, which were applied to SERVM capacity factors in the LOLE model. SCE then performed an updated LOLE analysis on the 25 MMT CAISO System-Wide Portfolio using the climate change-adjusted SERVM capacity factors, holding all other variables such as demand and import assumptions constant, to calculate the LOLE metric under this sensitivity scenario. Differences between the sensitivity scenario and the base case are attributed to the impact of climate change on generation supply and efficiency.

SCE believes this sensitivity scenario is a necessary first step to incorporating climate change into system level planning processes, but many other demand and supply variables need to be incorporated in future analyses to more fully understand the impacts of climate change on system reliability. To that end, SCE looks forward to collaborating with stakeholders to further study the impact of climate change on demand, market dynamics (e.g. net exports), hydroelectric generation, and other system-level risks for integration into future planning efforts.

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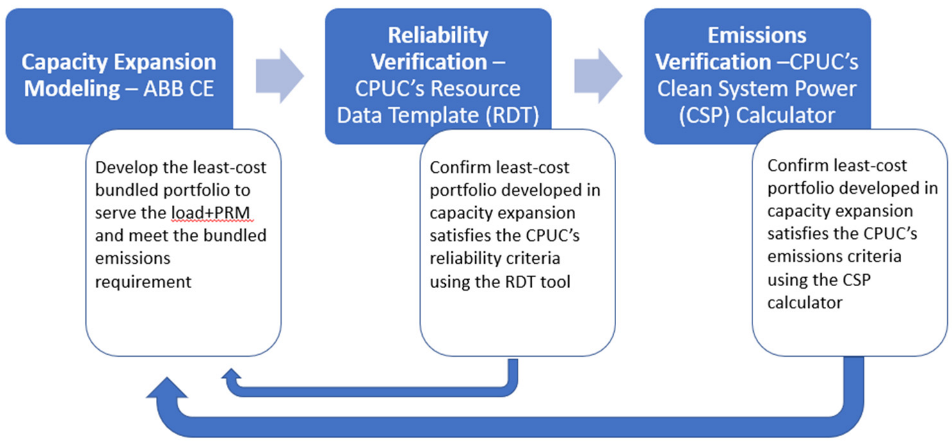
[59] *See* SCE Advice 4793-E, Climate Change Vulnerability Assessment Pursuant to Decision 20-08-046, May 13, 2022, Section V.D, at 194-203.

2. Bundled Portfolio Methodology

SCE's bundled portfolios were developed using the ABB CE model, the RDT, and the CSP Calculator as shown in Figure II-2 below.

Figure II-2
Modeling Tools Used in Development of SCE's Bundled Portfolios



SCE used the ABB CE model to develop the least-cost resource portfolios that meet its GHG emissions benchmarks for bundled service customers; a straight-line approach was used to represent these declining GHG targets as annual constraints. Unlike the 24-hour slice framework implemented in SCE's CAISO system-wide analysis, SCE maintained the existing single-point PRM reliability framework for its bundled modeling. However, the PRM constraint is informed by the system-wide 24-hour slice framework and uses the expected solar and wind contribution during the peak load hour for resource counting instead of the single-annual marginal ELCC methodology. The resulting bundled portfolios are the least-cost bundled portfolios that satisfy SCE's bundled load share of the GHG emissions (25 MMT and 30 MMT) and reliability targets. SCE then used the Commission's RDT and CSP Calculator tools to verify the portfolios meet the Commission's emissions and reliability criteria. If the bundled portfolios developed in SCE's modeling process did not "pass" either of the reliability and emissions tests in the RDT and CSP

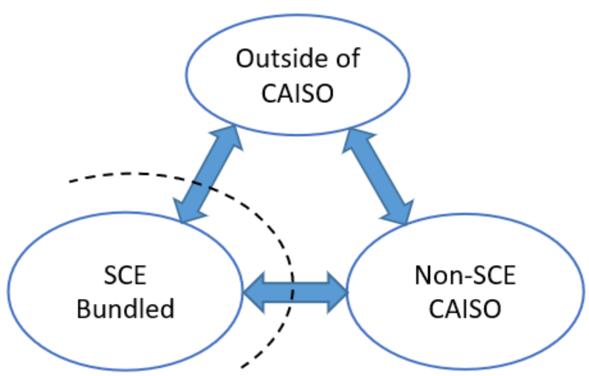
Calculator, respectively, SCE would iteratively adjust the targets modeled in CE modeling to identify larger bundled portfolios that satisfy the RDT and CSP Calculator criteria.

a) CE Methodology to Identify Least-Cost Bundled Portfolios

(1) Transmission Limits Enforced in CE

The modeling approach represented the system as three linked transmission areas: SCE bundled, the remainder of CAISO, and the rest of the Western Electricity Coordinating Council ("WECC"). This was done for two reasons: (1) to ensure that shared resources (e.g., CAISO system resources, major transmission lines, and import/export lines) are not excessively used by any one LSE; and (2) to more precisely account for GHG emissions attributable to SCE bundled service customers.[60] Figure II-3 below depicts the regional structure of the SCE bundled system.

Figure II-3
SCE Bundled System Topology



To constrain resource sharing between the three regions, transmission limits were estimated based on both the load share and the physical, simultaneous transmission limits. The following Table II-4 and Table II-5 summarize the interregional transmission limits enforced in the SCE bundled system. SCE used existing contract information to set its import limit for 2023 and applied the SCE bundled peak load share of a 4,000 MW maximum import limit, plus

[60] SCE enforced a PRM of 16 percent in 2026, 17 percent in 2030, and 18 percent in 2035 in development of its bundled portfolios consistent with the assumption applied in the CAISO system-wide modeling. PCM simulation is not needed for bundled portfolios because bundled portfolios represent a small portion of the overall system resources.

Palo Verde and Hoover, to set its import limit for 2024 and beyond. Additionally, SCE used an imported power CO2 emissions rate of 0.428 metric tons per megawatt-hour ("MWh") between its bundled system and the rest of WECC. Applying this emissions rate accounts for CAISO system emissions generated on behalf of SCE's bundled service customers and is consistent with the Commission's assumed emissions rate for unspecified imports.[61]

Table II-4
Rest of WECC to SCE Bundled Transmission Limits[62]

Year	Assumed SCE Bundled Import RA Capacity (MW)	Methodology
2023	1,982	SCE expected import RA MW based on recent procurement and near-term market outlook
2024	1,960	
2025	1,011	SCE bundled peak load share of a 4,000 MW maximum import limit
2026	1,009	
2027	1,009	
2028	1,008	
2029	1,008	
2030	1,007	
2031	1,006	
2032	1,004	
2033	1,002	
2034	999	
2035	997	

[61] *See* Greenhouse Gas and Criteria Pollutant Accounting Methodology for use in Load-Serving Entity Portfolio Development in 2022 Integrated Resource Plans, July 2022, at A-6.

[62] SCE's share of Hoover and Palo Verde were accounted for separately.

Table II-5
Rest of CAISO to SCE Bundled Transmission Limits

Transmission Lines	Import Limit on the Path (MW)	Methodology
SCE Bundled to Rest of CAISO	3,000	Path 26 South to North transmission limit
Rest of CAISO to SCE Bundled	4,000	Path 26 North to South transmission limit

(2) <u>Allocation of Shared Resources</u>

For the SCE resources subject to the Cost Allocation Mechanism ("CAM"), the resource share that contributes to SCE's bundled portfolios is the proportional share determined by SCE bundled energy load to the total non-bundled and bundled peak energy load from the 2023 year-ahead RA allocations.[63] SCE's IRP only includes its pro-rata share of the capacity from the CAM-eligible resources. Additionally, consistent with Commission staff's September 23, 2022 guidance, SCE's IRP only includes its pro-rata share of the clean energy from CAM-eligible storage resources.

Pursuant to D.21-05-030, renewable attributes from RPS-eligible resources procured on behalf of customers who have now departed bundled service are eligible to be allocated or sold through the Voluntary Allocation and Market Offer ("VAMO") process. For purposes of this IRP, and consistent with D.22-01-004, SCE assumes all quantities eligible for VAMO are either allocated or sold and cannot be used toward SCE's RPS/zero-carbon targets.

D.21-05-030 also authorized, on an interim basis, a GHG-free allocation process to allocate the "clean energy" attributes from nuclear and large hydro resources to customers who have departed bundled service, but have elected to receive their pro-rata share.[64] For purposes of this IRP, SCE assumes clean energy attributes from nuclear and large hydro resources continue

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[63] In its RDTs, SCE used its proportional share of CAM resources based on its 2023 initial year-ahead share of total coincident peak load as assigned in the RA process and kept that share static throughout the IRP planning horizon.

[64] Unlike VAMO, the GHG-free allocation process does not have a market offer component to sell the clean energy attributes that are eligible to be allocated but declined by LSEs.

to be allocated beyond 2023 and uses historical allocation rates by technology type[65] to determine the quantities that cannot be used toward SCE's clean energy targets.

Finally, a small share of SCE's D.19-11-016 procurement was completed on behalf of non-IOU LSEs who opted out of their procurement requirements. Consistent with D.22-05-015 and SCE's Advice 4831-E, SCE's IRP assumes a share of the D.19-11-016 resources are allocated to those opt-out LSEs and cannot be used toward SCE's requirements.[66]

(3) Assumed Share of System Resources

When considering candidate resources, defined by SCE as new resources and resources from SCE's portfolio that expire in the IRP planning horizon, for its bundled portfolios, SCE partitioned the candidate resources on a pro-rata basis according to the SCE bundled load share to the CAISO system load. If this candidate resource partitioning approach is used by all LSEs, it will ensure that the total selected resources for each category will not exceed the maximum available potential when the Commission combines LSEs' IRPs to form the PSP.

For existing thermal resources, SCE assumed a pro-rata share matching the SCE bundled load share of the CAISO system would be contracted in each year. For existing non-thermal resources, SCE assumed it would have access to a pool of new and existing resources limited to SCE's bundled load share of the CAISO system load. SCE's expiring contracts with existing non-thermal resources were added back to this pool of candidate resources[67] and assumed to be the same cost as new resources of the same class.

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65 Eligible LSEs may elect to receive a vintaged load share of the clean energy attributes from nuclear and large hydro resources. Because allocation rates varied by technology based on LSEs' elections, and in certain cases LSEs declined the attributes altogether, SCE used historical allocation rates to forecast future allocations.

66 Additionally, SCE's IRP assumes a small share of D.19-11-016 procurement done on behalf of opt-out LSEs that are now non-operational is subject to CAM. *See* D.22-05-015 at OP 10.

67 This assumption of no automatic re-contracting is different from SCE's prior IRP filings. *See also* Section III.H.

III.

STUDY RESULTS

A. Conforming and Alternative Portfolios

As explained above, SCE developed a least-cost, operable, and reliable 25 MMT CAISO System-Wide Portfolio for the CAISO system to meet the 25 MMT GHG target in 2035, a sensitivity portfolio for the year 2035 assuming additional transportation electrification load, and a climate impact scenario for the year 2035 that was modeled as a sensitivity in the LOLE analysis to assess the impact of certain climate-related changes on supply-side resources and system reliability. For its bundled load, SCE developed one 25 MMT Bundled Portfolio, which is SCE's Preferred Conforming Portfolio, and one bundled 30 MMT Bundled Portfolio, without any alternative portfolios. SCE strongly recommends the Commission adopt a 25 MMT GHG target for all LSEs and the PSP and approve SCE's 25 MMT Bundled Portfolio.

The sections below describe the build-out results for: (1) SCE's 25 MMT CAISO System-Wide Portfolio and related sensitivities; (2) SCE's 25 MMT Bundled Portfolio; and (3) SCE's 30 MMT Bundled Portfolio and explains the differences between SCE's portfolios and the Updated 2021 PSP.

1. SCE's 25 MMT CAISO System-Wide Portfolio Results

SCE supports the adoption of a 25 MMT electric sector GHG target in 2035 because it will reduce GHG emissions and criteria air pollutants in the near-term and facilitates a smooth glidepath to reach 100 percent electricity retail sales from zero-carbon resources and carbon neutrality by 2045. A 25 MMT electric sector GHG target for 2035 also supports a reasonable trajectory toward achieving California's newly enacted targets of 90 percent and 95 percent of electricity retail sales from zero-carbon resources by 2035 and 2040, respectively.[68]

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[68] *See* SB 1020 (2022).

SCE developed its 25 MMT CAISO System-Wide Portfolio to identify a least-cost resource mix that is reliable, operable, and feasible, which can be used as a reference point as the Commission develops its next PSP. Additionally, SCE used this system analysis to confirm the Commission's finding in D.22-02-004 that there is minimal cost difference between the 25 MMT and 30 MMT scenarios.[69]

SCE's 25 MMT CAISO System-Wide Portfolio is a comprehensive, operable, and reliable portfolio that meets the CAISO system share of the 25 MMT GHG target in 2035. The portfolio is shown in Figure III-4 and discussed in more detail below. The following are key findings from the results of SCE's CAISO system analysis, including takeaways from SCE's Additional TE system sensitivity and climate impact sensitivity:

- SCE estimates approximately 20 GW of nameplate capacity will be added pursuant to D.19-11-016 and D.21-06-035 ("Required Procurement"). SCE's results confirm the recent decisive action by the Commission along with the assumed timely procurement of the ordered resources effectively eliminates mid-term reliability concerns. SCE's analysis shows no additional stand-alone energy storage beyond the Required Procurement is needed in the study window.
- SCE's analysis shows new clean energy resources are needed after 2026 to achieve the 25 MMT GHG target by 2035 and meet the 1-in-10 LOLE reliability metric. SCE's modeling finds the most economic resource build-out, incremental to the Required Procurement, is a combination of wind and solar before 2030 and offshore wind in 2030 and beyond.
- SCE's 25 MMT CAISO System-Wide Portfolio passes both the 1-in-10 LOLE reliability assessment and the feasibility and operability (emissions) check in PCM despite being significantly smaller and less expensive than the Low Emissions

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[69] *See* D.22-02-004, Table 3, at 90, which shows the 38 MMT Core scenario (corresponding to a 30 MMT target in 2035) and 30 MMT Core scenario (corresponding to a 25 MMT target in 2035) both have a levelized average rate of 19.3 cents/kWh.

Scenario of the Updated 2021 PSP. SCE's 25 MMT CAISO System-Wide Portfolio also passes the test in the Commission's reliability checking tool. SCE's analysis identifies the economic selection of 2,820 MW of solar and 1,884 MW of wind in 2026 to meet energy requirements.

- SCE's analysis finds the selected clean energy resources provide enough "charging capacity" for the energy storage resources from the Required Procurement to effectively satisfy the 24-hour slice reliability constraint in 2026, 2030, and 2035 without additional energy storage additions.[70]
- SCE's 25 MMT CAISO System-Wide Portfolio identifies approximately 15,100 MW less incremental capacity in 2035 than the Low Emissions Scenario of the Updated 2021 PSP, which corresponds to a savings of $1.7 billion annually.
- Replacement of the historical single-point reliability framework with a 24-hour slice framework affects the resources that are economically selected. For example, based on the Commission's assumptions on resource cost and hourly profile, offshore wind, when available, is found to be more economic than solar paired with existing storage when energy needs across 24 hours are considered. Resources selected under a 24-hour slice framework better support a high electrification future that will have increased energy needs throughout the day. SCE's Additional TE sensitivity shows an offshore wind build out of 14.4 GW compared to the 7.3 GW identified in the base case.
- SCE's climate impact sensitivity on solar and gas generating unit output in 2035 identifies an increase in the LOLE value, but finds the portfolio is still reliable in the supply-side sensitivity studied.
- SCE examined the pattern of unserved load in its LOLE analysis and found that loss-of-load events shift from hour ending ("HE") 17 to HE 20 in 2030 to HE 18 to HE 21

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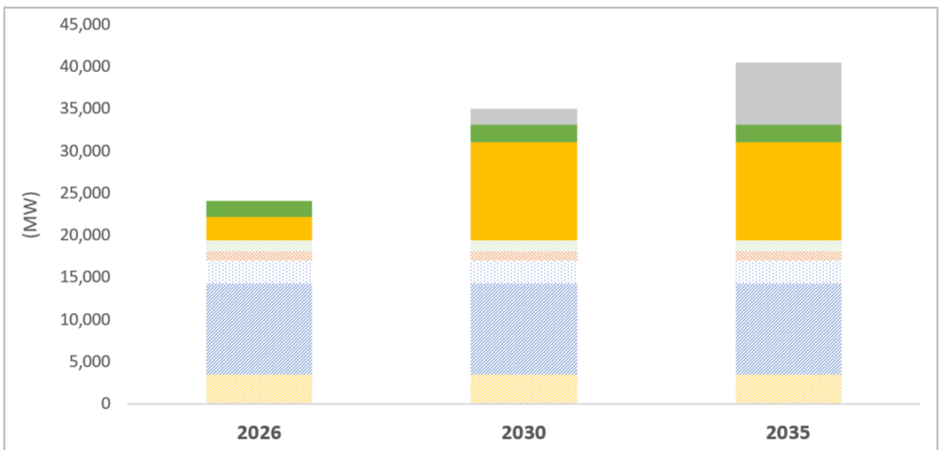
[70] As described in Section II.B, SCE's system reliability modeling focused on critical years 2026, 2030, and 2035. SCE did not perform reliability analysis on the interim years.

in 2035 due to the peak load shift with increasing penetration of solar and loss-of-load events mostly occur in the summer months from June to September.

- SCE's analysis finds that a PRM of 16 percent in 2026, 17 percent in 2030, and 18 percent in 2035 is sufficient to maintain reliability under a 24-hour slice framework.

As shown in Figure III-4 below, SCE's 25 MMT CAISO System-Wide Portfolio includes substantial solar additions by 2030 and substantial offshore wind additions between 2030 and 2035. This resource portfolio includes the most economic combination of resources to meet the GHG target and maintain reliability. By 2035, SCE's 25 MMT CASIO System-Wide Portfolio includes cumulative nameplate capacity additions of 11,671 MW of solar, 2,062 MW of onshore wind, and 7,348 MW of offshore wind, in addition to the solar, energy storage, geothermal, and long-duration storage included as part of the Required Procurement.

Figure III-4
SCE's 25 MMT CAISO System-Wide Portfolio – Cumulative Capacity Additions



Capacity Addition by Resource type (MW)	2026	2030	2035
Solar - Req. Proc.	3,449	3,449	3,449
4-hr Storage - Req. Proc.	10,796	10,796	10,796
5-hr Storage - Req. Proc.	2,759	2,759	2,759
Geothermal - Req. Proc.	1,075	1,077	1,077
LD Storage - Req. Proc.	1,238	1,238	1,238
Additional Proc. - Solar	2,820	11,671	11,671
Additional Proc. - Wind	1,884	2,062	2,062
Additional Proc. - Offshore Wind	0	1,947	7,348

Table III-6 below shows several key metrics associated with this portfolio, including GHG emissions, the PRM, LOLE value, and total resource cost. As shown in the table, SCE's

25 MMT CAISO System-Wide Portfolio meets the GHG targets and satisfies the 1-in-10 LOLE reliability standard for 2030 and 2035. SCE's 25 MMT CAISO System-Wide Portfolio also satisfies the Commission's reliability checking criteria, as shown in Section III.F.

Table III-6
Key Metrics for SCE's 25 MMT CAISO System-Wide Portfolio

Metric	2030	2035
CAISO GHG Target (MMT)[71]	18.8	15.2
ABB CE – RPS/Zero-Carbon Target[72]	60%	90%
ABB CE - PRM	17%	18%
PLEXOS - LOLE (events per year)	0.058	0.044
Total Resource Cost per year (in billion 2021 dollars)	4.07	5.03

a) <u>Comparison of SCE's 25 MMT CAISO System-Wide Portfolio and the Updated 2021 PSP Low Emissions Scenario</u>

Table III-7 below compares the incremental build-out identified in SCE's 25 MMT CAISO System-Wide Portfolio with the incremental build-out identified in the 30 MMT Low Emissions Scenario of the 2021 PSP (which corresponds to a 25 MMT GHG target in 2035).

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71 As reflected in the 2022 Final GHG Emission Benchmarks for LSEs_public.xlsx for LSEs' share of CAISO's GHG target.

72 2030 target refers to total sales share of RPS-eligible generation. 2035 target refers to total sales share of clean energy (zero-emissions) generation and includes hydro and nuclear energy.

Table III-7
Comparison of SCE's 25 MMT CAISO System-Wide Portfolio
and Commission's 2021 PSP Low Emissions Scenario

Incremental Resources (Nameplate MW)	2030		2035	
	Updated 2021 PSP (Low Emissions	SCE's 25 MMT CAISO Portfolio	Updated 2021 PSP (Low Emissions Scenario)	SCE's 25 MMT CAISO Portfolio
Storage	13,490	13,555	17,742	13,555
Long-Duration Storage	1,000	1,238	1,000	1,238
Geothermal	1,135	1,077	1,158	1,077
Solar	20,222	15,120	21,794	15,120
Wind (In and Out-of-State)	9,098	2,062	9,098	2,062
Offshore Wind	200	1,947	4,707	7,348
Total Build-out	**45,145**	**34,999**	**55,499**	**40,400**
New Resource Cost ($MM Annual)	**$5,213**	**$4,065**	**$6,733**	**$5,027**

The 2030 build-out identified in SCE's 25 MMT CAISO System-Wide portfolio includes more offshore wind and less solar and on-shore wind compared to the Low Emissions Scenario of the Updated 2021 PSP. Between 2031 and 2035, both SCE's 25 MMT CAISO System-Wide Portfolio and the Low Emissions Scenario of the Updated 2021 PSP build significant amounts of additional offshore-wind (~5,400 MW and ~4,500 MW, respectively). However, SCE's 25 MMT CAISO System-Wide Portfolio does not select any additional resources beyond the ~5,400 MW of offshore wind, while the Low Emissions Scenario of the Updated 2021 PSP supplements the offshore wind with an additional ~4,200 MW of short duration storage and ~1,500 MW of solar. Ultimately, SCE's 25 MMT CAISO System-Wide Portfolio identifies ~15,100 MW less incremental capacity in 2035 than the Low Emissions Scenario of the Updated 2021 PSP, which corresponds to a savings of $1.7 billion annually.

SCE's assumptions on resource cost and potential are consistent with the assumptions provided in the Commission's LSE Filing Requirements "RESOLVE Package Resource Costs and Build" file,[73] including assumptions on the cost, timing, and potential for offshore wind.

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[73] Specifically, SCE used the "CPUC IRP RESOLVE_Resource Costs and Build_2022-06-17" file in the "LSE Filing Requirement RESOLVE Package, updated 8/17/2022" folder, accessible at

Continued on the next page

However, the assumptions underlying the Updated 2021 PSP[74] appear to include a ~4,700 MW capacity limit on offshore wind available in 2030 and beyond, while the RESOLVE Package Resource Costs and Build file the LSEs are directed to use includes a ~21,000 MW capacity limit on offshore wind. Indeed, the Updated 2021 PSP Low Emissions Scenario reaches its ~4,700 MW offshore wind capacity limit in 2035, implying more may have been selected without that constraint. This difference in assumed maximum potential of offshore wind is a significant driver of the differences between SCE's 25 MMT CAISO System-Wide Portfolio and the 2021 Updated PSP Low Emissions Scenario.

The Updated 2021 PSP Low Emissions Scenario also builds significantly more onshore wind than SCE's 25 MMT CAISO System-Wide Portfolio. Specifically, the Updated 2021 PSP Low Emissions Scenario identifies ~4,300 MW of in-state onshore wind and ~4,800 MW of out-of-state wind, all built by 2030, while SCE's portfolio identifies approximately ~2,000 MW of in-state onshore wind, also built by 2030. Notably, no new out-of-state wind resources were selected in SCE's optimized CAISO-system level buildout. However, SCE's analysis selected some out-of-state wind in a sensitivity scenario that arbitrarily limited in-state resources, indicating there may be certain new resource supply conditions—such as the Updated 2021 PSP's lower capacity limit on offshore wind—that would lead to the economic selection of out-of-state wind.

Finally, the resource build in the Updated 2021 PSP Low Emissions Scenario includes ~4,200 MW more short-duration storage and ~6,600 MW more solar by 2035 compared to SCE's 25 MMT CAISO System-Wide Portfolio. The difference in solar and storage buildout between the two portfolios is likely attributed to the different reliability frameworks used in the analyses. As noted above, SCE's portfolio includes more offshore wind than the Updated 2021

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https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/long-term-procurement-planning/2022-irp-cycle-events-and-materials. SCE will refer to the overall August 17, 2022, folder as the "I&A RESOLVE Package."

74 As seen in the "capacity_limits.csv" file within the "inputs" subfolder of the I&A RESOLVE Package.

PSP Low Emissions Scenario. SCE's model identifies offshore wind as more economic compared to solar paired with storage because of SCE's use of a 24-hour slice reliability framework. Specifically, offshore wind is selected economically as soon as it is assumed to be available due to its high energy contribution during the evening and late-night peak hours – hours that are not considered under a single-point PRM reliability construct – as well as its ability to reduce GHG emissions.[75]

Table III-8 below compares the levelized cost of solar paired with storage with the levelized cost of offshore wind on both a capacity and energy basis. The use of a 24-hour slice reliability framework selects resources on a levelized cost of energy basis because it considers the cost of meeting energy needs throughout the 24-hour period. Meanwhile, the use of a single-point PRM reliability framework selects resources on a levelized cost of capacity basis because it focuses on the cost of meeting the need in a single hour.

Table III-8
Comparison of Levelized Cost of Solar Paired With Storage to Levelized Cost of Offshore Wind

	Solar +4 Hr Storage	**Offshore Wind**
Levelized Cost of Capacity, $/kW-year (Single Hour PRM)	$132	$416
Levelized Cost of Energy, $/MWh (24-Hour Slice)	$71	$42

The Commission's modeling builds more short-duration energy storage because it is viewed as the most cost-effective way to satisfy a single-point peak need given its low levelized cost of capacity. However, the single-point reliability framework includes little to no consideration of whether those storage resources are utilized in other hours and does not account for how short-duration energy storage resources contribute less to reliability as the peak lengthens to more hours. As such, storage-heavy portfolios may require a higher PRM

75 SCE ran an additional "no offshore wind" sensitivity on its 25 MMT CAISO System-Wide Portfolio that assumes offshore wind is not available in the 2022-2035 planning horizon. In that sensitivity, SCE's model replaced nearly all of the offshore wind with out-of-state wind.

requirement – which in turn leads to additional resource additions – to meet the 1-in-10 LOLE standard compared to SCE's 25 MMT CAISO System-Wide Portfolio.

These differences in selection criteria and modeling assumptions are the primary drivers for the difference between SCE's 25 MMT CAISO System-Wide Portfolio and the Low Emissions Scenario of the Updated 2021 PSP. SCE's 25 MMT CAISO System-Wide Portfolio passes both the 1-in-10 LOLE reliability assessment and the feasibility and operability (emissions) check in PCM despite being significantly smaller and less expensive than the Low Emissions Scenario. SCE's 25 MMT CAISO System-Wide Portfolio also passes the test in the Commission's reliability checking tool, as will be demonstrated in Section III.F.

b) <u>Findings from SCE's System-Wide Sensitivity Analysis</u>

SCE developed a CAISO system-wide resource portfolio in CE based on the system-wide Additional TE scenario load forecast developed by the CEC and used in the 2022-2023 CAISO TPP. This Additional TE load forecast assumes 7 million more light-duty electric vehicles and 100,000 more medium- and heavy-duty vehicles by 2035 compared to the base case, which increases the annual energy needs by approximately 10 percent. The additional transportation electrification load increases energy needs year-round and throughout the day, as shown in Figure III-5 and Table III-9 below.

Figure III-5
Comparison of Additional Transportation Electrification in 2035

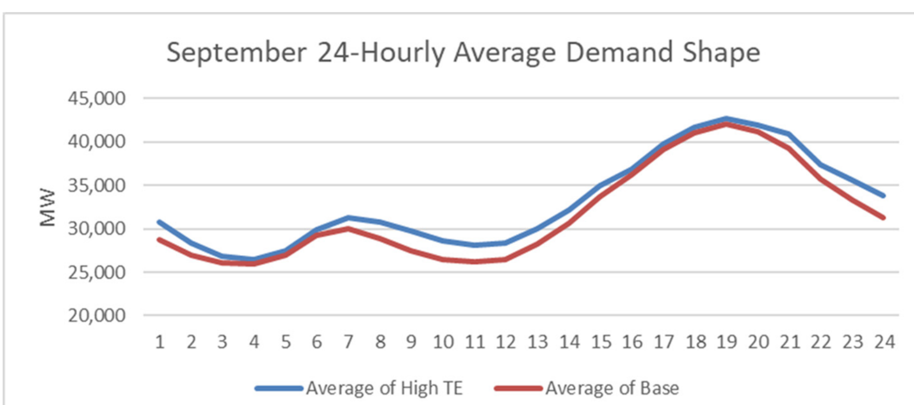

Table III-9
Chart Comparison of Additional Transportation Electrification by Study Year

Year	High TE Max Demand (MW)	Base Max Demand (MW)	High TE (GWh)	Base (GWh)
2026	48,191	48,190	224,000	224,000
2030	51,022	50,272	241,000	231,000
2035	55,494	52,437	281,000	239,000

This overall increase in energy requirements increases the build-out to serve the load while meeting the GHG emissions constraint and reliability requirements. Because the Additional TE scenario increases energy requirements in every hour, the incremental resources are selected on a levelized cost of energy basis, which, for reasons described above, significantly increases the offshore wind build-out compared to the base case. Table III-10 below compares the incremental resources built by 2035 in the base case to the incremental resources built in the Additional TE scenario sensitivity.

Table III-10
Comparison of Incremental Resources

Incremental Capacity (MW) by 2035	Base Case	Additional TE Sensitivity
Solar	15,120	19,918
Wind	2,062	3,296
Offshore Wind	7,348	14,426
Geothermal	1,077	1,077
Short Duration Energy Storage	13,568	13,568
Long Duration Energy Storage	1,238	1,238

As described in Section I.C, SCE urges the Commission to plan for higher electrification by using a high electrification demand forecast such as the Additional TE scenario in IRP base case planning and the PSP. Incorporation of a higher electrification forecast also highlights the need to move to the 24-hour slice reliability framework in IRP modeling because higher electrification increases the need for resources across the day.

SCE also performed a limited climate impact sensitivity that models additional climate impact on solar and thermal unit output and measures differences in LOLE for 2035. SCE’s sensitivity analysis found the 25 MMT CAISO System-Wide Portfolio to still be reliable, with the LOLE increasing slightly from 0.044 (base case) to 0.06 (sensitivity). The difference is attributed to the impact of climate change on gas and solar generation supply and efficiency.

2. <u>SCE's 25 MMT Bundled Portfolio</u>

SCE's 25 MMT Bundled Portfolio, which is SCE's Preferred Conforming Portfolio, was developed to meet SCE's bundled load share of a 2035 electric sector GHG target of 25 MMT (3.993 MMT). As explained above, the Commission should adopt a 25 MMT GHG target for all LSEs and the next PSP and approve SCE's 25 MMT Bundled Portfolio because a 25 MMT target puts the California electric sector on the right path to feasibly and affordably achieve the state's 2030 GHG reduction goal and long-term 2045 decarbonization goals.

The resource mix of SCE's 25 MMT Bundled Portfolio is comparable to SCE's share of the 25 MMT CAISO System-Wide Portfolio and meets GHG emissions and reliability requirements cost-effectively. For example, the incremental onshore and offshore wind build-out identified in SCE's 25 MMT Bundled Portfolio is approximately 20-30 percent of the corresponding build-out identified in SCE's system portfolio, which matches SCE's bundled load share. Similarly, SCE's bundled modeling demonstrates reliability and clean energy requirements can be met with no additional short-duration storage or baseload renewables beyond the Required Procurement amounts.

However, unlike SCE's system level build-out, SCE's 25 MMT Bundled Portfolio identifies a need for approximately 664 MW of long-duration storage by 2035 above the energy storage Required Procurement. The addition of long-duration storage for SCE's bundled needs is due to SCE's bundled load shape and different baseline resource assumptions, which results in additional need for peaking and clean energy resources compared to SCE's modeled CAISO system portfolio. Like the system analysis, SCE's 25 MMT bundled modeling identifies a need for incremental clean energy resources after 2026 to meet the lower GHG emissions target.

Figure III-6 below illustrates the incremental capacity additions (not the total capacity) selected for SCE's 25 MMT Bundled Portfolio. However, because approximately 5,500 MW of SCE's existing solar and wind contracts are set to expire in the IRP planning horizon and must be replaced by incremental capacity, Figure III-6 identifies a significant amount of incremental generic solar[76] compared to the incremental system build-out illustrated in Figure III-4 above.[77] While a certain portion of the capacity need attributed to the expiration of existing contracts is expected to be filled with incremental solar capacity (either new contracts with existing resources or new resources), as identified in the figure below, SCE expects a significant share of the need will be met with incremental new offshore wind resources. As described in Section III.A.1, SCE's model finds that offshore wind, when available and with the resource profile and costs in Commission's LSE Filing Requirements, is a more economical candidate resource to meet reliability and clean energy requirements under a 24-hour slice framework, the RDT, and CSP Calculator.

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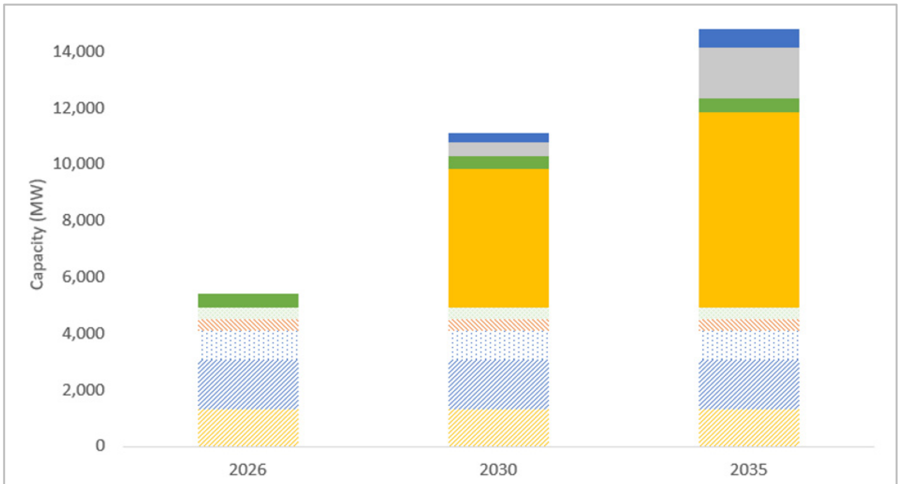
[76] As noted in Section II.B.2, the candidate resource pool used to develop SCE's bundled portfolios includes both new and existing but uncontracted resources.

[77] SCE's 25 MMT CAISO System-Wide Portfolio assumes all existing resources that are not explicitly scheduled to retire remain in the portfolio. As such, the incremental capacity identified for the system portfolio only captures new-build resources. By contrast, SCE's bundled modeling considers SCE's existing portfolio and contract expiration dates. Accordingly, the incremental capacity identified for SCE's bundled modeling includes both new and existing but uncontracted capacity needed to meet SCE's requirements.

Figure III-6
SCE's 25 MMT Bundled Portfolio – Cumulative Capacity Additions



Capacity Addition by Resource type (MW)	2026	2030	2035
Solar - Req. Proc.	1,303	1,303	1,303
4-hr Storage - Req. Proc.	1,775	1,775	1,775
5-hr Storage - Req. Proc.	1,042	1,042	1,042
Geothermal - Req. Proc.	379	379	379
LD Storage - Req. Proc.	436	436	436
Additional Proc. - Solar	0	4,900	6,927
Additional Proc. - Wind	460	460	460
Additional Proc. - Offshore Wind	0	501	1,798
Additional. Proc. - LD Storage	0	302	664

Table III-11 below compares the incremental resources selected in SCE's 25 MMT Bundled Portfolio with SCE's energy share (~29 percent) of the Updated 2021 PSP Low Emissions Scenario build-out.

Table III-11
Comparison of SCE's 25 MMT Bundled Portfolio to
SCE's Share of Commission's Updated 2021 PSP Low Emissions Scenario

Incremental Resources (Nameplate MW)	2030		2035	
	Updated 2021 PSP (Low Emissions, SCE-Share)	SCE's 25 MMT Bundled Portfolio	Updated 2021 PSP (Low Emissions, SCE-Share)	SCE's 25 MMT Bundled Portfolio
Storage	4,061	2,817	6,530	2,817
Long-Duration Storage	290	738	290	1,100
Geothermal	336	379	336	379
Solar	6,402	6,203	10,108	8,230
Wind	1,465	460	1,602	460
Offshore Wind	421	501	501	1,798

Because SCE's 25 MMT Bundled Portfolio is fairly consistent with SCE's 25 MMT CAISO System-Wide Portfolio, many of the variances can be attributed to the differences described in Section III.A.1 above. For example, SCE's 25 MMT Bundled Portfolio generally selects offshore wind in lieu of solar, wind, and storage. As noted above, the incremental solar capacity in SCE's 25 MMT Bundled Portfolio by 2035 also includes capacity needed to replace SCE's existing but expiring contracts.

The existing and new resources included in SCE's 25 MMT Bundled Portfolio are identified in the RDT for that portfolio (Appendix B.1). This includes the existing resources that SCE owns or has under contract and resources under development that may or may not have Commission-approved contracts, including SCE's share of CAM- and Power Charge Indifference Adjustment ("PCIA")-eligible resources, as of August 1, 2022 (collectively, these are consistent with the definitions for "online," and "development" in the RDT-defined "contract_status").

As explained in Section II.B.2.a.3, SCE assumed it would be able to contract for its pro-rata share of imports and existing thermal resources. Selected capacity not under contract as of August 1, 2022 is reflected in SCE's RDT as RA-only and is listed as "planned_existing" resources in the RDT "contract_status" field. For this IRP cycle, SCE did not assume any automatic re-contracting with existing non-thermal contracts currently in SCE's portfolio scheduled to expire in the IRP planning horizon. Instead, those resources are considered generic system resources upon contract expiration. SCE's pro-rata share of those expiring resources are included in the candidate pool of resources and assumed to be the same cost as new build resources of the same technology. Because the incremental capacity identified in SCE's 25 MMT Bundled Portfolio did not exceed its pro-rata share of the maximum available potential for new build resources, SCE's portfolio does not explicitly assume any of the incremental capacity is contracted with existing resources.

SCE generally plans to meet the need for new resources additions in its SCE's 25 MMT Bundled Portfolio through future procurement activities, including those described in Section IV.

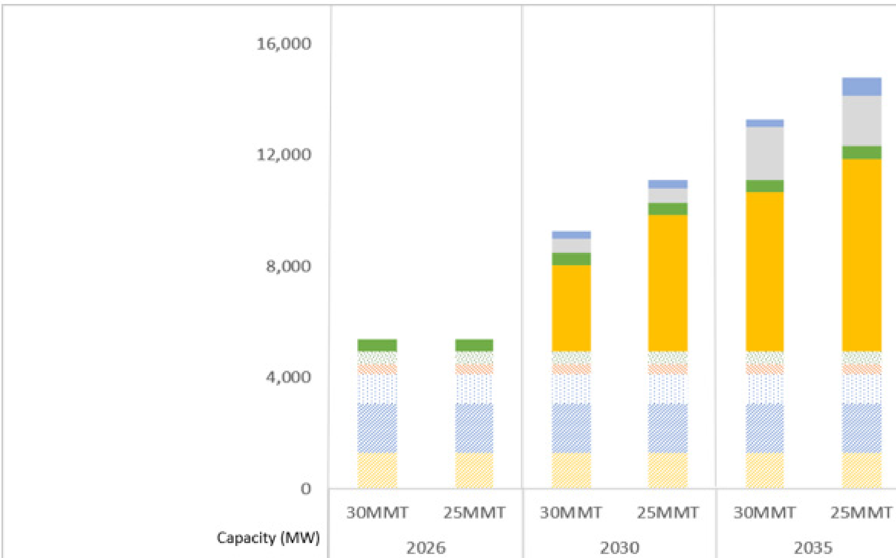
SCE's planned new resources (consistent with the definition of "planned_new" in the RDT-defined "contract_status") also include SCE's yet to be executed D.21-06-035 procurement.

3. SCE's 30 MMT Bundled Portfolio

SCE's 30 MMT Bundled Portfolio was developed to meet SCE's bundled load share of a 2035 electric sector GHG target of 30 MMT (5.025 MMT). While the 30 MMT GHG target achieves the upper bound of the GHG reductions necessary to reach California's 2045 decarbonization goals, SCE recommends the Commission adopt a 25 MMT GHG target for all LSEs and the PSP and approve SCE's 25 MMT Bundled Portfolio.

As shown in Figure III-7 below, which compares SCE's 25 MMT and 30 MMT Bundled Portfolios, SCE's 30 MMT Bundled Portfolio adds fewer clean energy resources when compared with SCE's 25 MMT Bundled Portfolio. Comparable amounts of onshore and offshore wind are added in both the 25 MMT and 30 MMT portfolios, and both portfolios find no additional short-duration storage or baseload renewables are selected beyond those already included in the Required Procurement. The primary difference between the two portfolios is the expected incremental solar and long-duration storage capacity. Specifically, the incremental solar capacity selected in the 30 MMT Bundled Portfolio is 1,200 MW less than the amount selected in the 25 MMT Bundled Portfolio (5,727 MW vs. 6,927 MW by 2035, respectively, incremental to solar capacity being procured to meet D.19-11-016 and D.21-06-035 requirements). Additionally, the 30 MMT Bundled Portfolio does not select any additional long-duration storage after 2030, but instead replaces that solar and long-duration storage build-out with 100 MW of additional offshore wind.

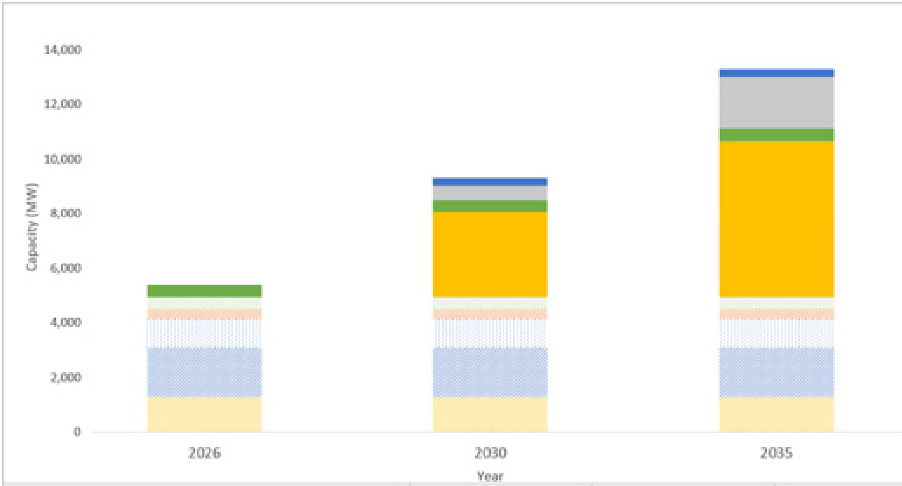
Figure III-7
Comparison of SCE's 25 and 30 MMT Bundled Portfolios –
Cumulative Capacity Additions



Capacity (MW)	2026 30MMT	2026 25MMT	2030 30MMT	2030 25MMT	2035 30MMT	2035 25MMT
Solar - Req. Proc.	1,303	1,303	1,303	1,303	1,303	1,303
4-hr Storage - Req. Proc.	1,775	1,775	1,775	1,775	1,775	1,775
5-hr Storage - Req. Proc.	1,042	1,042	1,042	1,042	1,042	1,042
Geothermal - Req. Proc.	379	379	379	379	379	379
LD Storage - Req. Proc.	436	436	436	436	436	436
Additional Proc. - Solar	0	0	3,100	4,900	5,727	6,927
Additional Proc. - Wind	460	460	460	460	460	460
Additional Proc. - Offshore Wind	0	0	501	501	1,898	1,798
Additional. Proc. - LD Storage	0	0	275	302	275	664

Figure III-8 below illustrates the incremental capacity additions (not the total capacity) selected for SCE's 30 MMT Bundled Portfolio

Figure III-8
SCE's 30 MMT Bundled Portfolio Incremental Capacity Additions



Capacity Addition by Resource type (MW)	2026	2030	2035
Solar - Req. Proc.	1,303	1,303	1,303
4-hr Storage - Req. Proc.	1,775	1,775	1,775
5-hr Storage - Req. Proc.	1,042	1,042	1,042
Geothermal - Req. Proc.	379	379	379
LD Storage - Req. Proc.	436	436	436
Additional Proc. - Solar	0	3,100	5,727
Additional Proc. - Wind	460	460	460
Additional Proc. - Offshore Wind	0	501	1,898
Additional. Proc. - LD Storage	0	275	275

Table III-12 below compares the incremental resources in SCE's 30 MMT Bundled Portfolio to the incremental resources identified in the Commission's Updated 2021 PSP portfolio.

Table III-12
Comparison of Commission's 2021 PSP and SCE's 30 MMT Bundled Portfolio – Cumulative Incremental Resource Addition Mix

Incremental Resources (Nameplate MW)	2030		2035	
	Updated 2021 PSP (SCE-Share)	SCE's 30 MMT Bundled Portfolio	Updated 2021 PSP (SCE-Share)	SCE's 30 MMT Bundled Portfolio
Storage	4,364	2,817	5,609	2,817
Long-Duration Storage	290	711	290	711
Geothermal	329	379	329	379
Solar	5,591	4,203	6,426	7,030
Wind	1,888	460	2,433	460
Offshore Wind	57	501	1,365	1,898

The differences between SCE's 30 MMT Bundled Portfolio and SCE's share of the

Updated 2021 PSP portfolio are similar to the differences between the two lower emissions portfolios described in Section III.A.2. Namely, SCE's 30 MMT Bundled Portfolio builds more offshore wind and less storage and onshore wind than its Updated 2021 PSP counterpart.

The existing and new resources included in SCE's 30 MMT Bundled Portfolio are identified in the RDT for that portfolio (Appendix B.2). The existing, in-development, and planned_existing resources are exactly the same as those in the 25 MMT Bundled Portfolio; the only differences are the planned new resources. SCE generally plans to meet the need for new resources additions in SCE's 30 MMT Bundled Portfolio through future procurement activities, including those described in Section IV.

B. <u>Preferred Conforming Portfolios</u>

Detailed descriptions of SCE's 25 MMT and 30 MMT Bundled Portfolios are included in Sections III.A.2 and III.A.3 above. SCE developed one 25 MMT bundled conforming portfolio and one 30 MMT bundled conforming portfolio and no alternative portfolios; therefore, SCE's 25 MMT Bundled Portfolio and 30 MMT Bundled Portfolio are also its preferred portfolio for each GHG target.

As explained in Section I.B, a 25 MMT by 2035 electric sector GHG target is necessary to enable the electric sector to reasonably plan to achieve California's 2045 decarbonization goals. Therefore, SCE's 25 MMT Bundled Portfolio is SCE's preferred portfolio and the Commission should adopt a 25 MMT 2035 GHG target for LSEs' IRPs and the PSP.

As discussed in Section III.E, there is a modest 0.8 percent difference in the 2035 system average rate for SCE's 25 MMT Bundled Portfolio compared to the 30 MMT Bundled Portfolio. However, the rate impact of each portfolio must be also viewed from the perspective of what it achieves in terms of GHG reduction, criteria pollutant reduction, and clean energy. While the 2035 system average rate for the 30 MMT Bundled Portfolio may be slightly lower than the system average rate for the 25 MMT Bundled Portfolio, that portfolio also just meets the GHG target that is necessary to reach California's decarbonization goals. Indeed, compared to the 30

MMT Bundled Portfolio, SCE's 25 MMT Portfolio has lower GHG emissions,[78] a higher RPS,[79] more clean energy,[80] and lower criteria pollutant emissions.[81] SCE's 25 MMT Bundled Portfolio is the least-cost portfolio to achieve SCE's share of the 25 MMT GHG target. As such, SCE's 25 MMT Bundled Portfolio better meets the goals and requirements of the IRP process, and is the portfolio that should be approved by the Commission.

The following sections discuss how each portfolio meets the statutory requirements in Public Utilities Code Section 454.52(a)(1).

Meeting the GHG emissions reduction targets established by CARB, in coordination with the Commission and CEC (Section 454.52(a)(1)(A)). As shown in Section III.C.1, SCE's 25 MMT and 30 MMT Bundled Portfolios both meet their respective 2030 and 2035 GHG emissions benchmarks based on the CSP Calculator results. However, SCE's 25 MMT Bundled Portfolio better meets this goal because it achieves SCE's share of the 25 MMT GHG target needed to reach California's decarbonization goals.

Procuring at least 60 percent eligible renewable energy resources by 2030 (Section 454.52(a)(1)(B)). SCE's 25 MMT and 30 MMT Bundled Portfolios both include expected levels of eligible renewable energy resources exceeding California's 60 percent RPS goal by 2030, but SCE's 25 MMT Bundled Portfolio achieves a higher RPS than the 30 MMT Bundled Portfolio. The 25 MMT Bundled Portfolio achieves 79 percent RPS-eligible resources in 2030 and the 30 MMT Bundled Portfolio achieves 67 percent RPS-eligible resources in 2030.

Enabling each electrical corporation to fulfill its obligation to serve its customers at just and reasonable rates and minimizing impacts on ratepayers' bills (Sections

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[78] Portfolio GHG emissions in 2035 are 3.66 MMT for the 25 MMT Bundled Portfolio and 4.85 MMT for the 30 MMT Bundled Portfolio.

[79] Delivered RPS-eligible energy as a percentage of retail sales in 2030 are 79 percent for the 25 MMT Bundled Portfolio and 67 percent for the 30 MMT Bundled Portfolio.

[80] Clean energy as a percentage of retail sales in 2035 are 99 percent for the 25 MMT Bundled Portfolio and 93 percent for the 30 MMT Bundled Portfolio.

[81] Criteria pollutant emissions in 2035 for the 25 MMT and 30 MMT Bundled Portfolios are as follows: 114 metric tons vs. 213 tons of PM2.5, 18 metric tons vs. 27 metric tons of SO2, and 271 metric tons vs. 394 metric tons of NOx, respectively.

454.52(a)(1)(C) and (D)). SCE's bundled portfolios are each the least-cost portfolio to meet their respective GHG targets. As discussed previously, however, SCE's 25 MMT Bundled Portfolio represents the least-cost feasible path for effectively positioning California to reach its 2045 decarbonization goals.

Ensuring system and local reliability on both a near-term and long-term basis (Section 454.52(a)(1)(E)). As discussed in Section III.F, both SCE's 25 MMT and 30 MMT Bundled Portfolios pass the reliability test in the Commission's RDT. Moreover, SCE employed a reliability constraint informed by the 24-hour slice reliability framework to build the portfolios in CE by applying the PRMs identified in SCE's system reliability analysis to the peak load and using expected wind and solar contribution during the peak load hour instead of ELCC values. As discussed in Sections I.A, I.C, II.B.1.d, III.A.1.b, and III.G, SCE included an Additional TE scenario sensitivity and a climate impact sensitivity in its CAISO system-wide modeling and performed an Additional TE scenario sensitivity on its 25 MMT Bundled Portfolio. The Commission should adopt a high electrification demand forecast for base case planning and the PSP and should incorporate climate change impacts in its future IRP modeling.

Complying with paragraph (1) of subdivision (b) of Section 399.13 (Section 454.52(a)(1)(F)). Public Utilities Code Section 399.13(b) requires that beginning January 1, 2021, at least 65 percent of the procurement a retail seller counts toward the RPS requirement of each compliance period shall be from its contracts of 10 years or more in duration or in its ownership or ownership agreements for eligible renewable energy resources. Public Utilities Code Section 399.13(a)(5)(B)(iii) also allowed SCE to elect early compliance with the long-term contracting requirements in Section 339.13(b). On August 28, 2017, SCE informed the Commission of its election to start compliance with the long-term contracting requirement in 2017. Most of SCE's existing RPS-eligible resource portfolio is contracted through long-term contracts of 10 years or more and SCE expects that to continue. SCE will continue to comply with Section 399.13(b), beginning in 2017, as reported in its annual RPS compliance reports.

Strengthening the diversity, sustainability, and resilience of the bulk transmission and distribution systems, and local communities (Section 454.52(a)(1)(G)). Both SCE's 25 MMT and 30 MMT Bundled Portfolios have been cost optimized and do not result in any known major transmission system reliability challenges. As explained in Section III.N, for both bundled portfolios, resources within SCE transmission zones were strategically placed to avoid exceeding known transmission capability limits and minimize transmission upgrades. Both bundled portfolios also include significant additions of energy storage Required Procurement that can provide greater flexibility on the transmission and distribution systems. Moreover, SCE's bundled portfolios will strengthen local communities by reducing GHG emissions and criteria pollutants, especially the 25 MMT Bundled Portfolio which achieves more GHG and criteria pollutant reductions.

Enhancing distribution systems and demand-side energy management (Section 454.52(a)(1)(H)). SCE's 25 MMT and 30 MMT Bundled Portfolios align with the Updated 2021 PSP's demand-side assumptions. Both bundled portfolios also include significant energy storage from Required Procurement, which could enhance the distribution system.

Minimizing localized air pollutants and other GHG emissions with early priority on disadvantaged communities (Section 454.52(a)(1)(I)). SCE's 25 MMT and 30 MMT Bundled Portfolios both reduce GHG emissions and criteria pollutants, although SCE's 25 MMT Bundled Portfolio better meets this goal by more significantly reducing GHG emissions and criteria pollutants. Additionally, SCE has taken other actions to minimize GHG emissions and local pollutants in disadvantaged communities as discussed in Section III.D.2, including through SCE's transportation electrification efforts.

Finally, SCE's 25 MMT and 30 MMT Bundled Portfolios both meet the state policy to supply 100 percent of all retail sales of electricity from eligible renewable energy resources and zero-carbon resources by 2045,[82] as well as the interim targets of 90 percent by 2035 and 95

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[82] *See* Cal. Pub. Util. Code § 454.53(a).

percent by 2040 adopted in SB 1020.[83] SCE's 25 MMT Bundled Portfolio resource build-out supplies 99 percent of retail sales from zero-carbon resources in 2035 while the 30 MMT Bundled Portfolio resource build-out supplies 93 percent of retail sales from zero-carbon resources in 2035. SCE's 25 MMT and 30 MMT Bundled Portfolios do not include any new natural gas resources or re-contracting with existing natural gas resources for a term of five years or more.

C. GHG Emissions Results

1. SCE's Bundled Portfolios Meet GHG Emissions Benchmarks Using the CSP Calculator

SCE's 25 MMT and 30 MMT Bundled Portfolios meet the GHG emissions benchmarks using the CSP Calculator, as shown in Table III-13 below. SCE used its 2030 and 2035 GHG emissions benchmarks for 25 MMT and 30 MMT established by the Commission. SCE input the CSP Calculator-related outputs generated in the RDT and did not make any additional modifications (e.g., custom demand inputs) to the CSP Calculator.

Table III-13
GHG Emissions Using CSP Calculator for SCE's Bundled Portfolios (MMT)

CSP Calculator Results		2024	2026	2030	2035
25 MMT	SCE Portfolio	10.43	8.87	4.82	3.88
	Targets			4.93	3.99
30 MMT	SCE Portfolio	10.41	8.83	6.58	4.89
	Targets			6.58	5.03

2. The CSP Calculator is Heavily Dependent on the Assumed Underlying Portfolio

At a high level, the CSP Calculator compares an LSE's hourly demand to its hourly clean energy supply to calculate an hourly "net system power" need for which the LSE must rely on

[83] *See* SB 1020 (2022).

system power to meet its demand. The CSP Calculator then attributes an hourly "system emissions rate" to that net system power need, as calculated based on the modeled dispatch of an assumed resource portfolio, which ultimately comprises the bulk of an LSE's calculated GHG emissions. The CSP Calculator utilizes the emissions rates from the assumed resource portfolio – presumably the Updated 2021 PSP portfolio in this cycle – as a foundational piece of input data. However, because it is likely that the aggregated LSE plans will be different from the PSP and thus have a different hourly emissions rate profile, this methodology may not accurately estimate a resource portfolio's GHG emissions.

For example, as discussed in Section III.A.1, the Updated 2021 PSP portfolio includes a considerable build-out of new short-duration storage and solar. As such, the Commission's modeling assumes most of the solar output during the middle of the day is being used to charge the storage resources (i.e., not curtailed or exported). Because this assumption is embedded into the CSP Calculator, the CSP Calculator allows instances of "negative" net system power need to translate into "negative emissions" that can offset emissions in hours where the net system power need is positive.[84] This feature of the CSP Calculator suggests that clean energy in excess of an LSE's demand in one hour, an hour which may already have a low (or zero) marginal emissions rate, can generate negative emissions that can offset emissions in another hour that may have a positive – or high[85] – marginal emissions rate.[86] This assumption, while reasonable in a solar and storage-heavy resource portfolio, may not be appropriate under a portfolio like SCE's 25

84 The CSP Calculator does not count negative emissions in hours that have modeled curtailment. As described above, the frequency of modeled curtailments is heavily dependent on the assumed underlying portfolio. Storage-heavy portfolios such as the Updated 2021 PSP will have fewer instances of modeled curtailment than portfolios such as SCE's 25 MMT CAISO System-Wide Portfolio.

85 Additionally, assuming natural gas resources are the marginal unit, the implied heat rate from the system power emissions intensities found in the "Emissions Profiles" of the 25 MMT CSP Calculator reach almost 28,000 BTU/kWh, which is significantly higher than most commercial natural gas resources. The Commission should validate these results in the underlying SERVM files.

86 This feature of the current CSP Calculator allows LSEs to construct clean energy portfolios that may be completely disconnected from their hourly load profiles, which may result in an over-reliance on technologies that do not ultimately reduce system emissions in other hours.

MMT CAISO System-Wide Portfolio. The Commission should recognize this limitation of the CSP Calculator and work with LSEs and other stakeholders to rectify this issue for future IRPs.

D. Local Air Pollutant Minimization and Disadvantaged Communities

1. Local Air Pollutants

As shown in Table III-14 and Table III-15 below, SCE's 25 MMT and 30 MMT Bundled Portfolios significantly reduce criteria pollutants by 2035 based on the CSP Calculator. In SCE's 30 MMT Bundled Portfolio, criteria pollutants decrease by an average of 62 percent in 2035 when compared to 2024. In comparison, SCE's 25 MMT Bundled Portfolio criteria pollutants decrease by an average of 72 percent in 2035 when compared to 2024. SCE's 25 MMT Bundled Portfolio criteria pollutants are between 23 and 33 percent less when compared to SCE's 30 MMT Bundled Portfolio criteria pollutants. Ultimately, this can be directly linked to reduced reliance on natural gas generation.

Table III-14
25 MMT Bundled Portfolio Criteria Pollutants

25 MMT	2024	2026	2030	2035
PM2.5 (metric tons)	512	471	196	144
SO2 (metric tons)	84	78	26	21
NOx (metric tons)	1022	961	482	306
PM2.5 - % Change from 2024		-8%	-62%	-72%
SO2 - % Change from 2024		-7%	-69%	-75%
Nox - % Change from 2024		-6%	-53%	-70%

Table III-15
30 MMT Bundled Portfolio Criteria Pollutants

30 MMT	2024	2026	2030	2035
PM2.5 (metric tons)	511	484	285	217
SO2 (metric tons)	84	80	34	28
NOx (metric tons)	1022	974	594	397
PM2.5 - % Change from 2024		-5%	-44%	-58%
SO2 - % Change from 2024		-5%	-59%	-67%
Nox - % Change from 2024		-5%	-42%	-61%

2. Focus on Disadvantaged Communities

Although the Commission's CSP Calculator methodology for estimating NOx, PM 2.5, and SO2 emissions does not provide sufficient granularity to specifically assess the emissions reductions specifically in disadvantaged communities ("DACs"), SCE's 25 MMT and 30 MMT Bundled Portfolios reduce these emissions (along with GHG emissions), especially in SCE's 25 MMT Bundled Portfolio, as shown in Sections III.C.1 and III.D.1. This will benefit both DACs and other communities throughout California. SCE also addresses its minimization of local air pollutants and GHG emissions, with early priority on DACs, in two ways: first, by examining the locations of proposed new resources and second, by highlighting how SCE's planned transportation electrification and building electrification efforts will help to alleviate GHG emissions and air pollution in DACs. In addition, SCE provides information on DACs in its service area, including a description of the DACs it serves and the customers in those DACs, existing and planned programs affecting DACs, and engagement with DACs.

a) **SCE Bundled Portfolio Locational Information**

Given SCE's service area contains over 1,000 census tracts designated as DACs,[87] spread across various counties, many of the new resources identified in SCE's 25 MMT and 30 MMT Bundled Portfolios could be located in proximity to DACs. All incremental resources are renewables and energy storage. SCE proposes no new natural gas generation as part of either of its bundled portfolios.

SCE does not define specific locations for resources in its IRP, as project siting is managed by developers and it would not be prudent for SCE to define specific locations for projects based on system-wide or bundled portfolio modeling. As further discussed below, SCE currently gathers locational information and information regarding proximity to DACs for specific projects through the procurement process and evaluates these factors as part of the evaluation and selection process.

In its System Reliability and Midterm Reliability RFOs to meet its procurement requirements pursuant to D.19-11-016 and D.21-06-035, SCE expressed a preference for preferred and energy storage resources located in DACs. Two energy storage projects and one demand response project that SCE contracted pursuant to D.19-11-016 are located in DACs. To date, SCE has contracted for five energy storage projects located in a DAC pursuant to D.21-06-035.

b) **Transportation Electrification**

Many communities, particularly DACs, are situated near heavily traveled freight corridors, where the concentration of air pollutants often exceeds health-based standards.[88] CARB found that when zero-emission vehicles ("ZEVs") are compared to diesel vehicles, "they

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[87] In the 2020 census, there were 9,129 census tracts in California. 2,310 of those census tracts are DACs. See Appendix A.2 for a list of census tracks in SCE's service area.

[88] Electrification in areas such as the I-710 corridor between Long Beach and Los Angeles promotes environmental justice by ensuring that climate investments provide near-term air quality benefits to a broad set of communities.

are two to five times more energy efficient, reduce dependence on petroleum, and reduce GHG emissions substantially."[89] Electrification of the transportation sector will help greatly improve local air quality – an urgent need across California, particularly within DACs in Southern California. To help address air quality and climate concerns, the state has established some ambitious ZEV targets and goals. For example, Governor Newsom's Executive Order N-79-20 calls for: (1) 100 percent of in-state sales of new light-duty vehicles to be ZEVs by 2035; (2) 100 percent of drayage trucks to be ZEVs by 2035; and (3) 100 percent of medium- and heavy-duty vehicles in the state to be ZEV by 2045, where feasible. In August 2022, CARB passed the Advanced Clean Cars II rule implementing the requirement that 100 percent of sales for new, in-state passenger vehicles be zero emission by 2035, and CARB is in the process of considering a proposed Advanced Clean Fleets Rule that will implement the requirements for drayage and medium- and heavy-duty vehicles.

To support the number of electric vehicles needed to achieve the state's 2030 and 2045 decarbonization goals, California will need to support significant away-from-home charging infrastructure and charging infrastructure at multi-unit dwellings. California will also need to support transportation electrification within the medium- and heavy-duty sectors, as CARB's Advanced Clean Trucks and Advanced Clean Fleets regulations take steps to transition California's medium- and heavy-duty fleets to zero emission where feasible. On July 14, 2021, the CEC published the AB 2127 Electric Vehicle Charging Infrastructure Assessment ("AB 2127 Report"), assessing the amount of electric vehicle charging needed in 2030 to support the state's policy and air quality goals.[90] The AB 2127 Report concludes that for passenger vehicles, "nearly 1.2 million public and shared private chargers are needed to support almost 8 million

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[89] CARB, Advanced Clean Trucks factsheet, August 20, 2021, available at: https://ww2.arb.ca.gov/sites/default/files/2020-06/200625factsheet_ADA.pdf.

[90] *See* Assembly Bill 2127 Electric Vehicle Charging Assessment, Analyzing Charging Needs to Support Zero-Emission Vehicles in 2030, July 2021, available at: https://efiling.energy.ca.gov/getdocument.aspx?tn=238853.

ZEVs in 2030."[91] This will require commensurate increases in charging infrastructure, including in DACs.

The California Legislature in Public Utilities Code Section 740.12 rightly established that "[a]dvanced clean vehicles and fuels are needed to reduce petroleum use, to meet air quality standards, to improve public health, and to achieve greenhouse gas emission reduction goals," and that widespread transportation electrification "requires electrical corporations to increase access to the use of electricity as a transportation fuel."[92] Accordingly, the Commission has authorized approximately $1.8 billion in utility transportation electrification programs and pilots.[93] SCE is working to help accelerate transportation electrification in its service territory, by conducting transportation electrification programs with benefits in DACs.

Below are examples of three of SCE's transportation electrification programs. More information regarding SCE's transportation electrification-related programs benefitting DACs is included in Section III.D.2.c.1 below.

(1) Charge Ready Light-Duty Pilot and Bridge Programs – resulted in the installation of over 2,700 light-duty charge ports at approximately 150 sites, of which approximately 47 percent of sites are located in a DAC.

(2) Charge Ready Light-Duty (also known as Charge Ready 2) electric vehicle charging infrastructure program – expecting to install over 30,000 light-duty electric vehicle charging ports, with a minimum of 50 percent located in a DAC.

(3) Charge Ready Transport Program – authorized to install electric vehicle charging to support 8,490 procured or converted medium-/heavy-duty electric vehicles, with 40 percent of the infrastructure budget supporting installations in DACs.

By increasing electric vehicle adoption, SCE's transportation electrification programs help improve local air quality and reduce GHG emissions broadly and within DAC communities.

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91 *Id.* at 1.

92 Cal. Pub. Util. Code § 740.12(a)(1)(A), (E).

93 *See* Assigned Commissioner's Ruling Adding Staff Proposal to the Record and Inviting Party Comments, R.18-12-006, February 25, 2022, at 3.

c) **DACs in SCE's Service Area**

The Commission has rightly recognized that in order to put an early priority on emissions reductions in DACs, LSEs must identify the DACs they serve and evaluate the current and planned programs that work to support clean energy access and equity in these communities. SCE has identified the DACs in its service area based on the criteria established by the Commission.[94] The following provides a general description of the DACs served by SCE, and SCE customers served in DACs.[95] More detailed information, including the natural gas generation plants in or near these communities and information on community engagement, is included in Appendix A.1. The number of SCE residential and non-residential customers located in DAC and non-DAC census tracts is included as a table in Appendix A.2.

45 percent of the state's DACs are in SCE's service area, which corresponds to 46 percent of the state's total DAC population. Overall, 28 percent of SCE's residential customers and 37 percent of SCE's non-residential customers are located in DACs. The majority of the DACs in SCE's service area are clustered along major transportation routes, where the emissions from internal-combustion engines significantly affect the areas. This includes communities located in Unincorporated South and Southeast Los Angeles, the Inland Empire, and San Joaquin Valley.

There are 1,039 county census tracts and 13 tribal communities in SCE's service area that are designated as DACs. The key demographics for each census tract are available, but due to the dense urban nature of many of them, aggregating to the county subdivision level for

[94] For purposes of the 2022 IRPs, the Commission defined a DAC consistent with the final designation of DACs adopted by the California Environmental Protection Agency in May 2022. This designation defines a DAC as: (1) Census tracts receiving the highest 25 percent of overall scores in CalEnviroScreen 4.0 (1,984 tracts); (2) Census tracts lacking overall scores in CalEnviroScreen 4.0 due to data gaps, but receiving the highest 5 percent of CalEnviroScreen 4.0 cumulative pollution burden scores (19 tracts); (3) Census tracts identified in the 2017 DAC designation as disadvantaged, regardless of their scores in CalEnviroScreen 4.0 (307 tracts); and (4) Lands under the control of federally recognized Tribes. *See* Narrative Template at 9-10.

[95] Data provided within this section is from the California Office of Environmental Health Hazard Assessment's SB 535 Disadvantaged Communities data set. The data may be accessed at: https://oehha.ca.gov/calenviroscreen/sb535.

characterization makes sense for the majority of them. Where the DAC-designated census tracts are a significant minority of the census tracts in the subdivision, SCE would recommend a more granular approach. To arrive at the number of DACs and county subdivisions used for the DAC demographic descriptions, SCE used ArcGIS to evaluate layered data from the SB 535 Disadvantaged Communities data set, SCE's system geolocation data, and the ArcGIS layer for county subdivision boundaries. The use of these data layers in ArcGIS resulted in identifying 57 county subdivisions with designated DACs in SCE's service area. Some of the in-area designations come from closely shared borders with other LSEs, even if the geographic region at these over-laid geographic regions may not actually include customers or facilities. However, SCE chose to include these DACs and county subdivisions in its description of the demographics of the county subdivisions in Appendix A.1. Tribal lands are listed separately by tribe, so that the demographic descriptions for individual tribes can be clearly identified.

(1) Current and Planned Programs and Activities Impacting DACs

The following information provides a summary of current and planned SCE programs and activities that impact DACs or contribute to economic development within DACs.

(a) Customer Programs

SCE implements and manages a diverse portfolio of energy products, programs and services for its customers to help with bill affordability, energy efficiency, electric vehicles, and renewable energy adoption. While these programs are offered to customers throughout SCE's service area, there may be some programs in which greater marketing and outreach to DACs may occur, DAC or low-income customers receive a greater financial benefit than other customers, or program benefits are restricted to DACs and other specified geographic areas.

These programs include the following residential tariffs.

Table III-16
Residential Tariff Programs

Tariff Type	Tariff Offering
Standard	• Tiered • Time-of-Use • Green
Discounted (based on income qualifications or participation in select public assistance programs)	• California Alternate Rates for Energy (“CARE”) • Family Electric Rate Assistance (“FERA”)
Baseline Allowance	• Medical Baseline • All-Electric Baseline

SCE also offers the following residential energy management and electrification programs.

Table III-17
Residential Energy Management and Electrification Programs

Program	Details
Energy Savings Assistance ("ESA") Program	• No-cost energy-efficient appliance replacement for eligible customers, based on income qualifications or participation in select public assistance programs
Comprehensive Manufactured Home Program	• No cost energy upgrades for qualifying mobile homes and mobile-home communities
Home Energy Efficiency Rebates	• Rebates to offset purchase of energy-efficient products such as: home area network, smart thermostat, electric portable power stations, and HVAC heat pumps • Eligible products are researchable at the SCE Marketplace
Summer Discount Plan	• Bill credits for allowing SCE to temporarily cycle central A/C during energy events
Home Energy Advisor	• Free online survey, providing customized tips for reducing energy usage
San Joaquin Disadvantaged Communities Pilot Projects	• Currently underway, this pilot program will replace propane or wood burning appliances with electric appliances and limited weatherization treatments to reduce overall energy costs and improve the health, safety and air quality of participating residents in three DACs in the San Joaquin Valley: West Goshen, Ducor, and California City
Smart Energy Program	• Bill credits to residential customers with qualifying smart thermostats in return for participation in energy events • Includes one-time bill credit for program sign-up and offers a recycling rebate for old thermostats
Smart Heat Pump Water Heater Program	• Provides incentives for the installation of smart communication and control devices on HPWHs to help customers manage their usage by shifting electricity use to off-peak hours when energy costs are lower

In addition to the above programs, SCE is in the middle of two solicitations for new energy efficiency equity programs, one for residential customers and one for small and medium business customers. In May 2021, D.21-05-031 split the energy efficiency portfolio into new segments of resource acquisition, market support, and equity. The equity segment is for programs with a primary purpose of providing energy efficiency to hard-to-reach or underserved customers and DACs. SCE began its equity solicitations in April 2022 and intends to complete the solicitation process by Q1 2023 with implementation later in 2023. SCE has also requested expansion of the equity programs to the small and medium business, industrial, agricultural, and public sectors.[96]

SCE will soon offer the following residential building electrification pilot programs. SCE proposed the following building electrification pilots targeting residential customers in DACs in its 2021-26 Energy Savings Assistance Program Application (A.19-11-004). These pilots were approved in the Low Income Program Decision (D.21-06-015) in June 2021 and will be launched in early 2023.

Table III-18
Residential Building Electrification Pilot Programs

Pilot	Details
ESA Building Electrification ("BE") Pilot ("ESA BE Pilot")	• Direct Install pilot that provides space and water heat pumps at no cost for low-income customers in DACs, including necessary electric panel, circuit and wiring upgrades. Additionally, a select number of households will receive induction cooking appliances and electric clothes dryers
ESA Plus/Deep Pilot ("ESA Whole Home Pilot")	• Joint pilot with SoCalGas. LA, Riverside, and San Bernardino county customers will be provided with all feasible measures to meet deeper energy savings. Customers will be prioritized based on financial, health, and energy usage markers
Clean Energy Homes Pilot	• Provides all-electric support and incentives for builders/developers of low-income housing. Also provides technical design assistance, incentives based on GHG savings, and education and outreach for tenants

In addition to the above programs, SCE engages in the following territory-wide building electrification programs, which will also help improve air quality in DAC communities.

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96 *See* A.22-03-007.

Table III-19
Building Electrification Programs

Program	Details
Technology and Equipment for Clean Heating ("TECH") Initiative	• Provides incentives for heat pump water heaters and heat pump HVAC systems
Heat Pump Water Heater Program under the Self-Generation Incentive Program (D.22-04-036)	• Provides incentives for heat pump water heaters and electrical panel upgrades

Finally, in December 2021, SCE filed a Building Electrification Application (A.21-12-009) that prioritizes environmental and social justice communities by proposing to allocate 40 percent of funding for customer-side electrical upgrades for qualified low-income customers and 40 percent of the incentive funds for environmental and social justice communities.

SCE offers the following programs facilitating transportation electrification for its residential customers.

Table III-20
Residential Transportation Electrification Programs

Program	Details
California Clean Fuel Reward Program	• Point of sale rebate for the purchase or lease of a new electric vehicle
Pre-Owned Electric Vehicle ("EV") Rebate	• Mail in rebate of $1,000 on the purchase or lease of a pre-owned EV. Eligible income-qualified customers may receive a rebate of up to $4,000

In addition to rebates for residential customers driving electric vehicles, SCE is engaged in a number of transportation electrification infrastructure projects. This is of particular importance to DACs that fall along the goods movement corridors at the seaports, the I-710, and Inland Empire goods movement and storage areas. These projects include:

- **Charge Ready Light-Duty (also known as Charge Ready 2):** Launched on July 12, 2021, the Charge Ready Light-Duty program was authorized to support the installation of EV charging infrastructure for light-duty vehicles, at multi-family dwellings, workplaces, and destination centers. The Charge Ready Light-Duty program is expected to support over 30,000 ports with 50 percent of the ports in DACs.

- **Charge Ready Transport ("CRT"):** Launched on May 20, 2019, SCE was authorized to install electric vehicle charging infrastructure to support 8,490 procured or converted medium- and heavy-duty electric vehicles.
    - A minimum of 40 percent of the infrastructure budget results in installations in DACs in SCE's service territory.
    - At least 25 percent of the program's infrastructure budget will be dedicated to vehicles operating at seaports and warehouses in SCE's service area, which are in heavily impacted DAC areas.
    - In addition to the infrastructure, eligible participants in DACs may receive a charging equipment rebate to offset a portion of their EV charging equipment costs.
- **Charge Ready Schools Pilot:** Launched in November 2020, the pilot has a goal to install 250 ports in school facilities and to have 40 percent in DAC locations.
- **Charge Ready Parks Pilot:** Launched in February 2021, this pilot has a goal to install 120 level-2 and 10 direct current fast charge ports in parks and beaches, and to have 25 percent installed in DAC locations.
- **Charge Ready Light-Duty Pilot and Bridge Funding (completed):** As of June 30, 2022, the completed Charge Ready Pilot and Bridge programs have installed over 2,700 charging ports at 146 sites. Forty-seven percent of the sites were located in a DAC.
- **Charge Ready Transit Bus (completed):** In this completed pilot, SCE worked with government transit agencies to support three transit agencies electrifying their fleets. A total of 30 new ports were installed. The pilot focused on agencies with routes that traversed through DACs.
- **Port Electrification (completed):** These projects are providing infrastructure to electrify yard tractors and rubber tire gantry cranes to reduce emissions in heavily impacted DAC areas near the Port of Long Beach.

- **DC Fast Charge ("DCFC") Pilot (completed):** SCE deployed electric infrastructure to support five DCFC sites, with a total of 14 DCFC ports installed and accessible to all drivers. All sites are located within 1.5 miles of a DAC and are near multi-family housing.

In addition, SCE offers the following renewable energy programs.

Table III-21
Renewable Energy Programs

Program	Details
Solar on Multifamily Affordable Homes ("SOMAH")	• For multifamily building owners to offset the cost of installing a new solar energy system for common areas and/or to reduce energy costs for low-income tenants
Solar for Affordable Housing ("SASH")	• Administered by Grid Alternatives for the Commission, provides incentives to qualified low-income homeowners to help offset the costs of a solar electric system • Solar + Storage Pilot for Low-Income Housing and Subsidized Green Rate for CARE customers • Provides a flexible, transparent structure that supports the proliferation of solar in DACs
DAC-SASH[97]	• Modeled after existing SASH program • Available to low-income customers who are resident-owners of single-family homes in DACs • Provides up-front financial incentives towards the installation of solar generating systems on homes of low-income customers
DAC-Green Tariff[98]	• Modeled after the Green Tariff portion of the Green Tariff Shared Renewables program • Will be available to customers who live in a DAC and meet the income eligibility requirements for CARE or FERA • Provides a 20 percent rate discount compared to the customer's otherwise applicable tariff
Community Solar Green Tariff ("CSGT")[99]	• Modeled after the Shared Renewables, or Community Renewables, portion of the Green Tariff Shared Renewables program, structured similarly to the DAC-Green Tariff

97 *See* D.18-06-027 at 2-3.
98 *See id.* at 3.
99 *See id.* at 3-4.

	• Will be primarily available to low-income customers in DACs to enable them to benefit from the development of solar generation projects located in their own or nearby DACs
Green Tariff Shared Renewables (Green Rate and Community Renewables)	• Green Rate provides residential and business customers an opportunity to purchase renewable energy without installing solar. Customers can enroll at 50 percent or 100 percent of their electricity usage. • Community Renewables residential and business customers can work directly with California developers to subscribe to a project to get their electricity needs. SCE provides a bill credit to participating customers based on their subscribed portion of the facility's output
Self-Generation Incentive Program	• Rebates to customers who install qualifying types of distributed generation to meet all or a portion of their own energy needs • Beginning in April 2020, customers living in low-income or DACs or in high fire risk areas are now eligible for increased equity resiliency incentives to offset most of the cost to install an energy storage system

(2) Economic Development

SCE has long been committed to developing and maintaining working partnerships with diverse suppliers (Women, Minority, and Service-Disabled Veteran) and LGBT (Lesbian, Gay, Bisexual and Transgender) business enterprises. In 2021, SCE provided direct and in-kind support of over $1.3 million to 57 diverse organizations for technical assistance and capacity building. This funding includes organization memberships, conferences, custom programs, workshops, and scholarships. The organizations represent a broad spectrum of community interests and serve DACs throughout SCE's service area. In 2021, SCE's $2.44 billion in spend with over 620 diverse suppliers translated into 22,987 jobs, $1.5 billion in wages earned, and $1.2 billion in taxes.

(1) Ongoing Community Outreach

SCE works closely with community-based organizations ("CBOs"), tribes, and leaders from key customer segments, to increase awareness about safety, promote programs and services, hear feedback, and align on common goals. Through this work, SCE remains in touch with our DACs and learns about issues that are important to them. SCE has multiple touch points with each community every year. SCE's outreach efforts related to impacted communities and DACs are described below.

(a) <u>CBO Education & Outreach Program</u>

SCE's Community-Based Organizations Education and Outreach program manages a portfolio of CBO partners that conduct outreach in all of SCE's DAC and other underserved communities with the objective of educating and bringing awareness around different SCE programs. Underserved customer segments include seniors, those with low income, the disabled, those with limited English-speaking abilities, and those who live in rural communities. As part of this program, SCE sends a quarterly newsletter to over 1,400 CBOs in its service territory that contains timely information about SCE programs and opportunities. From among these partners, SCE selected a number of CBOs through a Request for Proposal ("RFP") process to play a more active role in assisting with SCE's outreach. The RFP was designed to identify CBOs that have a strong reach within diverse communities and demonstrate a strong ability to partner with SCE to increase awareness and educate constituents in support of key SCE programs. These programs include Time-Of-Use, Power Savers Reward Program, Wildfire Safety & Preparedness, Critical Assistance Resources for Access and Functional Needs customers, and affordability resources.

As part of this partnership, SCE provides CBOs with turnkey messages that can be easily shared through different CBO communication channels such as social media, e-mail blast, electronic newsletters, and website (ad-type) placement. In addition, SCE works with the CBOs to facilitate webinars or social media "live" events with their constituents to share information on the programs previously mentioned, while giving customers the opportunity to ask questions and provide feedback. Some of these webinars are provided in languages such as Spanish and Chinese. Now that in-person events have begun again, SCE is working with our CBO partners to attend their events and increase face-to-face engagement with our DAC and other underserved customers.

(b) CBO Community Forums

SCE relaunched its Community Forum program in April 2022 and held two events this year. Going forward, SCE plans to hold a minimum of two Community Forums per year. SCE invites its CBO partners, local community leaders, and other interested parties to these regionally focused events that provide SCE program and policy information, an opportunity for SCE to obtain feedback on topics of interest, and face-to-face time for all organizations to interact with one another in compliance with local COVID-19 protocols. SCE uses this event to interact directly with its regional DAC and other underserved community representatives, as well as its other regional partners, to identify issues of concern and potential opportunities for future collaboration.

(c) Clean Energy Access Working Group

In 2017, SCE partnered with The Greenlining Institute ("Greenlining") to form the Clean Energy Access Working Group ("CEAWG"). The joint aim was to develop community-centric solutions for air quality and climate change issues. This formation of CEAWG was a major step toward direct engagement on clean energy access, air quality, and climate change issues in Southern California. Pre-COVID, Greenlining facilitated a collaborative conversation between SCE and 49 members from nearly 30 organizations representing environmental advocacy organizations, CBOs, clean tech companies, solar developers, electric vehicle advocates, environmental justice organizations, faith-based organizations, and academia. Working together, the parties worked to craft and support state and local policies and programs to improve air quality for environmentally impacted communities and bring clean energy technology investment, clean energy jobs, and job training to communities.

In 2020 and 2021, when CEAWG did not meet in person, Edison International, SCE's parent organization, provided over $450,000 in grant funding to 16 CEAWG members or their recommended 501(c)(3) organization designees to allow local groups to plan and execute community-developed projects with local clean energy benefits. The proposed projects could include clean energy, energy efficiency, air quality improvements, climate resiliency, climate adaptation, wildfire prevention, or Public Service Power Shutoff preparation efforts.

SCE regularly consults with CEAWG or its members when developing new clean energy programs and services in order to obtain their input and adjust our programs to better reflect the learned experience of the DAC community.

(d) <u>Climate Resilience Leadership Group</u>

In 2021, SCE launched its Climate Resilience Leadership Group ("CRLG"), a forum of community leaders working with SCE on a six-month engagement to collect local feedback from climate-sensitive disadvantaged vulnerable communities ("DVCs") to inform SCE's Climate Adaptation Vulnerability Assessment ("CAVA") filing. This feedback helped SCE identify gaps in our thinking about local community resilience. These insights were included in our system-wide vulnerability assessment reflected in the CAVA filing. The group helped administer more than 780 surveys to community and tribal members in over 80 DVCs, including members from all 13 tribes in SCE's service territory. The surveys solicited feedback on how potential climate adaptation options undertaken by SCE might impact these communities. SCE intends to continue local DVC engagement on climate issues going forward.

(e) <u>Valley Clean Air Now</u>

SCE provides grant funding and serves on the board of Valley Clean Air Now ("Valley CAN"), a non-profit organization committed to improving air quality in the San Joaquin Valley, a region that contains a disproportionate share of California's DAC census tracts. The San Joaquin Valley has among the highest per-capita rates of gross-polluting, older, and unregistered cars in the state, as well as among the worst air quality. Because of this, Valley CAN partnered with the San Joaquin Air Pollution Control District to develop two award-winning programs that simultaneously reduce emissions and create real-world solutions for low-income drivers.

The Tune In & Tune Up program hosts weekend events where residents receive a free emissions test to determine whether their vehicle qualifies for free repairs at a local STAR-certified smog shop. Over 4 percent of all Valley households have attended one of these events and more than 125,000 smog repair vouchers have been issued since 2014.

Based on the success of this event, in 2014 Valley CAN piloted a vehicle replacement program for residents who would prefer to trade in their older unreliable and polluting vehicles for a new or used plug-in electric vehicle in lieu of performing expensive smog repairs.
This experiment was so successful that it evolved into the statewide Clean Cars 4 All program, recognized as the CARB's most effective program to bring equitable access to ZEVs in DACs. Valley CAN now conducts Community Clean Car Clinics, where residents can bring in their paperwork to determine if they qualify for the Clean Cars 4 All Incentives and receive assistance with their application.

(f) <u>emPOWER Program</u>

emPOWER is a non-profit run program that uses CBOs as one-stop-shop marketers for clean energy programs in underserved communities in Los Angeles County, the Inland Empire, and San Joaquin Valley. Edison International, SCE's parent organization, was the original philanthropic funder and SCE remains the principal corporate partner in developing the program, along with Liberty Hill (the Los Angeles County regional program administrator) and Valley CAN. emPOWER currently supports six CBOs working across 4 counties in Southern California. In 2021, the program successfully reached just under 450,000 low-income households; 85 percent of households that initiated the process to apply for incentives were located in a state-identified DAC or low-income community census tract; and over 35 percent of these households were located in census tracts in the top 10 DAC percentile range. On average, each household was eligible for nine offered programs from multiple providers. SCE programs presented to customers include bill savings, home efficiency upgrades, solar, and electric vehicle rebates. In its third year running, the coalition refined their hybrid digital and in-person outreach model to more effectively reach the most vulnerable households and included new indigenous or Native Hawaiian Pacific-led community-based partners.

(g) Advisory Panels

SCE has also convened several advisory panels as part of an ongoing effort to facilitate dialogue and build relationships in order to understand key issues important to stakeholders. The forums provide a sounding board for prospective company initiatives and policies and bring greater awareness of SCE's positions on current issues. SCE works to ensure DAC interests are represented on advisory panels. For example, the Consumer Advisory Panel has board members representing all regions of SCE's service area, including those with a special interest in low-income and minority communities, rural communities, Native American communities, and faith-based organizations. SCE's advisory panels include:

1. Consumer Advisory Panel
2. Government Advisory Panel
3. Business Advisory Panel
4. Small Business Advisory Panel
5. California Large Energy Consumer Association Advisory Panel
6. California Manufacturers & Technology Association Advisory Panel
7. Transportation Electrification Advisory Board (also known as the Program Advisory Council)

(h) Tribal Nations

All federally recognized tribal lands were categorized as DACs in May 2022. SCE has 13 federally recognized tribal nations within its service territory that fall under this definition.

These tribes have been added to our detailed demographic information listed in Appendix A.1. SCE also provides services to over 20 other tribal communities that fall outside this definition. SCE partners with our tribal nations in many areas including reducing wildfires, clean energy development, electrification, energy efficiency, and philanthropy. SCE has four tribal liaisons that ensure the tribes are up to date on available SCE programs, services, and opportunities and who help to resolve issues. SCE holds individual meetings with each tribe to provide information and obtain their input on important issues. SCE also holds an annual Tribal Leaders Clean Energy Summit to share information and get elected leader input from all tribes simultaneously. SCE seeks to include tribal input whenever collecting customer input on important topics. For example, SCE worked with the American Indian Chamber of Commerce of California to obtain tribal input on SCE's climate adaptation measures as part of our Climate Resiliency Leadership Group.

(i) Access and Functional Needs Customers

SCE also has a robust outreach program to support its Access and Functional Needs ("AFN") customers. Although AFN customers are not limited to DACs, DACs contain a disproportionate number of AFN customers. This is because AFN customers not only include customers with medical conditions, but also those with limited English proficiency, low household incomes, and who are transportation limited. Because these customers require special accommodation during power interruptions, SCE works closely with this community throughout the year to determine how best to identify, communicate, and support these customers before, during and after a Public Safety Power Shutoff ("PSPS"). SCE participates in quarterly and ad hoc meetings with the Joint IOU Statewide Access & Functional Needs Advisory Council to develop and revise its annual AFN Plan for PSPS Support.

In 2022, SCE launched several new initiatives, including an AFN Self-Identification Pilot starting with AFN customers in SCE's Frequently Impacted Circuits ("FICs") and a study to better understand user experience on SCE.com for customers with sensory disabilities, such as deafness or blindness. SCE is currently seeking partnerships with Tribal Governments to conduct an AFN Self-ID that is tailored for Tribal residents and engage Tribal residents for enrollment in Medical Baseline Allowance ("MBL") Program. Lastly, SCE is in the process of contracting with a third-party vendor to translate PSPS Customer Notifications in American Sign Language in video format that will be accompanied by English voice over and Braille display compatible text.

(j) Corporate Philanthropy

In 2021 and 2022, Edison International shareholders invested $20 million annually to support programs that help our communities and over 600 nonprofits in SCE's service area in the areas of education, civic engagement, environment, and public safety and emergency preparedness. Over 80 percent of grants are focused on programs for diverse and underserved communities. In 2021, SCE employees, family, and friends contributed a total of 48,944 volunteer hours within our service territory. SCE frequently partners with our grantees as they carry out their projects and consequently develops strong relationships with our partners and communities. Examples of major joint projects include our investment in green jobs programs and workforce development in collaboration with local community colleges, including San Bernardino Valley College Foundation's clean energy hybrid and electric vehicle technician program.

SCE believes our workforce should reflect the communities and companies we serve, and we recognized the need to expand diversity in the lineworker workforce pipeline. In 2021, as a part of the company's Diversity, Equity, and Inclusion ("DEI") commitments, SCE launched the Edison International Lineworker Scholarship. This program is covered by $1 million in shareholder funding to pilot a four-year, $250,000 annual scholarship program, along with $50,000 from IBEW Local 47, that selects 12 scholars and provides them with up to $25,000 scholarships. This money covers tuition at LA Trade-Tech College, tools and equipment, driver's education to obtain a Class A license and supportive services that cover housing, transportation, childcare and more. Additional information on major grant partnerships is provided in Appendix A.1.

(k) Feedback Summary

Through numerous discussions with our DAC communities, SCE is aware of their desire to improve local air quality and eliminate sources of fossil fuel combustion as quickly as possible. This input has informed SCE's 25 MMT and 30 MMT Bundled Portfolios and is one of the factors that influenced SCE to support a more aggressive 25 MMT GHG target by 2035 and high electrification assumptions in the IRP process.

E. Cost and Rate Analysis

In this section, SCE discusses the forecasted revenue requirements and system average rates for SCE's 25 MMT and 30 MMT Bundled Portfolios, as well as a baseline scenario for comparison. The modest rate increases for SCE's 25 MMT and 30 MMT Bundled Portfolios are driven in part by the inclusion of cost-competitive clean energy and energy storage resources that support renewable integration and other grid needs. According to the Commission's CSP Calculator, SCE's 25 MMT Bundled Portfolio includes 99 percent carbon-free generation in 2035, and SCE's 30 MMT Bundled Portfolio includes 93 percent carbon-free generation in 2035.

SCE's Baseline scenario uses the same cost assumptions as the 25 MMT and 30 MMT Bundled Portfolios but excludes all generic resource additions. The Baseline scenario represents SCE's fuel and purchased power expenditures based on the current resources it has under contract or expects to contract with through 2035. The Baseline scenario does not include new build generic resources that SCE needs to meet reliability or GHG goals as required by the Narrative Template.[100] Additionally, the Baseline scenario assumes that load and RA needs are to be met through generic RA and market purchases in lieu of building or contracting for energy storage and renewable resources. The Baseline scenario is not a meaningful nor viable planning

[100] *See* Narrative Template at 10.

scenario because it does not build the new resources needed to meet system reliability and GHG reduction requirements.

SCE used RESOLVE's resource costs for the new resources needed to develop its 25 MMT and 30 MMT Bundled Portfolios. To calculate the total portfolio revenue requirements and system average bundled rates shown in Table III-22, Table III-23, and Table III-24, SCE broke down the revenue requirements by categories and also included the modeling assumptions for each category. SCE's cost and rate forecast started with the revenue and rates that were in effect as of October 1, 2022. The 2023 revenue and rates are based on the 2021 General Rate Case ("GRC") (2023 attrition year) and assumes a net zero balance for most of its balancing and memorandum accounts in the future years. For non-fuel and purchased power costs from 2023 through 2035, forecasted costs associated with all pending applications before the Commission are included in this revenue forecast, as are forecasted costs for all approved proceedings. More specifically, the revenue forecast is based on SCE's 2021 GRC[101] through attrition year 2024 with an assumed 3 percent inflation increase in years 2025 through 2035. The fuel and purchase power revenue and rate forecasts for 2023 through 2035 use load and fuel and purchased power expenditure forecasts as presented in this document with an expected forecast of $0.5 billion ($2021) in GHG revenue credits by 2035.[102] Some of the revenue requirements assumed to be implemented in 2023 will likely be delayed until future years, but at the time of this IRP filing, these assumptions represent SCE's filed requests with the Commission. The fuel and purchased power expenditures associated with New System Generation and GHG rates are also included in the generation cost category.

Finally, within the delivery rate, SCE assumes Federal Energy Regulatory Commission ("FERC") revenue is based on the approved 2022 FERC formula rate with an assumed long run

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[101] The 2023 attrition year is based on an estimate of SCE's 2023 Post Test Year Revenue, which will be submitted to the Commission no later than December 1, 2022.

[102] The 2023 to 2035 revenue and rate forecast use SCE's bundled load forecast as provided in the Administrative Law Judge's Ruling Finalizing Load Forecasts and Greenhouse Gas Benchmarks for 2022 Integrated Resource Plan Filings, R.20-05-003, June 15, 2022, at 11.

escalation of 3.0 percent from 2022 through 2035. The forecast includes all revenue associated with SCE's transportation electrification programs, including Charge Ready 1 Pilot, Charge Ready Bridge extension, and Charge Ready 2 as well as the Transportation Electrification Priority Review Pilots and Standard Review Programs. Additionally, the forecast assumes all requested cost recovery applications, which are driving the 2023 revenue requirement forecast, for example the 2021 Wildfire Mitigation/Vegetation Management Application, Catastrophic Event Memorandum Account, Tax Adjustment Memorandum Account, Customer Service Re-Platform Program, the Third Assembly Bill 1054 Securitization, and the Wildfire Fund Charge.

Financial assumptions underlying the revenue forecast include: asset lives of 65 years for distribution substation equipment, 33 to 59 years for distribution poles and lines, 20 years for meters, 45 years for transmission station equipment, 61 to 65 years for transmission lines and towers, and 50 years for general building; capitalization of eligible operation and maintenance ("O&M") expenses at 50 percent for pension and benefits and 28 percent for administrative and general; cost escalation and inflation rates (~2 to 3 percent); a weighted average cost of capital of 7.68 percent; federal income taxes at 21 percent; state income taxes at 8.84 percent; and other tax related assumptions such as bonus depreciation and tax repair eligibility that were in place at the time of SCE's 2021 GRC Application.

The estimated 2035 bundled system average rate is 22.89 cents[103] per kWh for the 25 MMT Bundled Portfolio, a 0.8 percent increase over the 22.71 cents per kWh for the 30 MMT Bundled Portfolio. This is a relatively small increase between the 2035 system average rates of the portfolios and shows that the 25 MMT Bundled Portfolio is an affordable plan for SCE's customers.[104] Further, because SCE and other LSEs will need to reach these lower GHG targets as they move towards achieving the state's 2045 decarbonization goals, these costs and rates should be seen as the minimum of what is needed by 2035. The 25 MMT Bundled Portfolio puts

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[103] System average rates ("SAR") are presented in 2021 dollars and are unique to this proceeding and may differ from SAR presented in SCE's other proceedings such as SCE Affordability Proceeding.

[104] See further discussion on affordability in section IV.A.12

SCE and its customers on a more stable path to reach the long-term decarbonization goals adopted by the state. Furthermore, as SCE's Pathway 2045 whitepaper demonstrates, decarbonization can be cost-effectively achieved through powering customers' energy needs with carbon-free electricity, and electrifying transportation and buildings. The analysis finds that while a customer's electricity bill increases over time, the overall energy consumption cost for an average household that electrifies its energy use decreases by one-third by 2045.

An additional observation regarding the revenue requirements analysis for both SCE's 25 MMT and 30 MMT Bundled Portfolios is that generation revenue costs (line number 3a) are relatively flat, on a 2021 dollar basis, through 2035 in both scenarios. A key driver of this result is the uncertainty in RA costs for existing market resources in the future, including the highly uncertain costs to keep natural gas generation units in the system despite the significant decreases in net costs of new entry for new system capacity. SCE used its internal assumptions on future net costs of new entry capacity for 4-hour energy storage systems to estimate the costs for market RA in the future. If, however, the current relatively high market costs for RA are representative of future costs to maintain system resources, that would lead to increases in SCE's generation revenue requirements and system average rates through 2030. This upward pressure in revenue requirements and rates would be present in all portfolios – the Baseline scenario portfolio and the 25 MMT and 30 MMT Bundled Portfolios – but the relatively minor cost difference between the 25 MMT and 30 MMT Bundled Portfolios would remain consistent with the findings above. SCE recommends that in future IRP cycles, as part of the inputs and assumptions, the Commission provide LSEs an assumed RA capacity price forecast that can be applied consistently across LSEs' IRPs.

Table III-22
Revenue Requirements and System Average Bundled Rates for SCE's Baseline (in million 2021 dollars, unless otherwise noted)

Line No.	Cost Category	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
1	Distribution	8,534	9,146	8,202	7,923	7,925	7,929	7,931	7,936	7,945	7,960	8,051	8,144	8,239
2	Transmission	1,244	1,220	1,197	1,175	1,176	1,176	1,177	1,177	1,179	1,181	1,195	1,209	1,223
3a	Generation[1/]	5,750	5,202	4,992	5,052	5,115	5,094	5,091	5,096	5,139	5,214	5,206	5,188	5,004
3b	Generation - GHG Revenue (AB 32)[2/]	(380)	(389)	(398)	(413)	(420)	(428)	(444)	(452)	(469)	(480)	(492)	(504)	(515)
4	Demand Side Programs	29	47	46	45	45	45	45	45	45	45	46	46	47
5	Other	1,637	1,368	1,282	1,244	1,244	1,238	1,235	1,232	1,226	1,227	1,241	1,257	1,272
6 (sum lines 1-5)	**Total Revenue Requirement**	**16,815**	**16,594**	**15,321**	**15,027**	**15,085**	**15,054**	**15,035**	**15,034**	**15,066**	**15,148**	**15,246**	**15,340**	**15,270**
7	System Sales (GWh)	83,434	84,171	84,624	85,043	85,641	86,073	86,556	86,983	87,496	87,811	88,178	88,511	88,852
8	Bundled Sales (GWh)	51,695	51,866	52,196	52,502	52,944	53,251	53,602	53,909	54,293	54,525	54,792	55,033	55,276
9	System Average Delivery Rate (¢/kWh)	13.26	13.53	12.21	11.73	11.64	11.57	11.49	11.43	11.35	11.31	11.39	11.47	11.55
10	Bundled Generation Rate (¢/kWh)[3/]	10.82	9.50	9.01	9.12	9.37	9.48	9.61	9.77	9.99	10.29	10.43	10.55	10.31
11	Bundled System Average Rate (¢/kWh)	24.08	23.04	21.22	20.85	21.02	21.05	21.10	21.19	21.33	21.60	21.81	22.02	21.86

1/ The Generation revenues reflected in this table includes both the bundled system generation and CCA generation revenues
2/ GHG Revenue returned through the distirbution rate component to all customers (Bundled and CCA)
3/ The Bundled Generation Rates reflected in this table excludes CCA generation related rates.

Table III-23
Revenue Requirements and System Average Bundled Rates for SCE's 25 MMT Bundled Portfolio (in million 2021 dollars, unless otherwise noted)

Line No.	Cost Category	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
1	Distribution	8,534	9,146	8,202	7,923	7,925	7,929	7,931	7,936	7,945	7,960	8,051	8,144	8,239
2	Transmission	1,244	1,220	1,197	1,175	1,176	1,176	1,177	1,177	1,179	1,181	1,195	1,209	1,223
3a	Generation[1/]	5,750	5,304	5,170	5,276	5,345	5,353	5,343	5,405	5,544	5,564	5,570	5,577	5,507
3b	Generation - GHG Revenue (AB 32)[2/]	(380)	(389)	(398)	(413)	(420)	(428)	(444)	(452)	(469)	(480)	(492)	(504)	(515)
4	Demand Side Programs	29	47	46	45	45	45	45	45	45	45	46	46	47
5	Other	1,637	1,368	1,282	1,244	1,244	1,238	1,235	1,232	1,226	1,227	1,241	1,257	1,272
6 (sum lines 1-5)	**Total Revenue Requirement**	**16,815**	**16,697**	**15,499**	**15,250**	**15,314**	**15,312**	**15,287**	**15,344**	**15,471**	**15,498**	**15,610**	**15,728**	**15,773**
7	System Sales (GWh)	83,434	84,171	84,624	85,043	85,641	86,073	86,556	86,983	87,496	87,811	88,178	88,511	88,852
8	Bundled Sales (GWh)	51,695	51,866	52,196	52,502	52,944	53,251	53,602	53,909	54,293	54,525	54,792	55,033	55,276
9	System Average Delivery Rate (¢/kWh)	13.26	13.53	12.21	11.73	11.64	11.57	11.49	11.43	11.35	11.31	11.39	11.47	11.55
10	Bundled Generation Rate (¢/kWh)[3/]	10.82	9.70	9.35	9.55	9.82	9.96	10.09	10.37	10.79	10.99	11.17	11.35	11.34
11	Bundled System Average Rate (¢/kWh)	24.08	23.23	21.55	21.28	21.46	21.53	21.57	21.79	22.13	22.30	22.55	22.82	22.89

1/ The Generation revenues reflected in this table includes both the bundled system generation and CCA generation revenues
2/ GHG Revenue returned through the distirbution rate component to all customers (Bundled and CCA)
3/ The Bundled Generation Rates reflected in this table excludes CCA generation related rates.

Table III-24
Revenue Requirements and System Average Bundled Rates for SCE's 30 MMT Bundled Portfolio (million 2021 dollars, unless otherwise noted)

Line No.	Cost Category	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
1	Distribution	8,534	9,146	8,202	7,923	7,925	7,929	7,931	7,936	7,945	7,960	8,051	8,144	8,239
2	Transmission	1,244	1,220	1,197	1,175	1,176	1,176	1,177	1,177	1,179	1,181	1,195	1,209	1,223
3a	Generation[1/]	5,750	5,304	5,170	5,276	5,345	5,353	5,341	5,378	5,466	5,494	5,496	5,495	5,410
3b	Generation - GHG Revenue (AB 32)[2/]	(380)	(389)	(398)	(413)	(420)	(428)	(444)	(452)	(469)	(480)	(492)	(504)	(515)
4	Demand Side Programs	29	47	46	45	45	45	45	45	45	45	46	46	47
5	Other	1,637	1,368	1,282	1,244	1,244	1,238	1,235	1,232	1,226	1,227	1,241	1,257	1,272
6 (sum lines 1-5)	**Total Revenue Requirement**	**16,815**	**16,697**	**15,499**	**15,250**	**15,314**	**15,312**	**15,285**	**15,317**	**15,392**	**15,427**	**15,536**	**15,647**	**15,676**
7	System Sales (GWh)	83,434	84,171	84,624	85,043	85,641	86,073	86,556	86,983	87,496	87,811	88,178	88,511	88,852
8	Bundled Sales (GWh)	51,695	51,866	52,196	52,502	52,944	53,251	53,602	53,909	54,293	54,525	54,792	55,033	55,276
9	System Average Delivery Rate (¢/kWh)	13.26	13.53	12.21	11.73	11.64	11.57	11.49	11.43	11.35	11.31	11.39	11.47	11.55
10	Bundled Generation Rate (¢/kWh)[3/]	10.82	9.70	9.35	9.55	9.82	9.96	10.08	10.31	10.63	10.84	11.01	11.18	11.16
11	Bundled System Average Rate (¢/kWh)	24.08	23.23	21.55	21.28	21.46	21.53	21.57	21.74	21.98	22.16	22.40	22.65	22.71

1/ The Generation revenues reflected in this table includes both the bundled system generation and CCA generation revenues
2/ GHG Revenue returned through the distirbution rate component to all customers (Bundled and CCA)
3/ The Bundled Generation Rates reflected in this table excludes CCA generation related rates.

F. System Reliability Analysis

SCE developed a 25 MMT CAISO System-Wide Portfolio that is reliable and operable. SCE's 25 MMT and 30 MMT Bundled Portfolios also contribute SCE's share to system reliability and renewables integration. Below, SCE provides the results for its 25 MMT CAISO System-Wide Portfolio and 25 MMT and 30 MMT Bundled Portfolios using the Commission's reliability standard.

As explained in Section II.B, SCE did not use the Commission's PCAP and marginal reliability need-based reliability methodology in CE to build its system or bundled portfolios. Instead, SCE used a 24-hour slice reliability framework in its system modeling and a modified single-point PRM reliability framework in its bundled modeling to develop reliable portfolios in CE. SCE then verified those portfolios passed the Commission's reliability test by applying the Commission's ELCC values to the resource portfolios and comparing it to SCE's marginal reliability need in the RDT.

The portfolios developed by SCE's models passed the Commission's reliability test without adjustment or augmentation. However, SCE continues to be concerned with the

Commission's reliance on a single-point reliability framework and an annual ELCC-based methodology and urges the Commission to adopt the 24-hour slice reliability framework in the IRP for modeling and planning purposes. In addition to the arguments set forth in Sections I.D and III.A, this section also identifies a few of the unintuitive and unrealistic results in the Commission's RDT checking tool that further demonstrate the flaws in the Commission's current single-point framework.

1. System Reliability Results for SCE's 25 MMT CAISO System-Wide Portfolio

SCE input its 25 MMT CAISO System-Wide Portfolio into the Commission's RDT checking tool to confirm it passes the Commission's single-point framework reliability criteria. The "online" resources are the 2030 and 2035 system baseline resources in the Updated 2021 PSP, the "BTM PV" capacity is the total system BTM PV in the RDT's "BTM_PV_Forecast" tab, and the "PlannedNew" resources are the resources selected in SCE's 25 MMT CAISO System-Wide analysis. SCE applied the marginal ELCC values included in the RDT to calculate the System Total Supply (effective MW) and compared it to the CAISO marginal reliability need (*i.e.,* input 100 percent as the LSE managed peak share percentage). The results for 2030 and 2035 are detailed in Table III-25 below.

Table III-25
System Load and Resource Table by Contract Status –
SCE's 25 MMT CAISO System-Wide Portfolio

	2030	2035
System Reliability Need (MW)	**50,732**	**43,376**
ELCC by contract status (effective MW)		
Online	35,537	34,107
Development	-	-
Review	-	-
PlannedExisting	-	-
PlannedNew	16,875	11,192
BTM PV	930	1,427
System total supply (effective MW)	**53,342**	**46,726**
Net capacity position (+ve = excess, -ve = shortfall) (effective MW)	2,610	3,350

2. System Reliability Results for SCE's 25 MMT and 30 MMT Bundled Portfolios Under Commission's Reliability Standard

The following Table III-26 and Table III-27 include the Load and Resource Table by Contract Status for SCE's 25 MMT Bundled Portfolio and 30 MMT Bundled Portfolio. These results show there is no shortfall in SCE's net capacity position for any year in the planning horizon.

Table III-26
SCE's Load and Resource by Contract Status – 25 MMT Bundled Portfolio

Load and Resource Table by Contract Status	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
LSE reliability need (MW)	**14,010**	**14,348**	**14,710**	**14,318**	**13,920**	**14,250**	**14,532**	**14,115**	**13,625**	**13,165**	**12,716**	**12,309**
ELCC by contract status (effective MW)												
Online	9,135	7,529	6,867	5,983	5,622	5,704	5,783	5,480	5,248	5,015	4,786	4,412
Development	1,756	1,776	1,797	1,737	1,678	1,754	1,829	1,618	1,418	1,206	870	700
Review	-	-	-	-	-	-	-	-	-	-	-	-
PlannedExisting	1,899	3,373	3,485	3,787	3,798	3,755	3,708	3,753	3,794	3,834	3,873	3,910
PlannedNew	1,896	2,661	3,419	3,294	3,403	3,536	4,297	4,140	3,955	3,690	3,418	3,452
BTM PV	162	160	156	200	248	235	219	242	266	292	319	347
LSE total supply (effective MW)	**14,848**	**15,499**	**15,724**	**15,001**	**14,750**	**14,983**	**15,836**	**15,233**	**14,681**	**14,035**	**13,266**	**12,821**
Net capacity position (+ve = excess, -ve	**837**	**1,151**	**1,013**	**683**	**830**	**733**	**1,304**	**1,118**	**1,056**	**870**	**549**	**511**

Table III-27
SCE's Load and Resource by Contract Status – 30 MMT Bundled Portfolio

Load and Resource Table by Contract Status	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
LSE reliability need (MW)	**14,523**	**14,899**	**15,300**	**14,675**	**14,046**	**13,769**	**13,453**	**13,287**	**13,052**	**12,844**	**12,645**	**12,488**
ELCC by contract status (effective MW)												
Online	9,200	7,593	6,925	6,044	5,673	5,462	5,248	5,061	4,938	4,813	4,691	4,422
Development	1,819	1,853	1,887	1,738	1,589	1,561	1,532	1,381	1,240	1,088	820	700
Review	-	-	-	-	-	-	-	-	-	-	-	-
PlannedExisting	1,908	3,408	3,540	3,821	3,807	3,760	3,710	3,760	3,805	3,849	3,892	3,934
PlannedNew	1,947	2,745	3,546	3,326	3,338	3,271	3,603	3,512	3,415	3,269	3,132	3,137
BTM PV	271	308	348	314	273	243	209	233	259	287	316	347
LSE total supply (effective MW)	**15,145**	**15,907**	**16,246**	**15,243**	**14,680**	**14,297**	**14,301**	**13,947**	**13,657**	**13,306**	**12,850**	**12,540**
Net capacity position (+ve = excess, -ve	**621**	**1,008**	**947**	**568**	**634**	**527**	**849**	**660**	**605**	**462**	**205**	**52**

Figure III-9 and Figure III-10 show this information in a chart for SCE's 25 MMT Bundled Portfolio and 30 MMT Bundled Portfolio.

Figure III-9
SCE's Capacity by Resource Type – 25 MMT Bundled Portfolio

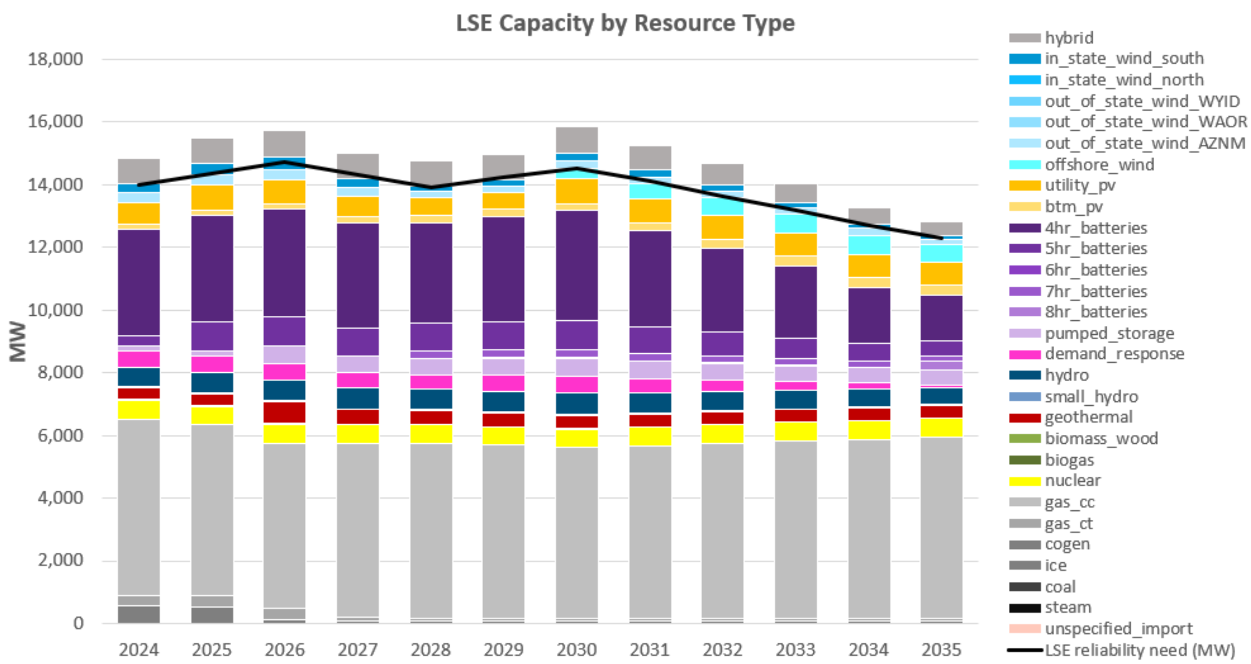
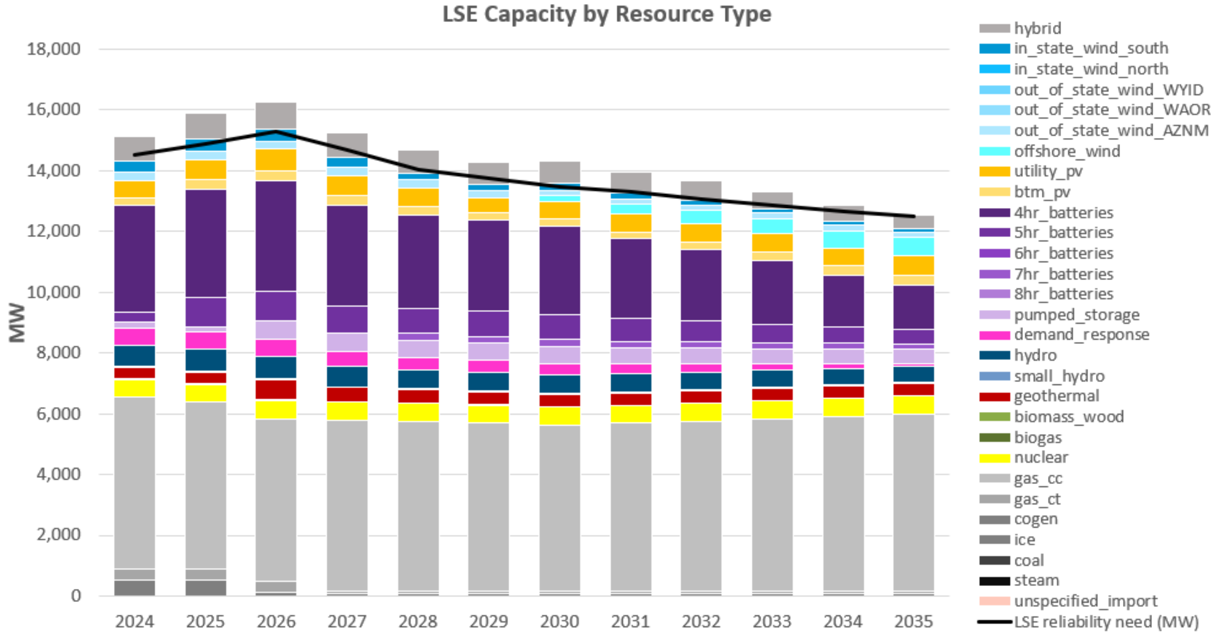


Figure III-10
SCE's Capacity by Resource Type – 30 MMT Bundled Portfolio



3. Flaws in the Commission's Reliability Standard and Reliability Checking Tool

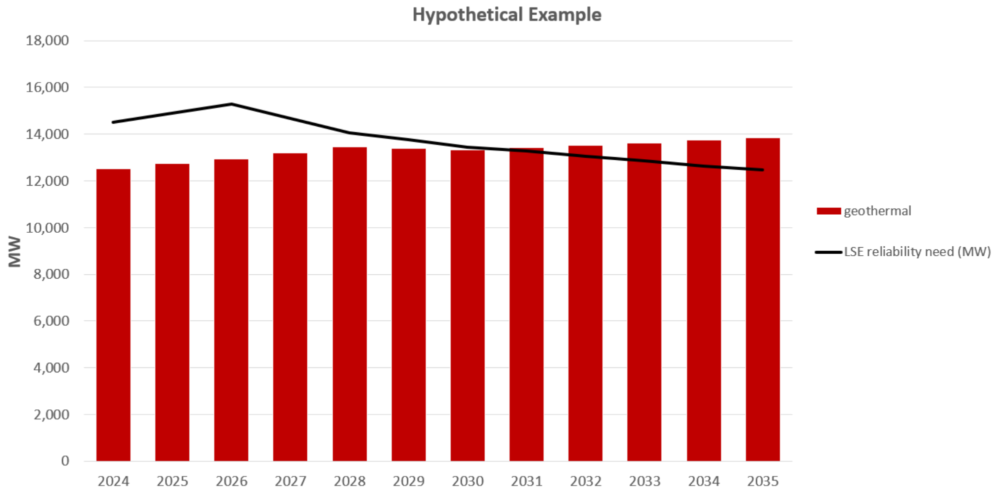
In this IRP cycle, the Commission introduced the concepts of total reliability need, marginal reliability need, PCAP, and annual marginal ELCC percentage. Together, these concepts underly the framework ensuring LSE plans will lead to a reliable system. While the goals of this development process were admirable, the results fall short. The specific values LSEs have been ordered to use to assess reliability are derived through processes only Commission staff and their consultants can observe. The combination of total reliability need, marginal reliability need, PCAP, and annual marginal ELCC values used in the Commission's RDT reliability checking tool create unintended incentives and LSE portfolios can pass this reliability test while being demonstrably unreliable.

The Commission is currently using an annual ELCC methodology to determine resources' contributions to the single-hour PRM requirement. The ELCC values for different resource types are dependent on the underlying load and resource mix. Thus, the pre-calculated

ELCCs, which are based on a fixed and assumed resource mix that may differ from the modeled system portfolio, may not accurately represent selected resources' contribution to the single-hour PRM requirement. More importantly, annual ELCC values do not reflect the resources' true contribution to reliability because they attempt to represent aggregate contributions within the year in the form of one value rather than the reliability contribution in the single hour being tested, in the context of the fixed portfolio.

SCE constructed a simple hypothetical example to demonstrate the flaw in the new reliability framework built into the RDT tool. In this example, an LSE would pass the RDT's portfolio reliability check with less generation capacity than the amount needed to meet their gross peak demand. Assume an LSE contracts exclusively with a resource like geothermal with a high marginal ELCC. Assume this LSE signs a contract for 14,500 MW of nameplate capacity with this resource in 2024, which is less than its 2035 gross peak demand. As shown in Figure III-11 below, using the Commission's tool, this resource with a nameplate capacity lower than the LSE's gross peak demand (without PRM) is sufficient to completely satisfy the 2035 RDT reliability check by a substantial margin.

Figure III-11
Hypothetical Capacity by Resource Type



G. High Electrification Planning

As discussed in Section I.C, SCE strongly supports the Commission's decision to require LSEs to consider high electrification in their 2022 IRP filings and urges the Commission to adopt a high electrification demand forecast, such as the Additional TE scenario, for the base case planning and the PSP, as well as future LSE IRPs. SCE's Pathway 2045 analysis found that three-quarters of light-duty vehicles, two-thirds of medium-duty vehicles, and one-third of heavy-duty vehicles will need to be electric by 2045 to most feasibly and cost-effectively achieve California's decarbonization goals.[105] The Additional TE scenario assumes approximately 7 million more light-duty electric vehicles statewide by 2035 than the CEC base case, which is within the range assumed in SCE's Pathway 2045 analysis.

Data gained from high electrification planning will provide meaningful information to better understand the magnitude of necessary resource additions under high electrification assumptions. It will also provide insight on the ramifications of *not* considering higher electrification in the CAISO system. If the Commission does not begin planning for this increased load and the resulting required resource additions now, it may jeopardize the electric

[105] SCE's 2045 Pathway analysis white paper and appendices are available at: https://www.edison.com/home/our-perspective/pathway-2045.html.

sector's ability to help achieve California's overall climate goals by decarbonizing other sectors through electrification.

To determine the amount and type of additional resources needed to effectively meet the higher electrification demand forecast, SCE performed a sensitivity analysis on its preferred 25 MMT Bundled Portfolio. The high electrification sensitivity analysis was performed using the same modeling inputs and assumptions and modeling tools used in developing the 25 MMT Bundled Portfolio with the exception of the increased load due to electrification in the Additional TE scenario demand forecast.

As shown in Table III-28, a total of 5,396 incremental MW are added to the 2035 portfolio build-out when the higher Additional TE scenario demand forecast is used. This includes 3,351 MW of solar additions providing 8,219 gigawatt-hours ("GWh") of energy in 2035, 571 MW of offshore wind providing 2,501 GWh of energy in 2035, and 1,474 MW of 8- and 9-hour long-duration storage with a net negative annual energy contribution of (-) 3,866 GWh due to efficiency losses in the charging and discharge cycle.

Table III-28
High Electrification 25 MMT Bundled Portfolio Incremental Resources in 2035

Resource Type	Incremental MW in 2035	Incremental Annual GWh in 2035	2035 GHG Target	Transmission Zone	Substation /Bus	Alternative Location	Notes
Solar	3,351	8,219	25 MMT	Eastern	Colorado River 500 kV = 1,300 MW	New 500/230 kV Sub	Located between the Colorado River & Red Bluff Subs
					Colorado River 230 kV = 860 MW		
					Red Bluff 500 kV = 541 MW		
				Metro	Laguna Bell 230 kV = 150 MW	Mirage 230 kV	-
				Northern	Antelope 500 kV = 500 MW	New 500 kV Collector Sub	Located between Windhub & Whirlwind Subs
Offshore Wind	571	2,501	25 MMT	PG&E	Diablo Canyon 500 kV = 571 MW	Morro Bay 230 kV	-
8 Hour Storage	951	-2,388	25 MMT	Metro	Hinson 230 kV = 475 MW	Red Bluff 230 kV	Alternate location may require a Red Bluff 230 kV Bus expansion and a 3rd 500/230 kV transformer bank
					Laguna Bell 230 kV = 476 MW		
9 Hour Storage	523	-1,478	25 MMT	Eastern	Red Bluff 220 kV = 523 MW	New 500/230 kV Sub	Located between the Colorado River & Red Bluff Subs

As addressed in Sections II.B.1.d.1 and III.A.1.b, SCE also performed a high electrification sensitivity using the Additional TE scenario on the 25 MMT CAISO System-Wide Portfolio. In the CAISO system-wide portfolio, solar, onshore wind, and offshore wind new resource additions increased by 4,798 MW, 1,234 MW, and 7,078 MW, respectively, under the Additional TE scenario. Thus, a significant amount of additional generation resources will need to be added to the system to accommodate the increased load from electrification.

SCE urges the Commission to act quickly to incorporate a high electrification demand forecast in IRP base case planning and the PSP so that the resource additions needed in California's high electrification future are included in the state's resource planning going forward. The IRP process will quickly become out-of-step with other planning processes if a high electrification case is not adopted soon. High electrification demand scenarios have already been included in the policy-driven sensitivity portfolio for the CAISO's 2022-2023 TPP, the distribution planning processes for the 2022-2023 planning cycle, and were recently recommended for the reliability and policy-driven base case portfolio for the CAISO's 2023-2024 TPP.[106] The Commission should plan for higher electrification now so both the resource additions and transmission needed to serve additional load from electrification are in place as California electrifies its transportation and buildings.

H. Existing Resource Planning

SCE commends the Commission for highlighting the need for each LSE to appropriately utilize existing resources and avoid "over-reliance on existing resources by … planning for more existing resources than actually exist in the baseline."[107] SCE suggests the Commission take action to ensure LSEs do not over-rely on any shared resources (e.g., CAISO system resources, major transmission lines, and import/export lines). The Commission should consider not only LSEs' use of resources in the RDT with contract statuses of "online" and "planned existing," but also LSEs' reliance on imports and transmission lines. As described in Section II.B.2.a, SCE's bundled modeling limits SCE's selection of shared system resources, existing transmission, and import and export capability to its bundled service customer share of overall system load. This was done to allow SCE's bundled portfolios to use system resources without over-relying on the system. Relatedly, SCE generally limits candidate generation resources to its bundled load share to prevent over-subscribing the technical potential of economic resources and urges the Commission to adopt this approach for all LSEs.

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[106] *See* D.22-02-004 at OP 8; Transmittal Letter to CAISO for 2022-23 TPP High Electrification Portfolio, July 1, 2022, available at: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2019-2020-irp-events-and-materials/tpp-portfolio-transmittal-letter.pdf; Administrative Law Judge's Ruling Seeking Comments on Electricity Resource Portfolios for 2023-2024 Transmission Planning Process, R.20-05-003, October 7, 2022, at 3-9.

[107] D.22-02-004 at 80.

For the 2020 IRP, SCE assumed re-contracting of SCE's renewable resource contracts expiring during the planning horizon.[108] This assumption was reasonable at the time for modeling purposes and consistent with the expectation that the quantity of existing resources in SCE's portfolio would continue to include some amount of existing generation resources (either re-contracted or new contracts with other existing generation resources). SCE also assumed its share of existing system-wide natural gas resources according to the SCE bundled load share to the CAISO system load for each year.[109] In its 2020 IRP, SCE did not include more existing generation resources in the planning horizon than were contracted in 2020. Additionally, in 2020, SCE did not consider that other LSEs would select SCE's contracted or expired generation resources for their portfolios.

For the 2022 IRP, SCE has changed the assumptions for existing generation resources based on the finding from the 2020 IRP process that LSEs had oversubscribed existing resources. This impacted SCE's approach to developing its 25 MMT and 30 MMT Bundled Portfolios. Unlike in SCE's 2020 IRP, SCE did not assume re-contracting of its existing renewable resources. For existing non-thermal resources, SCE assumed it would have access to a pool of new and existing resources limited to SCE's bundled load share of the CAISO system load. SCE's expiring contracts with existing non-thermal resources were added back to this pool of candidate resources and assumed to be the same cost as new resources of the same class.

For existing natural gas resources, SCE assumed a pro-rata share equal to SCE's bundled load share of the CAISO system would be contracted in each year. However, SCE did not assume any additional new natural gas plants were built in its portfolio build-out or any re-contracting with existing natural gas generation for a term of five years or more. In addition, the selected new contracts with existing natural gas plants ensured SCE's portfolios meet LOLE reliability requirements. SCE's 25 MMT and 30 MMT Bundled Portfolios also meet SCE's

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108 *See* Integrated Resource Plan of Southern California Edison Company (U 338-E), R.20-05-003, September 1, 2020, at 31.

109 *See id.*

GHG emissions benchmarks throughout the planning horizon with limited operation of the existing natural gas plants.

The following restrictions on the quantity of resources of all types that were allowed to be selected in the modeling were imposed to avoid over-subscribing existing generation resources in the 2022 IRP:

- For the existing generation resources with expiring SCE contracts within SCE's Transmission Access Charge ("TAC") area, SCE limited the amount of these resources to a pro-rata amount of SCE's bundled load share in SCE's TAC area.
- For existing generation resources in the CAISO system outside of SCE's TAC area, SCE limited the selectable existing generation resources to a pro-rata amount of SCE's load share in the CAISO system.

SCE's share of CAISO system natural gas resources, actual contracts, and new contracts with existing resources are provided in Table III-29.

Table III-29
Amount of Natural Gas Existing Resources in SCE's 2022 25 MMT and 30 MMT Bundled Portfolios (MW)

Year	Total Natural Gas RA (SCE's CAISO share)	Actual/Existing NG Contracts (bundled share only)	New Contracts With Existing NG Plants
2023	9,643	-	-
2024	7,104	4,854	2,250
2025	6,811	2,860	3,951
2026	6,517	2,481	4,036
2027	6,517	2,146	4,371
2028	6,516	2,146	4,370
2029	6,514	2,146	4,368
2030	6,508	2,146	4,362
2031	6,503	2,146	4,357
2032	6,492	2,146	4,346
2033	6,481	2,146	4,335
2034	6,469	2,146	4,323

Year	Total Natural Gas RA (SCE's CAISO share)	Actual/Existing NG Contracts (bundled share only)	New Contracts With Existing NG Plants
2035	6,456	2,146	4,310

For other CAISO system shared resources, i.e., new build candidate resources, imports, and transmission, SCE limited the selectable existing resources to a pro-rata amount of SCE's load share in the CAISO system.

Table III-X below shows the total existing generation resource capacity used for modeling in the 2020 and the 2022 IRPs. Specifically, Table III-30 provides the amount of existing generation resources assumed in SCE's 2020 IRP 38 MMT Preferred Conforming Portfolio and the amount of existing resources assumed in SCE's 2022 IRP for SCE's 25 MMT and 30 MMT Bundled Portfolios, which are identical.

Table III-30
Amount of Existing Resource Capacity Used in SCE's 2020 IRP 38 MMT (in 2030) Portfolio and SCE's 2022 IRP 25 MMT and 30 MMT (in 2035) Portfolios

Modeling Year	IRP Year 2020 (MW)	IRP Year 2022 (MW)
2020	27,280	-
2021	27,078	-
2022	26,329	-
2023	26,206	25,175
2024	21,194	22,694
2025	20,426	21,171
2026	20,404	21,116
2027	20,401	20,839
2028	20,382	20,743
2029	20,403	20,743
2030	20,425	20,707
2031	-	20,524
2032	-	19,993
2033	-	19,070
2034	-	17,856
2035	-	14,943

The amount of existing resources included in SCE's 25 MMT and 30 MMT Bundled Portfolios is appropriate and will not contribute to the over-subscription of existing resources identified in the 2020 IRP cycle. SCE has developed a methodology that ensures it does not exceed its pro-rata share of existing resources, which is a reasonable expectation for all LSEs. In the case of renewable and clean energy resources, SCE does not assume any of its contracted resources will remain in its portfolio after the contract expires. Instead, the portfolios identify the need for incremental capacity additions that could be met with new or existing resources. Additionally, for natural gas resources, SCE does not exceed its pro-rata share of available resources.

For these reasons, SCE is confident its 2022 IRP portfolios will not contribute to the over-subscription of system resources. SCE also believes that it is reasonable to assume that the amount of existing resources in its portfolios will be available in the market. Potential barriers to procurement are discussed in more detail in Section IV.A.

SCE urges the Commission to adopt the approach outlined in this section for all LSEs to use in future individual IRP filings to avoid over-subscription of existing system resources. Placing no limitation on LSEs' use of shared system resources will likely lead to the same over-subscription problem identified in the 2020 IRP cycle which undermines the value of individual IRPs contribution to the IRP process. In the filing requirements for the next IRPs, the Commission should direct LSEs not to exceed their load share of existing system resources in their IRP portfolios.

Detailed information on each LSE's pro-rata share may be helpful to LSEs and can be provided as part of the IRP filing requirements, so that each LSE can proceed with their individual modeling with confidence that their portfolios can be aggregated with other LSEs portfolios to develop an overall CAISO system portfolio that represents the portfolio developed by the LSE for their customers. For example, as part of the filing requirements or other guidance provided to LSEs ahead of conducting modeling for their IRPs, the Commission should provide a summary of the capacity by technology of uncontracted resources in the market on an annual basis for the next ten years. The Commission has unique visibility to all contracted and uncontracted resources in the market as provided through the aggregate RDTs. Using this information, LSEs can assume up to their load share of available resources and imports to meet some of the capacity or energy needs in their IRPs and fill the rest of the need with new resources. Without this information, LSEs will continue to over-subscribe existing resources and may not include sufficient levels of new resources in their plans.

I. Hydro Generation Risk Management

1. SCE's Hydroelectric Resources

SCE's utility-owned hydro resources can be divided into two groups: Big Creek and all other resources. Big Creek resources are the larger group, encompassing all SCE hydro facilities in the upper San Joaquin River watershed in the western Sierra Nevada Mountains. Big Creek is a composite of six major reservoirs, 16 water conveyance tunnels, and nine powerhouses, most of which are reservoir storage plants. Most of the Big Creek plants are directly connected to the 220 kV bulk power transmission system. In aggregate, the Big Creek project, which includes the Eastwood Pumped Storage project, has a generating capacity of approximately 1,015 MW, or about 86 percent of SCE's total utility owned hydro generation capacity. Most Big Creek powerhouses have been in service since the early to mid-twentieth century.

Big Creek utilizes six major reservoirs for water storage, as well as smaller reservoirs that supply some of the powerhouses. The maximum storage for the six major reservoirs is approximately 560,000 acre-feet. Due to flood risk mitigation and FERC requirements, as well as contractual constraints, the reservoirs are typically lowered during the winter months to minimum levels and filled to maximum levels during spring runoff from melting snowpack. The average annual runoff (with significant yearly variations) from the Big Creek watershed is approximately 3 times the project's water storage capacity, or about 1,500,000 acre-feet, with most of the runoff occurring during the months of March through July.

Operation of Big Creek is subject to environmental and regulatory constraints. The overriding objective in operating all SCE facilities including hydro-electric facilities is worker and public safety while maintaining the safety and reliability of the project infrastructure (e.g., dams, powerhouses, penstocks, etc.). Water management on the project is governed by FERC licenses, water rights, contractual commitments, and stakeholder demands. FERC licenses include minimum flow requirements, as well as higher minimum storage levels in summer to support recreation. Although SCE has rights to utilize the water for electricity generation it has *de minimis* consumptive water rights. After SCE utilizes the water for generation it flows into Millerton Lake, which is managed by the U.S. Bureau of Reclamation ("USBR"). The USBR coordinates with Big Creek on its water planning to help satisfy the downstream agricultural water demands. The Mammoth Pool Contract determines the limits or floors on seasonal carry-over storage that applies to the entire Big Creek project. Other stakeholders in the Big Creek project include, but are not limited to, the U.S. Forest Service, the California Water Board, California Department of Fish and Wildlife, California Division of Safety of Dams, and water recreation-related stakeholders.

October 1 is considered the beginning of the water year for water planning purposes (and thus September 30 is the last day of the water year). In the fall and winter precipitation accumulates primarily as snow but also as rain. Snowpack is usually more advantageous for hydroelectric power since the precipitation is "stored" in the mountains enabling more reservoir flexibility and better planning of hydro power generation. By contrast, rain results in quicker increases in reservoir storage. Spring is primarily the time when snow melts though some precipitation can occur in spring as well. Early in the water year, there is a lot of uncertainty around the reservoir inflow forecasts. The further along into the water year, the narrower is the uncertainty. As a rule, water years are challenging to forecast. For example, some years have had huge snowstorms in December but then the water year turned out to be very dry overall. Conversely, SCE has also seen years when by February 28 there was very little snowpack followed by record precipitation in March resulting in a drought year turning into a normal water year. Dealing with such uncertainties is an integral part of water management.

SCE's remaining hydro resources are in the Bishop and Mono Basin areas of the eastern Sierra Nevada Mountains, the Kern, Kaweah, and Tule River areas in the southern Sierra Nevada Mountains, and the Ontario, San Bernardino, and Banning areas in the San Gabriel and San Bernardino Mountains. These plants are connected to SCE's sub-transmission or distribution systems and collectively total approximately 161 MW of generating capacity, or about 14 percent of SCE's hydro generation capacity. Most of these resources have operated since the late-nineteenth and early-twentieth centuries. Some of these powerhouses utilize flow from diversion dams on rivers, whereas others utilize flow from relatively small (i.e., as compared to Big Creek) storage dams.

Due to the smaller size of the dams and operational constraints, most of these powerhouses are operated as run-of the-river plants. In those cases, the diversions will route from the stream to the powerhouse using the volume of water available to maximize generation. However, if the unit is in an outage, this will result in outage bypassed energy. If the flow in the stream or volume available from the reservoir is less than the maximum capacity of the powerhouse, or a unit is on standby due to low water flow, the unit outage does not result in outage bypassed energy.

2. <u>Water Supply Variability</u>

When considering the impact of drought on SCE's Big Creek hydroelectric operation, multi-year droughts are the most impactful since there are few mitigation options. To better understand the likelihood of having multi-year dry spells, SCE has used the 2012 to 2015 drought period as reference. SCE looked at two different metrics: methodologic drought, which looks at precipitation values compared to normal precipitation; and hydrological drought, which looks at flow values compared to normal flows. High quality and long-term data are scarce. For precipitation, SCE analyzed data from Fresno Yosemite International Airport (1948-2022) and for flows, a U.S. Geological Survey gage at Bear Creek (1921-2021). Bear Creek is an unimpaired headwater stream of the South Fork San Joaquin River.[110] The Bear Creek gaging station is located 7,366.94 feet above sea level with a 52.5 square miles drainage area upstream of the Big Creek project. In contrast, the Fresno Yosemite International Airport station (Fresno station) is located at the downstream of the Big Creek project located 333 feet above sea level.

2012–2015 were the four driest consecutive years on record in California which had significant impacts on California's electric power sector.[111] SCE takes this period as the reference drought. During the 2012 to 2015 drought, total annual precipitation at Fresno station was constantly below 8.2 inches. We assume 8.2 inches of annual precipitation to be the methodologic drought threshold at Fresno station. As shown in Figure III-12 below, precipitation in 25 years out of 74 years of data (34 percent) fall below the 8.2-inch threshold. The 2012 to 2015 drought is the second multi-year event in the 1949 to 2019 period after the 1959 to 1961 drought. 2020-2022 is the last multi-year drought period.

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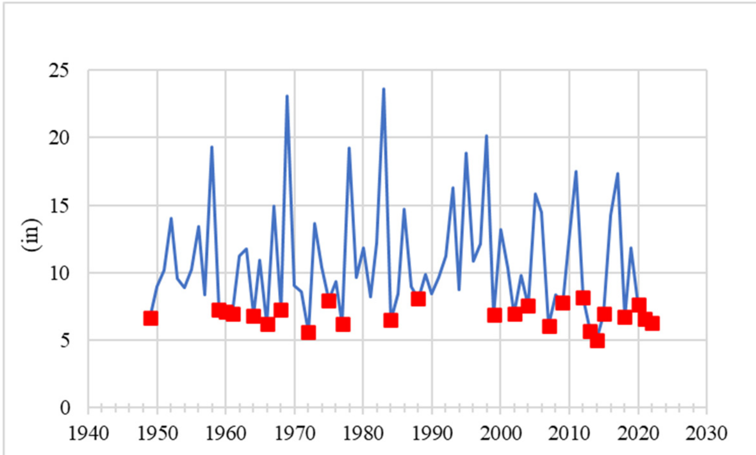
[110] An unimpaired stream is not affected by human interventions like dams and diversions and represents natural flow conditions.

[111] Report to the Legislature on the 2012–2016 Drought As Required by Chapter 340 of 2016, March 2021.

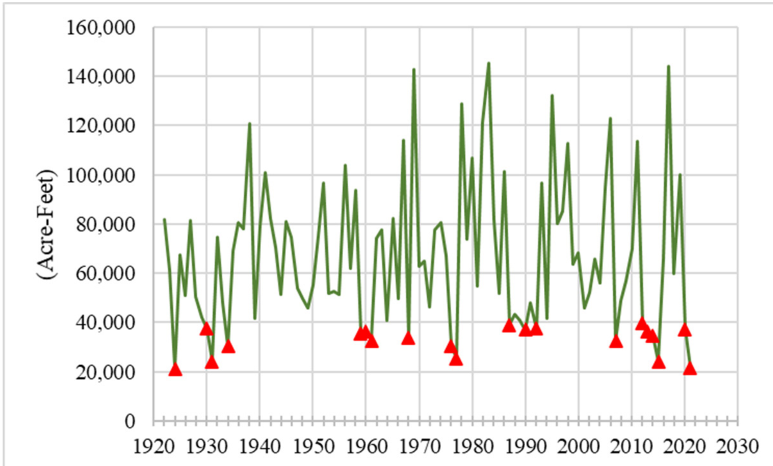
Figure III-12
Historical Annual Precipitation at Fresno Station



Years with red markers are the ones that are as dry as the 2012-2015 period.

During the 2012 to 2015 drought, the total annual flow at Bear Creek gage was below 40,000 acre-feet as shown in Figure III-13 below. SCE assumes 40,000 acre-feet of annual flow to be the hydrological drought threshold at Bear Creek. Out of 100 years of flow data, 20 years (20 percent) fall below the 40,000 acre-feet threshold. The 2012 to 2015 and the 1959 to 1961 droughts are the two multi-year events in the 1921 to 2021 period with three- and four-years length. In addition, 1930 to 1931 and 1976 to 1977 are two-year dry events below the 40,000 acre-feet. 2020 to 2021 is the latest two-year dry period.

Figure III-13
Historical Annual Precipitation at Bear Creek Station

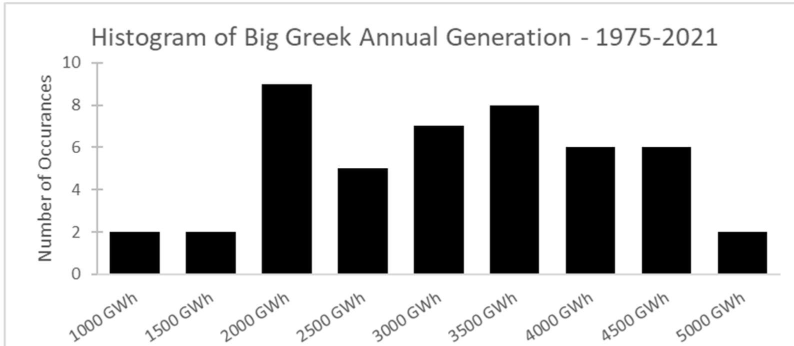


Years with red markers are the ones that are as dry as the 2012-2015 period.

3. Generation Variability

The significant variation in precipitation and streamflow leads to highly variable generation history at Big Creek as shown in Figure III-14 below. The median and mean annual generation is about 3,100 GWh based on the last 25 years of history. Dry years usually correspond to generation under 2,000 GWh and annual generation less than 1,500 GWh typically comes in multi-year droughts. This variation in generation and wholesale market revenue can have an impact on overall energy portfolio cost and GHG emissions.

Figure III-14
Historical Annual Generation at Big Creek – 1975-2021



4. Impact of Variability on Portfolio Costs, Reliability, and GHG Emissions

SCE assumed the normal hydro year condition with approximately 3,100 GWh[112] expected energy from its utility-owned large hydro resources, including Big Creek and Eastwood, for all planning years in its bundled portfolio modeling analysis. In 2030, SCE's utility-owned large hydro resources contribute approximately 5 percent of total energy generated from different types of resources to serve its bundled load. Given dry hydro year conditions, the annual generation from SCE's utility-owned large hydro resources might decrease to around 2,000 GWh, which accounts for approximately 3.2 percent of total energy needed to serve SCE's bundled load in 2030.

From a capacity standpoint, the Commission adopted an optional methodology for calculating the RA capacity of dispatchable hydroelectric resources, which captures the impacts of droughts by using a weighted average calculation based on the previous 10 years of actual availability.[113] For each of month of the previous 10 years, an exceedance calculation is performed on the Availability Assessment Hours to determine the 50 percent and 10 percent availability. The RA value is calculated using a 0.8 weighting of the 50 percent exceedance value and 0.2 weighting of the 10 percent exceedance value. This methodology provides a

[112] The energy values provided in this section refer to the total forecast energy for SCE's hydroelectric resources, including SCE's bundled share and the share that is assumed to be allocated to other LSEs through the VAMO and GHG-allocation process.

[113] *See* D.20-06-031 at OP 10.

conservative estimate of the RA capacity for hydro on a forward basis, which can be updated in the monthly RA filing as actual inflows are experienced.

In addition to SCE's utility-owned hydro resources, SCE receives 13.5 percent (up to 280 MW) of the capacity of the Hoover Dam, located on the Colorado river between Nevada and Arizona. SCE's Hoover share not only contributes to SCE's system RA requirements, but also provides energy to serve SCE's bundled load.

In general, SCE's hydro generation represents a relatively small percentage share of SCE's total supply-side resources. The hydro variability might lead to deviations of the total annual energy from hydro generation resources, resulting in higher or lower GHG emissions and procurement costs. However, the overall impact of hydro variability on SCE's 25 MMT and 30 MMT Bundled Portfolios should not be significant.

In the Commission's 2021 PSP portfolio, large in-state hydro contributes about 5 percent of total 2030 energy and approximately 6 percent of the total capacity of the portfolio in 2030. In SCE's 25 MMT and 30 MMT Bundled Portfolios large in-state hydro contributes approximately 2.4 percent of total energy and approximately 8 percent of the total capacity in 2030.

J. <u>Long-Duration Storage Planning</u>

To address midterm reliability needs in the CAISO system, LSEs under the Commission's IRP purview are required to procure at least their share of 11,500 MW of additional September net qualifying capacity, with at least 2,000 MW online by August 1, 2023, an additional 6,000 MW online by June 1, 2024, an additional 1,500 MW online by June 1, 2025, and an additional 2,000 MW online by June 1, 2026.[114] Of the 2,000 MW of long-lead time resources to come online in 2026, 1,000 MW must be from long-duration storage and 1,000 MW must be from zero-emissions or RPS-eligible generation resources with at least an 80 percent

[114] *See* D.21-06-035 at OP 1.

capacity factor.[115] With the addition of Western Community Energy's and the City of Baldwin Park's procurement requirements due to their deregistration as community choice aggregators ("CCAs"), SCE's total share of the procurement requirement is 4,052 MW with 705 MW online by August 1, 2023, 2,114 MW by June 1, 2024, 529 MW by June 1, 2025, and 705 MW of long-lead time resources by 2026 (of which half must be from long-duration storage).[116]

SCE is procuring to meet its 2023-2024 midterm reliability procurement requirements through its 2021 Midterm Reliability RFO. In October 2022, SCE is planning to launch another RFO to solicit for its 2025 and 2026 midterm reliability procurement requirements, which includes procuring 352-353 MW of long-duration storage to come online by June 1, 2026, as required under D.21-06-035.[117] SCE will solicit offers for long-duration battery storage and pumped storage that can meet the requirements in D.21-06-035.

SCE's 25 MMT Bundled Portfolio includes more incremental long-duration storage than what is needed to meet the Required Procurement. Beyond the Required Procurement, 302 MW in 2030 and 664 MW in 2035 of incremental long duration storage are selected as shown in Section III.A.2. The addition of long-duration storage for SCE's bundled needs is due to SCE's bundled load shape and baseline resource additions, which results in additional need for peaking and clean energy resources compared to the CAISO system portfolio. SCE's 30 MMT Bundled Portfolio also includes more incremental long-duration storage than the Required Procurement totals. Beyond Required Procurement, 275 MW in 2030 of incremental long duration storage are selected as shown in Section III.A.3. The 30 MMT Bundled Portfolio does not select any additional long-duration storage after 2030, but does include additional offshore wind.

As further explained in Section IV.A, SCE requests authority to begin procuring the incremental resource additions identified in SCE's 25 MMT Bundled Portfolio after completion of its Midterm Reliability RFOs. To achieve the least-cost, best-fit portfolio for its customers,

[115] *See id.* at OP 2.
[116] *See id.* at 57. This is inclusive of a minimum of 880 MW of zero-emitting capacity by 2025.
[117] The decision provides for a possible extension of the online date for the long-lead time resources to June 1, 2028. *See id.* at OP 5.

SCE procures on a technology-neutral basis and does not support resource-specific carve-outs. SCE intends to solicit resources that can provide the attributes provided by the long-duration storage identified in SCE's 25 MMT Bundled Portfolio. SCE's procurement decisions will be made based on the market response to achieve the best procurement solution for its customers.

K. Clean Firm Power Planning

Clean, firm power is an important part of the resource mix today and the clean energy and reliability characteristics of this category will continue to be important through the IRP planning window. SCE developed its portfolios by selecting the most cost-effective combination of clean-firm, clean non-firm, variable, and baseload generation to meet capacity and energy needs, while reducing GHG emissions and maintaining reliability. Clean firm resources have the potential to contribute to reliability across all hours of the day and reduce emissions from other resources. While clean firm resources are subject to forced outages and other issues typical of industrial facilities, they are not impacted by weather events and as such reduce the risk to the grid during such events compared with an equivalent non-firm portfolio. SCE's assumptions on resource potential and cost are consistent with the Commission's LSE Filing Requirements.
As shown in Sections III.A.1, III.A.2, and III.A.3, neither SCE's 25 MMT CAISO System-Wide Portfolio nor SCE's 25 MMT and 30 MMT include any incremental clean firm power additions beyond the Required Procurement.

As discussed in the previous section, SCE's midterm reliability procurement requirements include 352-353 MW of zero-emissions or RPS-eligible generation capacity that has at least an 80 percent capacity factor. SCE's 25 MMT and 30 MMT Bundled Portfolios include 379 MW of geothermal nameplate capacity to meet this requirement. SCE intends to solicit offers for resources that can meet this requirement, including geothermal, as part of its Midterm Reliability RFO to be launched in October 2022. SCE's 25 MMT and 30 MMT Bundled Portfolios also include existing clean firm power resources such as geothermal, biomass, and nuclear.

As Commission staff identified in the recent Modeling Advisory Group webinar on the 2022 IRP Inputs and Assumptions,[118] there are several potential clean firm generation resources that may be included in future planning. New resource types identified include enhanced geothermal, small modular nuclear, and hydrogen. SCE will be monitoring the development of these and any other emerging technologies that could cost-effectively fit into its bundled portfolio.

Finally, SCE suggests that for future procurement needs, the selection of clean firm power resources can increase with an expanded description of the resource to include innovative combinations of resources and a lower portion than maximum capacity to be credited as a clean energy resource. Namely, clean firm power does not have to be a single resource but could be a combination of resources that are not weather dependent and can provide an 80 percent capacity factor. Clean firm power may not necessarily need to be the maximum output of a generation facility, there may be plant configurations or conditions where a portion of the plant could be considered clean firm power. For example, a smaller portion of a larger resource could qualify (e.g., 20 MW always running of a 200 MW plant).

L. Out-of-State Wind Planning

SCE included out-of-state wind as a candidate resource in both its CAISO system-wide analysis and its 25 MMT and 30 MMT Bundled Portfolios. SCE's assumptions on resource cost and potential are consistent with the Commission's assumptions, including assumptions on the cost, timing, and potential for out-of-state wind. No new out-of-state wind was selected in SCE's optimized CAISO-system level buildout, SCE's 25 MMT Bundled Portfolio, SCE's 30 MMT Bundled Portfolio, or the Additional TE incremental build-out. SCE did conduct a sensitivity by arbitrarily limiting in-state resources and in this scenario out-of-state wind was selected, meaning there may be some new resource supply conditions where out-of-state wind would be selected economically.

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[118] *See* 2022 I&A at 24-30.

M. **Offshore Wind Planning**

As discussed in Sections III.A.1, SCE's 25 MMT CAISO System-Wide Portfolio build-out includes 1,947 MW of new offshore wind in 2030 increasing to a cumulative 7,348 MW by 2035. SCE's assumptions on resource cost and potential are consistent with the Commission's assumptions, including assumptions on the cost, performance, and potential for offshore wind. SCE's model identifies offshore wind as more economic and optimal compared to other resources such as solar paired with storage due to the Commission's cost and performance assumptions and SCE's use of a 24-hour slice reliability framework. Specifically, offshore wind is selected economically as soon as it is assumed to be available due to its high energy contribution during the evening and late-night peak hours – hours that are not directly considered under a single-point PRM reliability construct – as well as its ability to reduce GHG emissions.[119] The offshore wind additions in SCE's 25 MMT CAISO System-Wide Portfolio are generally consistent with the preliminary planning goal range of 2,000-5,000 MW by 2030 set by the CEC.[120]

SCE cannot independently verify the Commission's cost, performance, and potential assumptions for offshore wind and didw not make any modifications to those assumptions in its modeling. If the cost, performance, or potential for offshore wind is worse than assumed, the optimal selection would likely shift away from offshore wind. SCE encourages the Commission to continue to work with other state agencies such as the CEC to refine these assumptions while adopting policies to facilitate offshore wind development.

SCE's 25 MMT Bundled Portfolio build-out also includes 501 MW of incremental offshore wind in 2030 increasing to a cumulative 1,798 MW in 2035. SCE's 30 MMT Bundled

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[119] SCE ran an additional "no offshore wind" sensitivity on its 25 MMT CAISO System-Wide Portfolio that assumes offshore wind is not available in the 2022-2035 planning horizon. In that sensitivity, SCE's model replaced nearly all of the offshore wind with out-of-state wind.

[120] *See* Offshore Wind Energy Development off the California Coast, Maximum Feasible Capacity and Megawatt Planning Goals for 2030 and 2045, August 2022, at 5, available at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=244285.

Portfolio build-out includes 501 MW of incremental offshore wind increasing to a cumulative 1,898 MW in 2035.

SCE's capacity expansion modeling applies the Commission's assumptions on the offshore wind resource costs. The north coast and central coast offshore wind costs are similar. For the purposes of transmission planning, SCE assumes the offshore wind resources in SCE's bundled portfolios will be interconnected at the Diablo Canyon 500 kV substation.

N. Transmission Planning

Any known transmission upgrades for SCE's contracted resources, including online date, are included in the RDTs included as Appendices B.1 and B.2. For both SCE's 25 and 30 MMT Bundled Portfolios, incremental resources within SCE transmission zones were strategically placed to avoid exceeding known transmission capability limits and short circuit duty constraints when possible and to minimize transmission upgrades. SCE utilized the full capacity deliverability status ("FCDS") capability estimates from CAISO's latest transmission capability white paper,[121] as well as the Commission's Preferred System Plan and Portfolios for 2022-23 Transmission Planning Process[122] as guides to locate new resources within transmission zones. SCE evaluated the feasibility of siting these new resource amounts and their impact to the transmission system by modifying and utilizing power flow base cases that were originally developed for the annual CAISO TPP.

This limited analysis did not consider Category P1-P7[123] contingency outages since Remedial Action Schemes ("RAS") would be used to address any thermal overloads or stability

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[121] *See* Transmission Capability Estimates for use in the CPUC's Resource Planning Process white paper, October 28, 2021, available at: https://www.caiso.com/Documents/RevisedWhitePaper-2021TransmissionCapabilityEstimates-CPUCResourcePlanningProcess.pdf.

[122] Preferred System Plan and Portfolios for 2022-23 Transmission Planning Process, available at: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/long-term-procurement-planning/2019-20-irp-events-and-materials.

[123] Category P1-P7 contingencies are defined in the North American Electric Reliability Corporation reliability standard TPL-001-5.1, available at: https://www.nerc.com/pa/Stand/Reliability%20Standards/TPL-001-5.1.pdf.

issues during single or double facility outage conditions, consistent with the generation interconnection process. This assumes that such RAS can be implemented simply and manageably, which was additionally not examined within the scope of this analysis. Furthermore, a significant amount of resources were sited on 500 kV Buses in order to avoid triggering bulk level transformer banks, resources were placed in a manner not to exceed CAISO single and double facility outage generation tripping limitations, and new energy storage was assumed to offset the power flow impacts of additional generation resources.[124] Utilizing CEC busbar mapping as a guide,[125] resource capacity was placed away from known transmission constraint areas as much as possible and allocated down to the busbar level. Table III-31 shows the placement of capacity additions in each SCE transmission zone for the 25 MMT Bundled Portfolio.

Table III-31
Busbar Placement of 25 MMT Bundled Portfolio

Resource Type	MW in 2035	SCE Transmission Zone	Substation Bus	MW	Additional Transmission Needs
Geothermal	379	Eastern	Red Bluff 500 kV	379	New generation resources would require RAS participation, which would be timed with each individual generator. Furthermore, the Antelope-Vincent 500 kV line rating increase ($15 M) and upgrading five 500 kV circuit breakers at Mira Loma Substation ($10 M) would also
Offshore Wind	1,798	PG&E	Diablo Canyon 500 kV	1,798	
Solar	8,229	Eastern	Colorado River 500 kV	1,009	
			Red Bluff 500 kV	1,000	
		East of Pisgah	Ivanpah 230 kV	300	
			Primm 230 kV	300	
			Mohave 500 kV	2,070	
			Eldorado (SCE) 230 kV	550	
			Eldorado 500 kV	1,000	
		Northern	Antelope 500 kV	500	
			Whirlwind 230 kV	500	
			Whirlwind 500 kV	1,000	

124 CAISO Planning Standards limit RAS tripping to 1,150 MW for single contingencies and 1,400 MW for double contingencies. See *California ISO Planning Standards,* September 6, 2018, at 11, available at http://www.caiso.com/Documents/ISOPlanningStandards-September62018.pdf.

125 Available in "Dashboard_BUSBARALLOCATION_30MMTEO2-V2.1.xlsx" at: ftp://ftp.cpuc.ca.gov/energy/modeling/Dashboard_BUSBARALLOCATION_30MMTEO2-V2.1.xlsx.

Resource Type	MW in 2035	SCE Transmission Zone	Substation Bus	MW	Additional Transmission Needs
Wind	460	Northern	Whirlwind 230 kV	100	be needed by or before year 2035 depending on how actual generation development occurred.
		North of Lugo	Calcite 230 kV	180	
			Kramer 230 kV	180	
Short Duration Energy Storage	1,775	Eastern	Colorado River 500 kV	375	
		Metro	Hinson 230 kV	200	
			Walnut 230 kV	200	
		Northern	Antelope 500 kV	500	
			Whirlwind 230 kV	500	
Short Duration Energy Storage	1,042	Eastern	Colorado River 230 kV	42	
		Northern	Vincent 500 kV	500	
		North of Lugo	Lugo 500 kV	500	
Long Duration Energy Storage	275	East of Pisgah	Ivanpah 230 kV	275	
Long Duration Energy Storage	826	East of Pisgah	Eldorado (SCE) 230 kV	326	
		Metro	Laguna Bell 230 kV	500	
Total MW =	**14,784**				

The analysis demonstrates that these capacity additions in SCE's planning area can be accomplished with minimal transmission network upgrades and RAS. The expected transmission network upgrades include the Antelope-Vincent 500 kV line rating increase and upgrading five 500 kV circuit breakers at Mira Loma Substation, which would be needed for both the 25 MMT and 30 MMT Bundled Portfolios. These upgrades would be required by or before the year 2035, depending on how actual generation development occurred. The upgrade costs do not include estimates of the RAS nor was RAS feasibility within the scope of this analysis. This conclusion is dependent upon the precise placement and amount of resources as demonstrated above. Any deviation from what is shown would require an additional transmission system analysis and may necessitate additional transmission upgrades to mitigate local area or export transmission grid reliability issues. Furthermore, since the 25 MMT and 30 MMT Bundled Portfolios reflect SCE's bundled load share only, a subset of the overall SCE TAC area load, transmission upgrades may still be required and identified through the ongoing CAISO TPP to collectively support the resource needs of all LSEs.

IV.

ACTION PLAN

SCE's action plan describes the activities to successfully implement SCE's 25 MMT Bundled Portfolio (and 30 MMT Bundled Portfolio), including proposed procurement activities and potential barriers, DACs, and requested Commission direction. SCE urges the Commission to adopt a 25 MMT 2035 GHG target for all LSEs and as the basis for the PSP and to approve SCE's 25 MMT Bundled Portfolio.

A. Proposed Procurement Activities and Potential Barriers

This section discusses SCE's proposed procurement activities and other programs to implement its 25 MMT Bundled Portfolio.[126] As further discussed below, SCE is procuring to meet its 2023-2024 midterm reliability procurement requirements pursuant to its 2021 Midterm Reliability RFO and expects to launch another RFO to meet its 2025-2026 midterm reliability procurement requirements in October 2022. SCE requests Commission approval to begin conducting procurement to meet the incremental needs identified in SCE's 25 MMT Bundled Portfolio after completion of its Midterm Reliability RFOs.

SCE uses a least-cost, best-fit approach to evaluate and select the resources that will best meet a specified need through competitive solicitations. SCE procures on a technology-neutral basis to select the least-cost, best-fit resources to meet the identified procurement need. It is not beneficial or realistic to procure the exact resource mix identified in a long-term resource plan. SCE's procurement will ultimately be determined by what offers it receives from developers and the actual resources and proposed pricing may not match up with the assumptions used in IRP analysis, especially when procurement often occurs months or years after an IRP portfolio is

[126] SCE recommends the Commission approve its 25 MMT Bundled Portfolio; however, if the Commission approves SCE's 30 MMT Bundled Portfolio, SCE requests the same procurement authority for that portfolio.

developed. Moreover, imposing technology carve-outs increases costs for customers at a time when there is already upward pressure on rates and bills.

Therefore, SCE seeks authority to begin procuring to meet the incremental needs and attributes identified in its 25 MMT Bundled Portfolio, but to provide the most value to its customers, should not be restricted to the specific resource types or year-to-year build-out in the modeled portfolio. SCE's procurement strategy is to use the 25 MMT Bundled Portfolio as a guide for the resource attributes and quantities that are needed for its bundled service customers and procure the best-fit resources that are available at the least-cost at the time of procurement.

Due to the quantity of clean energy and storage resources to be added to SCE's portfolio over the next 10+ years, SCE requests flexibility in procuring to meet the needs identified in its Commission-approved portfolio. SCE should have the option to hold annual solicitations based on market conditions, but to make a final determination on whether to hold a solicitation and how much of its need to procure in each solicitation based on the market response. Typically, SCE procures ratably over time, but flexibility in distributing procurement over a longer period affords SCE increased optionality to procure higher quantities when solicitations return competitive prices (or less when prices are higher than expected). For example, the procurement may be lumpier rather than smooth, e.g. if more attractive pricing is received in a certain time period because of the Investment Tax Credit, because of quantities offered in a solicitation, or another factor in the market.

Allowing SCE the flexibility to pursue this type of economic and cost competitive procurement will help minimize customers' rates and maximize value. There are also other important benefits of this flexible approach. Distributing procurement over multiple years helps minimize interconnection process constraints. Spreading procurement across multiple years may also mitigate commercial development risk. To address the likelihood that some procured resources may be delayed past their commercial online dates or default entirely, it may be necessary to procure more resources than forecasted in SCE's Commission-approved portfolio. Flexibility to procure more in early years if pricing proves competitive will mitigate the potential cost impacts of project delays or failures on SCE's bundled service customers. Finally, SCE, as an IOU, is competing for resources from other LSEs such as CCAs that have more flexibility in their procurement process that makes them nimbler. Allowing some flexibility allows SCE to partially close this competitive advantage.

As discussed in Section I.F, the Commission should establish a clearer link between planning and procurement that provides well-defined guidelines on how LSEs' IRPs will be operationalized, LSEs' responsibilities to enact their plans and not lean on the system, and requirements for ensuring that LSEs are pursuing the procurement and other action plans set forth in their IRPs and that those resources are coming online as expected. SCE supports a flexible procurement program that addresses reliability and clean energy need determination, allocation, and procurement compliance requirements. Deliberate procurement decisions resulting from reliable modeling paired with a framework with clear compliance and enforcement mechanisms will help the Commission ensure LSEs successfully achieve their plans to procure their share of clean energy and reliability resources. The procurement program should allow LSEs to procure based on their IRPs, but provide flexibility to adjust resource types and quantities based on market demand or operating variables.

SCE will include its detailed recommendations for a flexible procurement program in comments on Commission staff's recently issued Reliable and Clean Power Procurement Program Staff Options Paper.[127] SCE urges the Commission to act expeditiously to adopt and implement a flexible procurement program so that LSEs can meet any resource needs identified in this IRP cycle through the procurement program, and IOUs can receive procurement authority under the program. This will avoid the need to order additional procurement outside the normal IRP process as was necessary in D.19-11-016 and D.21-06-035. If the flexible procurement program is not in place upon approval of SCE's IRP, SCE requests Commission approval to

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[127] *See* Administrative Law Judge's Ruling Seeking Comments on Staff Paper on Procurement Program and Potential Near-Term Actions to Encourage Additional Procurement, R.20-05-003, September 8, 2022, Attachment A.

begin procuring to meet the needs in identified in its 25 MMT Bundled Portfolio under the flexible approach discussed above.

SCE discusses its planned procurement activities and programs and potential risk and barriers for various resource categories in the sections below.

1. Resources to meet D.19-11-016 procurement requirements

In D.19-11-016, the Commission required LSEs to procure at least their share of 3,300 MW of incremental system RA capacity for system reliability and renewable integration, with at least 50 percent delivered by August 1, 2021, 75 percent delivered by August 1, 2022, and 100 percent delivered by August 1, 2023.[128] SCE's total procurement requirement is 1,184.7 MW, and SCE was also required to procure a total of 56.6 MW on behalf of LSEs who were permitted to opt-out of their procurement requirements and have the relevant IOU procure on their behalf with the costs allocated to their customers under a modified CAM.[129]

SCE procured a total of 1,267.6 MW of incremental system RA capacity from stand-alone energy storage resources, energy storage resources co-located with existing solar resources, and demand response resources in its System Reliability RFO to meet SCE's D.19-11-016 procurement requirements and its procurement requirements on behalf of opt-out LSEs.[130] As detailed in SCE's August 1, 2022 compliance filing[131] and RDTs included as Appendices B.1 an B.2, all of SCE's 2021 contracts are now online. One of SCE's 2022 contracts, the 200 MW Sonoran West Solar Holdings, LLC Crimson project, was not yet online as of August 1, 2022 but has since come online. Another 2022 contract, the 60 MW Silver Peak Solar, LLC Eldorado Valley is delayed as explained in SCE's August 1, 2022 compliance filing.[132]

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[128] *See* D.19-11-016 at OP 3.

[129] *See id.*; Administrative Law Judge's Ruling Finalizing Load Forecasts and Greenhouse Gas Benchmarks for Individual 2020 Integrated Resource Plan Filings and Assigning Procurement Obligations Pursuant to Decision 19-11-016, R.16-02-007, April 15, 2020, at 11.

[130] *See* Resolution E-5101; Resolution E-5142.

[131] *See* Southern California Edison Company's (U 338-E) Compliance Filing Pursuant to Decision 19-11-016 and Decision 20-12-044, R.20-05-003, August 1, 2022.

[132] *See id.*, Appendix C.3.

2. **Resources to meet D.21-06-035 procurement requirements**

To address midterm reliability needs in the CAISO system, LSEs under the Commission's IRP purview are required to procure at least their share of 11,500 MW of additional September net qualifying capacity, with at least 2,000 MW online by August 1, 2023, an additional 6,000 MW online by June 1, 2024, an additional 1,500 MW online by June 1, 2025, and an additional 2,000 MW online by June 1, 2026.[133] Of the 2,000 MW of long-lead time resources to come online in 2026, 1,000 MW must be from long-duration storage and 1,000 MW must be from zero-emissions or RPS-eligible generation resources with at least an 80 percent capacity factor.[134] With the addition of Western Community Energy's and the City of Baldwin Park's procurement requirements due to their deregistration as CCAs, SCE's total share of the procurement requirement is 4,052 MW with 705 MW online by August 1, 2023, 2,114 MW by June 1, 2024, 529 MW by June 1, 2025, and 705 MW of long-lead time resources by 2026 (of which half must be from long-duration storage).[135]

SCE is procuring to meet its 2023-2024 midterm reliability procurement requirements through its 2021 Midterm Reliability RFO. SCE has executed contracts for its 2023 and 2024 midterm procurement requirements[136] and is continuing to execute contracts on an ongoing basis. In October 2022, SCE is planning to launch another RFO to solicit for its 2025 and 2026 midterm reliability procurement requirements.

As the Commission recognized in a recent Administrative Law Judge's Ruling, LSEs are currently procuring in a very challenging market environment.[137] Numerous LSEs are competing to meet several large and overlapping procurement requirements, including 3,300 MW to come online between 2021 and 2023 pursuant to D.19-11-016, 11,500 MW to come

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133 *See* D.21-06-035 at OP 1.
134 *See id.* at OP 2.
135 *See id.* at 57. This is inclusive of a minimum of 880 MW of zero-emitting capacity by 2025.
136 *See* Resolution E-5205; Resolution E-5225; SCE Advice 4850-E; SCE Advice 4680-E.
137 *See* Administrative Law Judge's Ruling Seeking Comments on Staff Paper on Procurement Program and Potential Near-Term Actions to Encourage Additional Procurement, R.20-05-003, September 8, 2022, at 7-9.

online between 2023 and 2026 pursuant to D.21-06-035, and a 2,000 to 3,000 MW IOU emergency reliability targets for summer 2022 and 2023 pursuant to D.21-12-015. As the Administrative Law Judge's Ruling recognizes, LSEs and developers are facing exogenous factors that make achieving these procurement requirements difficult, including supply chain impacts on the availability of raw materials, import investigations with respect to solar panels, tightening of the economy in the face of inflation, and increased demand for clean energy resources throughout the west and globally.[138]

In particular, batteries are in greater demand globally and with COVID-19, the increase in interest in electric vehicles, and generally supply chain issues, the strain on the supply chain for batteries is intensifying. The pricing of lithium carbonate has increased dramatically, approximately 450 percent since the adoption of D.21-06-035.[139] Additionally, CAISO Queue Cluster 14 has more than three times the number of interconnection requests as the previous annual average.[140] As a result, Queue Cluster 14 timelines have been delayed significantly,[141] and Queue Cluster 15, which was to begin in 2022, has been pushed out to 2023. Further, requests in Queue Cluster 15 are expected to be similar to those in Queue Cluster 14, which will likely delay Queue Cluster 15 timelines as well.

All of these factors present potential barriers and risks to midterm reliability procurement and other near-term procurement. The Commission could help to alleviate these challenges by adopting the Administrative Law Judge's Ruling proposal to reframe the baseline for D.19-11-

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138 *See id.* at 8-9.

139 *See* https://tradingeconomics.com/commodity/lithium, approximately 90,000 CNY/T on June 24, 2021 and approximately 500,000 CNY/T on September 16, 2022.

140 *See* Decision on Cluster 14 Interconnection Procedures, July 15, 2021, at 3, available at: http://www.caiso.com/Documents/Decision-Cluster-14-Interconnection-Procedures-Presentation-July-2021.pdf.

141 *See id.* at 5.

016 and D.21-06-035 procurement with the modifications and clarifications suggested by SCE and the other recommendations in SCE's comments.[142]

a) 1,000 MW of firm zero-emitting resource requirements

As explained in Section III.K, SCE's midterm reliability procurement requirements include 353 MW of zero-emissions or RPS-eligible generation capacity that has at least an 80 percent capacity factor. SCE's 25 MMT and 30 MMT Bundled Portfolios include 379 MW of geothermal nameplate capacity to meet this requirement. SCE intends to solicit offers for resources that can meet this requirement, including geothermal, as part of its Midterm Reliability RFO launched in October 2022.

In addition to potential risks and barriers discussed in Section IV.A.2 above, there are other potential risks and barriers associated with this resource category. Geothermal resources are likely to be the primary resources that can meet this requirement. However, it is questionable whether new geothermal generation, along with any transmission infrastructure necessary to bring the generation into the CAISO system, can be built by 2026. In addition, there are likely a very limited number of geothermal projects able to be built within the CAISO, which means all LSEs will be vying for the same limited number of resources. Indeed, many geothermal sources are located outside of the CAISO and it is unclear what the cost and timing feasibility would be to build the transmission infrastructure to bring a large amount of energy to the CAISO system.

b) 1,000 MW of long-duration storage resource requirements

As explained in Section III.J, SCE's midterm reliability procurement requirements include 353 MW of long-duration storage. SCE intends to solicit offers for resources that can meet this requirement as part of its Midterm Reliability RFO launched in October 2022. SCE's

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[142] *See* Comments of Southern California Edison Company (U 338-E) in Response to ALJ Ruling Seeking Comment on Potential Near-Term Actions to Encourage Additional Procurement, R.20-05-003, September 26, 2022; Reply Comments of Southern California Edison Company (U 338-E) in Response to ALJ Ruling Seeking Comment on Potential Near-Term Actions to Encourage Additional Procurement, R.20-05-003, October 6, 2022.

25 MMT Bundled Portfolio also includes cumulative incremental long-duration storage additions above the Required Procurement of 302 MW in 2030 and 664 MW in 2035.[143] SCE intends to solicit resources that can provide the attributes provided by the long-duration storage identified in SCE's 25 MMT Bundled Portfolio through the flexible procurement approach discussed in Section IV.A. In addition to the potential barriers and risks discussed in Section IV.A.2, there are other potential risks and barriers associated with this resource category. For instance, certain technologies have large capital costs that require very long periods of operation to recoup these costs. These projects often take many years to develop with many layers of federal, state, county and city approvals needed. In addition to the extended development timeline, and the high capital costs, many of these emerging technologies are still in the prototype phase of development and are unproven to be commercially viable. These types of projects have not been widely adopted; nor have they obtained funding from large financial institutions.

c) 2,500 MW of zero-emissions generation, generation paired with storage, or demand response resource requirements

To ensure the capacity retiring at the Diablo Canyon Nuclear Power Plant is replaced entirely with zero-emitting resources, D.21-06-035 requires all LSEs to collectively procure a minimum of 2,500 MW of incremental zero-emissions capacity to come online by 2025, out of the total 11,500 MW of midterm reliability procurement required in the decision.[144] With the addition of Western Community Energy's and the City of Baldwin Park's procurement requirements, SCE's procurement requirement for zero-emitting capacity is 880 MW.[145]

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[143] SCE's 30 MMT Bundled Portfolio includes cumulative incremental long-duration storage additions above the Required Procurement of 275 MW in 2030.

[144] *See* D.21-06-035 at OP 6. The decision provides that the "zero-emitting capacity shall have the following characteristics: (a) Be from a generation resource, a generation resource paired with storage (physically or contractually), or a demand response resource; (b) Be available every day from 5 p.m. to 10 p.m. (the beginning of hour ending 1800 through the end of hour ending 2200), Pacific Time, at a minimum; (c) Be able to deliver at least 5 megawatt-hours of energy during each of these daily periods for every megawatt of incremental capacity claimed." *Id.*

[145] *See id.* at 57.

In compliance with the decision, SCE intends to contractually pair separate energy storage contracts and renewable generation contracts to meet the Diablo Canyon replacement requirements set forth in D.21-06-035. SCE is also considering offers for co-located and hybrid energy storage and renewable generation projects. SCE has already procured energy storage resources and one solar resource meeting this requirement as part of its 2021 Midterm Reliability RFO and intends to procure additional energy storage and renewable resources to meet this requirement in its Midterm Reliability RFO launched in October 2022. The potential risks and barriers associated with this procurement are discussed in Section IV.A.2.

d) All other procurement requirements

SCE discusses its procurement to meet other midterm reliability procurement requirements in D.21-06-035 and potential risks and barriers in Section IV.A.2.

3. Offshore wind

As discussed in Section III.M, SCE's 25 MMT Bundled Portfolio build-out includes 302 MW of incremental offshore wind in 2030 increasing to a cumulative 1,798 MW in 2035.[146] As further explained in Section IV.A, SCE requests authority to begin procuring the incremental resource additions identified in SCE's 25 MMT Bundled Portfolio after completion of its Midterm Reliability RFOs using a flexible procurement approach. To achieve the least-cost, best-fit portfolio for its customers, SCE procures on a technology-neutral basis and does not support resource-specific carve-outs. SCE intends to solicit resources that can provide the attributes provided by the offshore wind identified in SCE's 25 MMT Bundled Portfolio. SCE's procurement decisions will be made based on the market response to achieve the best procurement solution for its customers.

SCE continues to monitor the progress of offshore wind development in the state and believes it is reasonable to assume the amount of offshore wind in SCE's portfolios will be

[146] SCE's 30 MMT Bundled Portfolio build-out also includes 501 MW of incremental offshore wind increasing to a cumulative 1,898 MW in 2035.

developed by the end of the decade. However, there are potential risks and barriers associated with procurement of offshore wind in California. Given the relatively deep ocean floor off the coast of California, development of offshore wind resources will rely on commercialization of the floating offshore wind technology, which is an emerging technology. There are little to no commercial scale floating wind farms globally upon which to validate input costs and performance assumptions that the Commission has required for use in this IRP. The CEC has stated that "[w]hile there is a significant resource potential off the California coast, there are also considerable barriers. Among the foremost challenges are significant anticipated transmission requirements and competing coastal uses, including shipping, fishing, recreation, marine conservation, and Department of Defense activities."[147] In addition to possibly significant transmission requirements, there are also potential risks around permitting, environmental and political considerations, and residential complaints.

SCE cannot independently verify the Commission's cost, performance, and potential assumptions for offshore wind and did not make any modifications to those assumptions in its modeling. If the cost, performance, or potential for offshore wind is different than assumed the optimal selection could shift away from offshore wind. SCE used the Commission's inputs and assumptions for offshore wind in its modeling, but it is unclear if the market will actually offer this amount of offshore wind at the assumed costs, since maintenance costs and equipment failures could be much greater for offshore wind than land-based wind farms have experienced. SCE does not have experience procuring offshore wind and believes there is a risk that costs could be significantly higher than predicted under the Commission's assumptions. SCE continues to support development of various types of resources to meet California's decarbonization goals, however the SCE recommends that the state work to minimize the potential risks and costs to customers.

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[147] Offshore Wind Energy Development off the California Coast, Maximum Feasible Capacity and Megawatt Planning Goals for 2030 and 2045, August 2022, at 29, available at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=244285.

4. Out-of-state wind

SCE continues to monitor the progress of out-of-state wind development and transmission into California. SCE's assumptions on resource cost and potential are consistent with the Commission's assumptions, including assumptions on the cost, timing, and potential for out-of-state wind. No incremental out-of-state wind was selected in SCE's 25 MMT or 30 MMT Bundled Portfolios.

5. Other renewable energy not described above

As described in Sections III.A.2 and III.A.3, both SCE's 25 MMT and 30 MMT Bundled Portfolios identify a need for incremental clean energy resources above the Required Procurement after 2026 to meet GHG emissions targets and RPS or zero-carbon energy requirements. The portfolios also include 460 MW of incremental wind additions by 2026 selected for economic reasons due to the Investment Tax Credit extension.

SCE intends to solicit resources that can provide the attributes of the clean energy resources selected in SCE's 25 MMT Bundled Portfolio after 2026 through the flexible procurement approach discussed in Section IV.A. For the wind resources selected for economic reasons, SCE will continue to conduct its RA procurement and procurement to meet other resource needs on a technology-neutral basis and consider any wind resources that are offered under its least-cost, best-fit methodology. The same potential risks and barriers discussed in Section IV.A.2 apply to this procurement.

6. Other energy storage not described above

SCE's 25 MMT and 30 MMT Bundled Portfolios do not include any incremental energy storage not included in the resource categories above.

7. **Other demand response not described above**

In May 2022, SCE filed an application seeking approval of its Demand Response Business Plan for 2023-2027.[148] SCE has the largest and most diverse utility demand response ("DR") portfolio in California, consisting of over 6,700 MW and 231,000 enrolled customers. SCE has achieved significant strides over the current DR program cycle (2018-2022) and aims to continue its leadership in the DR space. The application reflects a vision of a modernized DR portfolio that preserves and builds upon programs that have proven successful, while modifying aspects of programs with limited results to improve their effectiveness. The proposed portfolio provides stable load reduction over the 2023-2027 cycle with 819 MW capacity average peak, and meets key objectives, including cost-effectiveness, customer adoption, customer experience simplification, and connecting customers with customer-side technologies for broader-based, more automated DR participation. Key features of this application include:

- Core DR programs continuing to support grid reliability, with enhancements to encourage customer retention and new customer enrollment. Portfolio changes intended to move DR participants toward an automated, technology agnostic, mass market approach that seeks to capture the full potential of customer-side DR participation.
- Emergency Load Reduction Program framework remaining stable in the near to medium term, but eventually modified with revised program features to transition from Flex Alert paid media funding to more effective education and outreach campaigns, simplified dispatch methods and incentives, as well as abbreviated event durations, making it more attractive for customer participation and retention.
- Pilots that focus on whole-home/whole-business program concepts and load shift opportunities for water/wastewater customers.

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[148] *See* Application of Southern California Edison Company (U 338-E) for Approval of Demand Response Programs and Budgets for 2023-2027, A.22-05-004, May 2, 2022.

In addition to building on past successes and lessons learned from DR programs, the application takes into account that the electric sector is evolving in terms of customer usage patterns, new technologies, climate change impacts, clean energy targets, and significant expected growth of electricity consumption from electrification of vehicles and buildings. While recognizing the effects of recent climate-driven reliability events, such as those that occurred during the summers of 2020 and 2022, SCE's approach emphasizes the long view, in which DR helps underpin the stability of the electric system beyond emergency situations.

SCE considered environmental factors in developing a portfolio that must address future load requirements, as SCE pursues its path to supporting California's 2030 and 2045 clean energy goals. As emphasized in SCE's Pathway 2045 white paper,[149] SCE projects a 60 percent increase in electricity consumption with a 40 percent increase in peak load by 2045, resulting from the growth of electrification necessary to achieve the state's GHG reduction goals. This incremental load is significant in scale and requires judicious short- and long-term planning to ensure SCE customers and California can enjoy the benefits of reliable, safe, and clean electricity.

Lastly SCE's proposed portfolio focuses on enabling customers to meet their energy needs. SCE's proposed plan demonstrates cost-effectiveness, adherence to Commission directives, and strategic positioning as consequential elements of a portfolio needed to enhance grid reliability and safety, not only in the near term, but also to develop foundational capabilities required for future DR portfolio expansion, including greater participation, reduced attrition, and flexibility.

8. Other energy efficiency not described above

In March 2022, SCE filed an application seeking approval of its Energy Efficiency Business Plan for 2024-2031, which includes desired outcomes for the entire energy efficiency

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[149] SCE's 2045 Pathway analysis white paper and appendices are available at: https://www.edison.com/home/our-perspective/pathway-2045.html.

portfolio, along with a description of strategies for building decarbonization, market intervention, energy efficiency adoption, GHG reduction, innovation, and program management.[150] The Business Plan forecasts achieving $3,021 million in Total System Benefit ("TSB"), which reflects the value associated with GHG reduction based on the time-of-day, 5,807 GWh and 1,253 MW savings, and an overall 11.03 million tons of GHG emissions reduction.

SCE's vision for the Business Plan is to lead the development of a robust energy efficiency portfolio to address key customer, technology, and policy needs to meet the state's energy and environmental goals. The Business Plan aligns with the Commission's intent to "aggressively pursue all potentially achievable cost-effective energy savings opportunities, particularly from fuel substitution measures that have thus far gone untapped."[151] It also focuses on substantially contributing to the requirements of SB 350 (2015), which set targets for California to double the energy efficiency in the residential, commercial, and industrial sectors.[152] SCE's Business Plan builds on its own analysis of the steps that California must take to meet the state's 2045 clean energy goals and reach carbon neutrality, as well as several other actions relating to energy efficiency. SCE's Pathway 2045 whitepaper states that "[d]ecarbonization is achieved through powering 100% of retail sales with carbon-free electricity, electrifying transportation and buildings, and using low-carbon fuels for technologies that are not viable for electrification."[153] Customer adoption of energy efficiency programs plays a key role in this approach, because both building and transportation electrification require energy to be used as efficiently as possible to minimize the incremental clean energy resources required to meet this new demand.

As a follow-up to SCE's Pathway 2045 analysis, in September 2021, Edison International, SCE's parent company, released Mind the Gap: Policies for California's

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[150] *See* Application of Southern California Edison Company (U 338-E) for Approval of its 2024-2031 Energy Efficiency Business Plan and 2024-2027 Portfolio Plan, A.22-03-007, March 4, 2022.
[151] D.21-09-037 at 16.
[152] *See* Cal. Pub. Util. Code § 454.55(b)(1).
[153] SCE's Pathway 2045 white paper at 1, available at: https://www.edison.com/home/our-perspective/pathway-2045.html.

Countdown to 2030 ("Mind the Gap"), an analysis of the policy changes and additions needed to ensure California can meet its goal of reducing GHG emissions by 40 percent by 2030 – a reduction that is essential if the state is to achieve its ultimate goal of a decarbonized economy by 2045.[154] SCE's Business Plan sets forth key findings from both Pathway 2045 and Mind the Gap and introduces actionable strategies to close gaps in reaching California's climate goals such as spurring innovation that can lead to an increase in fuel switching, increasing electrification of buildings, and incorporating low global warming potential refrigerants into the energy efficiency landscape.

Furthermore, the strategies outlined in SCE's Business Plan are aligned with the CEC's IEPR by closely tracking energy savings and fuel substitution levels expected from the energy efficiency portfolio. SCE's portfolio is forecasted to meet and exceed TSB, kWh and kilowatt ("kW") savings goals, which will largely be achieved through the new third-party implemented programs.

Finally, the Business Plan introduces strategies for fuel substitution within the energy efficiency portfolio and a key policy proposal to phase down of gas appliance incentives that will align closely with the state's requirement for GHG reduction.

9. Other distributed generation not described above

SCE funds the following distributed generation programs: Self-Generation Incentive Program ("SGIP"), Solar on Multifamily Affordable Homes ("SOMAH"), Single Family Affordable Solar Homes ("SASH"), Disadvantaged Community SASH ("DAC-SASH"), and Multifamily Affordable Solar Homes ("MASH").

The MASH program was established on October 16, 2008 (D.08-10-036) to provide $108 million in incentives for the installation of solar photovoltaic systems on low-income multifamily housing, as defined in Public Utilities Code Section 2852. Under the initial funding, the MASH

[154] The Mind the Gap policy paper is available at: https://www.edison.com/home/our-perspective/mind-the-gap.html.

program would operate either until December 31, 2015, or until all funds available from the program's incentive budget had been allocated, whichever event occurred first. Pursuant to AB 217 (2013), D.15-01-027 provided an additional $54 million for the MASH program and extended the program through December 31, 2021, or until all available funds have been allocated ("MASH 2.0").

The MASH program is closed but pursuant to the guidance from a Commission letter dated November 22, 2021,[155] the MASH Program Administrators ("Pas") are allowing remaining viable projects to complete during 2022. A total of $133,686,552 in incentives have been paid and 64 MW of capacity have been installed statewide through June 30, 2022.[156] The program has exceeded the 35 MW capacity target for MASH 2.0 in D.15-01-027 with 36.6 MW installed. In addition, there are 14 projects with an approved reservation that are expected to receive the incentive by Q4 of 2022 or sooner. When final incentive payments are completed, a total of 39.4 MW of capacity for MASH 2.0 will be installed; this includes 17.7 MW capacity installed for SCE, which exceeds the 16.1 MW capacity target for SCE.

The SASH program was established in D.07-11-045 to provide $108 million in incentives for homeowners who occupy their homes and meet the definition of low-income housing established in Public Utilities Code Section 2852 ("SASH 1.0"). Pursuant to AB 217 (2013), D.15-01-027 provided an additional $54 million for SASH and extended the program through 2021, or until all available incentive funds have been allocated ("SASH 2.0"). GRID Alternatives is the statewide PA for SASH. The SASH incentive was available to qualifying low-income homeowners in the SCE, Pacific Gas and Electric Company ("PG&E"), and San

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155 *See* Multifamily Affordable Solar Housing Report Semiannual Progress Report, at 1, On November 22, 2021, Commissioner Martha Guzman Aceves issued a letter to Assembly member Robert Rivas and Senator Anna Caballero describing that the MASH PAs will ensure the MASH program continues to support project developers to bring all viable projects in the program queue to completion until the final incentives have been paid, at footnote 1, served on July 29, 2022 to the R.12-11-005 service list. See https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/csi-progress-reports/r1211005-sce-semi-annual-mash-progressive-report-july-2022.pdf.

156 *See id*., at 1.

Diego Gas & Electric Company ("SDG&E") service territories, but is currently closed to new applicants statewide. As of January 2022,[157] a total of 16 MW were completed/installed and $92 million in incentives paid for SASH 1.0; and a total of 14.7 MW completed/installed and $44 million in incentives for SASH 2.0. There is 607 kW pending completion and when complete, a total of 15.3 MW is expected to be installed for SASH 2.0, which would exceed the 15 MW capacity target for SASH 2.0 set in D.15-01-027.

The SOMAH program provides financial incentives for installing solar photovoltaic energy systems on multifamily affordable housing. The program was created by AB 693 (2015) and D.17-12-022 established the program's budget, incentive structure, and eligibility policies, among other things. SOMAH is available to utility and CCA customers in PG&E, SCE, SDG&E, Liberty Utilities Company, and PacifiCorp service areas. SOMAH is jointly administered by the Association for Energy Affordability, Center for Sustainable Energy,® and GRID Alternatives. SOMAH is funded through GHG allowance auction proceeds, has a program budget of up to $100 million annually for 10 years, and an overall target to install at least 300 MW of generating capacity by 2030. As reported in the January 1, 2022 to June 30, 2022 SOMAH Semi-annual Progress Report,[158] there is a statewide total 65.2 MW of project capacity from applications that are earmarked, pending reservation, reserved, or completed; this includes 26.5 MW of project capacity from applications in SCE's territory that are pending reservation, reserved or completed.

The DAC-SASH program was established in D.18-06-027 pursuant to AB 327 (2013) and is modeled after the SASH program to provide upfront financial incentives towards the installation of solar generating systems on the homes of low-income homeowners in DACs. The decision authorized $10 million per year to be collected for DAC-SASH from January 1,

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[157] *See* Single-Family Affordable Solar Homes Program Semi-annual Program Report, January 2022, at 9, available at: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/csi-progress-reports/q3q4-2021-sash-semiannual-report--212022-final.pdf.

[158] *See* SOMAH Semi-annual Progress Report, January 1,2022-June 30, 2022, at 12, available at: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/somah/somah-semiannual-progress-report_-july-2022.pdf.

2019 to December 31, 2030 from the electric IOUs' GHG allowance revenues, to the extent funding is available; if there are insufficient GHG revenue funds available then the DAC-SASH program will be funded through customer rates via public purpose funds.[159] DAC-SASH is administered by GRID Alternatives and is currently accepting applications. As of July 2022, the program's total installed capacity consists of over 5.3 MW using $15.8 million in DAC-SASH incentives; almost 130 projects are reserved and awaiting installation and over 200 applications have been submitted and are currently under review.[160]

SGIP was originally established in 2001 in D.01-03-073 in response to AB 970 (2000) to provide incentives for customer distributed generation resources to reduce peak energy demand. Since 2001, the Legislature has refined and extended the SGIP several times and those modifications were implemented by various decisions. D.16-06-055, pursuant to SB 861 (2014) and AB 1478 (2014), modified SGIP to be administered on a continuous basis with incentive levels declining based on the capacity reserved in the program, rather than making additional funds available every year; and divided the incentive budgets into two broad categories of energy storage and generation with most incentives allocated towards storage. D.20-01-021, pursuant to SB 700 (2018), extended the program from January 1, 2021 to January 1, 2026, and authorized ratepayer collections of $166 million annually through 2024 to fund SGIP. SCE is authorized to collect $56 million annually through 2024 and administers SGIP for its service territory. From May 2017 to August 21, 2022, over $460 million in incentives have been paid or committed to projects in SCE's service territory; these projects represent a total capacity of 330 MW of which 98 percent is from energy storage technologies.[161]

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[159] *See* D.18-06-027 at 31.
[160] *See* DAC-SASH Semi-annual Progress Report, July 2022, at 11, available at: https://gridalternatives.org/sites/default/files/2022-08/DAC-SASH-Q1-2-2022-SAR-FINAL_7.30.2022.pdf.
[161] Based on data reported in the statewide SGIP application database, available at: www.selfgenca.com.

10. **Transportation electrification, including any investments above and beyond what is included in IEPR**

On February 25, 2022, an Assigned Commissioner's Ruling Adding Staff Proposal to the Record and Inviting Party Comments was issued.in R.18-12-006 included an attached revised staff proposal ("Revised TE Staff Proposal").[162] If adopted by the Commission, the Revised TE Staff Proposal will result in the transition away from individual utility TE programs in 2025 to a statewide behind-the-meter rebate program with a budget of $1 billion over a five-year period (2025-2029).[163] The statewide program will continue to emphasize DAC participation, as it will prioritize rebates in underserved communities.[164] The Revised TE Staff Proposal bases the $1 billion proposed budget on historic utility spending rates and anticipated state and federal funding for TE programs, including $1.4 billion authorized by the CEC in November 2021 to be spent on charging infrastructure over a three-year period and approximately $383 million dedicated in the federal Infrastructure Investment and Jobs Act of 2021 for TE infrastructure.[165]

Although some significant funding has been identified to help accelerate TE, SCE believes that the need continues to be great. On July 14, 2021, the CEC published the AB 2127 Report, assessing the amount of electric vehicle charging needed in 2030 to support the state's policy and air quality goals.[166] The AB 2127 Report concludes that for passenger vehicles "nearly 1.2 million public and shared private are needed to support almost 8 million ZEVs in 2030."[167] For medium and heavy-duty electric vehicle charging in 2030, the AB 2127 Report projects that "157,000 chargers are needed to support 180,000 ZEVs."[168] Funding and resulting

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[162] *See* Assigned Commissioner's Ruling Adding Staff Proposal to the Record and Inviting Party Comments, R.18-12-006, February 25, 022.
[163] *See* Revised TE Staff Proposal at 13.
[164] *See id.* at 5-7.
[165] *See id.* at 5, 15.
[166] *See* Assembly Bill 2127 Electric Vehicle Charging Assessment, Analyzing Charging Needs to Support Zero-Emission Vehicles in 2030*,* July 2021, available at: https://efiling.energy.ca.gov/getdocument.aspx?tn=238853.
[167] *Id.* at 1.
[168] *Id.*

TE programs, such as those mentioned above will help support the anticipated number of electric vehicles and associated charging infrastructure needed to meet the state's goals – including providing support for electric vehicle charging within DACs.

11. Building electrification, including any investments above and beyond what is included in IEPR

In December 2021, SCE filed a $677 million building electrification ("BE") application with the Commission for approval of its 2024-2027 programs.[169] The objective of the BE application is to support California's climate goals by helping to maximize the GHG reduction from buildings and rapidly accelerate the adoption of electric heat pumps in an equitable manner. The portfolio adoption targets include installing 250,000 electric heat pumps and providing 65,000 households in SCE's service area with electrical upgrades. The Commission is expected to issue a decision on the BE application in mid-2023.

12. Other

The Commission must address the issue of affordability as part of its IRP planning as electric affordability drives electrification, which in turn leads to the realization of California's electrification and GHG reduction goals. Affordability is important to SCE, and we work diligently to minimize costs for our customers as we provide safe, reliable, and clean electricity service.

As SCE's Pathway 2045 whitepaper demonstrates, decarbonization can be cost-effectively achieved through powering customers' energy needs with carbon-free electricity, and electrifying transportation and buildings.[170] The analysis finds that while a customer's electricity bill increases over time, the overall energy consumption cost for an average household that electrifies decreases by one-third by 2045.

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[169] *See* Application of Southern California Edison Company (U 338-E) for Approval of its Building Electrification Programs, A.21-12-009, December 20, 2021.

[170] SCE's 2045 Pathway analysis white paper and appendices are available at: https://www.edison.com/home/our-perspective/pathway-2045.html.

In Phase 3 of the Commission's Affordability Rulemaking (R.18-07-006), several proposals and ideas have emerged in the interest of electric affordability. SCE supports the ongoing discussions and assessments in that proceeding, and highlights the following proposals to help reduce customers' electric bills:

1) Securitization of certain O&M costs: Under normal circumstances, SCE would seek recovery of all O&M expenses in rates in the period they are incurred or immediately upon a determination that they are just, reasonable, and consistent with long-standing cost of service ratemaking principles. However, the current need to take additional critical measures to protect customers from catastrophic wildfires coupled with challenging economic conditions resulting in part from the COVID-19 pandemic warrant a different approach. Securitization, for certain exceptional O&M expenses and/or during periods of economic uncertainty, is an important tool that supports both customer affordability by reducing near-term rate increases and utility financial health by maintaining compensatory cost-of-service ratemaking. Existing authorizing legislation (i.e., AB 1054 and AB 913) allows for the securitization of wildfire mitigation-related O&M expenses, wildfire-related claims payouts above insurance, wildfire-related restoration expenses and 2020 incremental uncollectibles expense. Additionally, in D.21-10-025, the Commission determined that AB 1054 does not preclude the Commission from considering securitization of wildfire mitigation expenses that provide both short-term and long-term economic benefits to customers.[171]

However, the Commission has not yet used this existing authority to approve securitization for wildfire-related O&M. Utilizing this securitization authority would aid in supporting critical near-term utility grid hardening activities while also minimizing bill increases, particularly for SCE's most economically vulnerable customers. This is because, under the current statute, SCE's income-qualified customers are exempt from the Fixed Recovery Charges

[171] *See* D.21-10-025 at 15.

used to recover securitized costs.[172] There are also near-term rate reductions for customers who are responsible for securitized costs because these amounts go into rate levels at a significantly lower amount compared to traditional compensatory recovery of O&M expenses. These near-term rate reductions are particularly important at a time when rate pressures on these vulnerable customers can be significant and economic circumstances are uncertain.

SCE's customers further benefit from this type of financing because unlike lengthy and non-compensatory amortization periods, targeted securitization is excluded from SCE's credit metrics. Better credit metrics represent improved financial health and support lower costs of traditional financing, which benefit current and future customers. That said, there is a limit to how much of SCE's revenue can be securitized while still receiving a AAA rating that allows for low interest rates.[173] As such, SCE intends to assess any broader use of securitization based on the then-current environment and does not consider it to be the default tool for financing business-as-usual investments. However, given the benefits to customer affordability and corresponding utility financial health, securitization is a tool that should be authorized when conditions warrant such action. The opportunity already exists today for the Commission to approve greater use of securitization to the benefit of customers, particularly for wildfire O&M expenses.

2) Move certain costs out of rates and cover them with state funding: SCE supports using state or federal funding for extraordinary costs or costs not directly linked to cost-of-service. There are criteria SCE recommends applying when assessing such costs. First, any proposals to utilize non-ratepayer funding must not impede or impact a utility's ability to provide safe and reliable electric service. As a result, any adjustments to programs and funding need to maintain or exceed current levels of safety and reliability. Second, it is necessary to consider whether accessing state general funds will improve, or at least not inhibit achievement of

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[172] Public Utilities Code Section 850.1(i) requires that utilities exclude the Fixed Recovery Charge from the utility bills of customers who participate in the CARE and FERA programs.

[173] Fitch's limit on AAA-rated securitization debt allows for the fixed recovery charge from securitization to rise only as high as 20 percent of the amounts otherwise in rates.

California's climate and clean air objectives, given that achieving those goals through mass electrification will result in lower total energy burden for customers.

Third, the operational complexity of accessing the state's general fund to offset customer costs for certain programs should be considered so that any adjustments to existing programs and costs do not create new risks or points of failure, or amplify levels of administrative burden, any of which could ultimately result in less efficient and more costly services. Accordingly, the most effective approach would be to leverage existing approval processes and cost recovery mechanisms through the Commission and other state agencies to access general funds and offset customer costs where appropriate. For example, the Commission could approve an offset to SCE's already-authorized funding for any amounts made available by the California Legislature. In addition, for any funding SCE receives, the existing cost recovery mechanisms are already designed to allow for state funding to offset authorized revenue to be collected from customers (e.g., through a credit to a balancing account, reducing the amount recovered through customers' rates). This approach maintains existing review and approval processes, reducing delays and operational complexity, and would in turn benefit customers by minimizing potential disruptions or fluctuations in program funding and approval.

Against this backdrop, SCE is supportive of continuing to seek opportunities to utilize non-ratepayer funding for certain public purpose programs and other activities that are not specifically related to a utility's cost of service but are paid today through electric rates.
For example, the program costs and subsidies associated with SCE's income-qualified CARE and FERA programs would be appropriate to fund with state funds, given that they provide valuable assistance for income-constrained customers, reflecting a beneficial public good beyond the utilities' operations and services. This action satisfies the evaluation criteria outlined above (i.e., would not negatively impact SCE's safety and reliability, would not jeopardize the state's climate goals, and would not likely add unreasonable operational complexity if administered by crediting a balancing account as referenced above). Fully funding CARE/FERA subsidy costs with state funds would result in a meaningful rate reduction for non-participating customers,

improving the affordability of electric bills. The benefit could be even more significant if the state chooses to not only fund the costs through the general fund, but to also expand the eligibility criteria or the size of the subsidy as well.

3) Fixed charges: Residential graduated fixed charges that vary as a function of income, or a proxy thereof, can advance affordability and bring greater cost recovery equity to the residential class. A graduated fixed charge structure addresses affordability concerns across the spectrum of residential customers. The broad application of fixed charges reduces volumetric charges for everyone within the class relative to the current structure. The income-graduation provides a more progressive overall pricing structure for income-qualified customers, and the lower volumetric charges improve affordability of electricity relative to other fuels, facilitating electrification of customer' end uses.

As these ideas are addressed in the appropriate venues (e.g., income-based fixed charges are actively under consideration in the Commission's Flexible Demand Rulemaking (R.22-07-005), SCE supports exploring opportunities to offer more affordable electric service to its customers.

B. <u>Disadvantaged Communities</u>

SCE is engaged in various activities to support DACs in its TAC area, including ongoing direct communication with its customers, procurement practices supportive of DACs, outreach on climate-related issues, and activities promoting emissions reductions in DACs. Also refer to Sections III.C.1, III.D.1 and III.D.2 for details on SCE's emissions results showing reductions created by its proposed portfolios, the benefits of SCE transportation electrification activities, as well as details on customer programs and pilots, economic development, SCE's climate related efforts to identify gaps in our thinking about local community resilience, and ongoing outreach and education. Appendix A.1 includes demographic details of the DACs that SCE serves.

SCE continues to communicate both directly and frequently with its residents and customers via mail, call centers, its website, mobile apps, online chat, and community meetings to provide up-to-date and relevant service information to its customers on an ongoing basis. This includes the use of the many native languages used within SCE's service territory such as: English, Spanish, Chinese, Korean, Tagalog, Khmer, Vietnamese, and in certain cases Mixteco, Zapoteco, and Purepecha languages.[174] Section III.D.2.c includes additional information on SCE's more formal outreach activities including topics that have changed over time such as current and new climate-related topics.

SCE utilizes procurement practices centered around a least-cost, best-fit methodology to evaluate and select resources to meet specified needs through competitive solicitations. This approach provides the benefit of evaluating both economic criteria and non-economic criteria such as impacts to DACs. Consideration of DACs-related impacts in a portfolio are addressed as part of the best-fit analysis (along with other factors). This is consistent with Public Utilities Code Section 454.52(a)(2)(B), which allows the Commission to approve procurement that will reduce overall GHG emissions from the electric sector and meet other IRP goals, such as early prioritization of DACs, even if the resource does not compete favorably in terms of price with other resources.

SCE also engages in an independent review of its procurement activities through the Procurement Review Group ("PRG"). The PRG, which meets about every two weeks, is designed to provide an independent assessment that ensures the procurement activities being proposed meet all required criteria. The PRG generally includes members from the Commission's Energy Division, Public Advocates Office, TURN, Union of Concerned Scientists and Earth Justice, and includes participation by Independent Evaluators as needed. Consideration of disadvantaged communities related impacts in a portfolio are addressed as part of the best-fit analysis (along with other factors) and are explained as part of its request for Commission approval of the procurement. This is consistent with Public Utilities Code Section 454.52(a)(2)(B), which allows the Commission to approve procurement that will reduce overall

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[174] *See* for example https://www.edison.com/content/dam/eix/documents/sustainability/eix-2020-community-impact-report.pdf at 26.

GHG emissions from the electric sector and meet other IRP goals, such as early prioritization of disadvantaged communities, even if the resource does not compete favorably in terms of price with other resources. To facilitate this approach, SCE has engaged in an independent review of its procurement activities through the Procurement Review Group ("PRG"). The PRG, which meets about every two weeks, is designed to provide an independent assessment that ensures the procurement activities being proposed meet all required criteria including PUC Code. The PRG generally includes members from CPUC Energy Division, Public Advocates Office, Independent Evaluator, and others as needed.

SCE recently applied these practices during the procurement valuation and selection for SCE's System Reliability RFO to procure incremental system RA capacity pursuant to D.19-11-016 and its Midterm Reliability RFO to procure resources to meet its midterm reliability obligations pursuant to D.21-06-035. In those RFOs, SCE expressed a preference for preferred and energy storage resources over natural gas-fueled resources (in the case of the System Reliability RFO where some natural gas resources were eligible to count toward the procurement requirements) and also expressed a preference for preferred and energy storage resources located in DACs. Two energy storage projects and one demand response project that SCE contracted pursuant to D.19-11-016 are located in disadvantaged communities.[175] To date, SCE has contracted for five energy storage projects located in DACs pursuant to D.21-06-035.[176] In its procurement activities, SCE will continue to provide qualitative preferences to projects that provide benefits to DACs or other communities meeting the criteria in Public Utilities Code Section 399.13(a)(8)(A) as applicable.

All new resources selected in SCE's 2022 IRP portfolios are clean energy or storage resources. SCE's 25 MMT and 30 MMT Bundled Portfolios do not include new non-RPS emitting resources and SCE is not proposing to develop any new natural gas generation or recontract with non-RPS emitting resources for a contract period of five years or more.

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175 *See* Resolution E-5101; Resolution E-5142.
176 *See* Resolution E-5205; SCE Advice 4850-E.

However, SCE's IRP modeling does show a need to retain most of the existing natural gas fleet for reliability, though those plants will be operating much less frequently as new clean energy resources come online. SCE's plans for increasing electrification and clean resource procurement will benefit all communities, including maximizing benefits to DACs by planning to significantly reduce fuel gas use to serve electric loads and by reducing reliance on fossil fuels to generate electricity and operate vehicles. As shown in Sections III.C.1 and III.D.1, the GHG emissions and criteria pollutants calculated from the portfolios developed by SCE in the 2022 IRP continue to show reductions through the planning horizon.

In 2017, SCE launched the Clean Energy Access Working Group ("CEAWG") in partnership with The Greenlining Institute, environmental and community groups, and faith-based organizations to make sure no community is left behind as we move toward a clean energy future. The CEAWG is focused on electric vehicles and sustainable, scalable, and affordable community solutions for healthy air and climate. SCE continues to actively support and interact with CEAWG as a means of continuing and evolving its support, priority and communication for meeting the needs of DACs.

C. Commission Direction or Actions

Based on the study results set forth in Section III and the proposed procurement activities set forth in Section IV.A, SCE requests the following direction and actions from the Commission:

- The Commission should adopt an electric sector 2035 GHG target of 25 MMT for all LSEs and the PSP.
- The Commission should approve SCE's 25 MMT Bundled Portfolio.
- The Commission should adopt a high electrification demand forecast, such as the Additional TE scenario, for base case planning and the PSP.
- The Commission should adopt a 24-hour slice framework for IRP reliability planning.

- In future IRP cycles, the Commission should incorporate climate change effects in it modeling, including temperature impacts on demand forecasts, import assumptions, hydro production forecasts, and other system-level risks.
- In the filing requirements for the next IRPs, the Commission should direct LSEs not to exceed their load share of existing system resources in their IRP portfolios and provide LSEs with sufficient information on the baseline resources so they can determine their load share of existing resources.
- The Commission should adopt a flexible procurement program that links planning and procurement in time for any procurement authorized in this IRP cycle. If the flexible procurement program is not in place upon approval of SCE's IRP, SCE requests Commission approval to begin procuring to meet the needs in identified in its 25 MMT Bundled Portfolio under the flexible approach discussed in Section IV.A.

V.

LESSONS LEARNED

A. Improvement Needed for Geographic/Locational Data Between IRP and Climate Impacts

SCE is looking forward to continuing to refine and improve climate modeling within the IRP framework. As described in Section V.B, SCE plans to continue to include climate change impacts into its future IRP planning and urges the Commission to do the same. To aid the inclusion of climate impacts in IRP, compatible geographic data and format for both IRP location dependent parameters and climate impacts are needed. For example, in the IRP process there is not currently sufficient geographic information available for potential new resource territory boundaries, existing generator locations, location of transmission nodes, and load distribution. As climate projections can change significantly over even small territories, to accurately assess climate impacts on these resources, gridded climate data needs to be overlaid on these assets.

In developing its climate impact sensitivity in this IRP, SCE learned that the geographic information provided in the IRP resources and climate impact studies are not compatible. To eventually overlay the climate geographic data on to the IRP resources geographic data, SCE had to resort to a manual and painstaking process that included mapping weather station and climate data onto the IRP geographic maps, and matching climate data to SERVM shapes based on names rather than specific boundaries. As mentioned in SCE's 2022 I&A informal comments,[177] better geographic data compatibility is required as climate impacts are included in the IRP process.

SCE recognizes that the Commission is in the process of updating new resource availability and generation profiles in the recent 2022 I&A update effort. As part of that effort, SCE requests that the data used within that process be made available at a disaggregated level so that it can be more easily paired with climate data. Additionally, the raw data used in the creation of generation profiles (insolation, wind speeds, technical specifications of representative future generating resources, etc.) should be made available so that LSEs can include climate impacts to multiple aspects of the energy system, and more easily align derating and impact assumptions with the Commission's long-term planning. The Commission should also provide guidance on how to fit distributed climate data to a system-level load profile, and the best way to pair individual weather station projections to overall load distribution. More data availability at a distributed geographic level will allow LSEs to refine and improve climate impacts, transmission studies, and new resource modeling, as well as provide better alignment with Commission modeling overall.

Now is the time to address the need for compatibility of geographic data between IRP and climate impacts. Through SCE's experience of addressing climate impacts in this IRP, this serious impediment to incorporating climate data was identified and should be solved before the climate impacts are incorporated into the IRP process.

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[177] SCE Informal Comments on the September 22, 2022 IRP MAG Webinar – Inputs & Assumptions for the 2022-23 IRP Cycle Presentation Slides, October 6, 2022.

B. Need for Better Understanding of Climate Impacts on Loads and Supply Resources

SCE encourages the Commission to incorporate climate change effects in its modeling, including temperature impacts on demand forecasts, import assumptions, hydro production forecasts informed by climate projections, and other system-level risks, as California experiences more frequent extreme climate events.

After conducting a climate sensitivity analysis for the 25 MMT CAISO System-Wide Portfolio, SCE identified several research gaps, which can serve as potential focus areas for future analyses. First, appropriate characterization of peak load events and their associated likelihood is a crucial component of climate-informed reliability analysis and system planning more broadly. In addition, system reliability issues during coincident peak load conditions and acute climate events are not currently well understood. Second, future studies focused on supply-side risks should more holistically consider losses in system efficiency (e.g., asset derates) during extreme weather events. For example, derates are likely coupled with increased demand, which in turn can affect asset failure rates. Other examples include variability in wind conditions due to changed atmospheric patterns, monsoonal conditions resulting in increased cloud cover over solar farms, and regional droughts affecting hydroelectric production.
Third, the uncertainty associated with a changing climate underscores the need for more robust planning methodologies. System planners should consider moving from deterministic analysis to scenario-based analysis in order to resolve uncertainties in climate and grid sensitivity.
Scenario analysis will help planners move from the perspective of trying to determine the "correct" answer and towards trying to identify breaking points, which can be assessed against a range of plausible outcomes.

The effects of climate change are far-reaching and carry additional complexities that will need to be addressed on an ongoing basis. SCE hopes that through its initial supply-side sensitivity analysis, there is a demonstrated need for more in depth studies of fundamental shifts in the conditions under which the grid is operated. Ultimately, climate change amplifies existing risks – future research should focus on the interactions between more extreme operating conditions in conjunction with evolving grid design.

C. **Additional stakeholder process needed around CPUC Reliability Analysis** [178]

SCE urges the Commission to improve its current process for developing critical reliability inputs by providing stakeholders with a meaningful opportunity to review and provide feedback on the Commission's analysis before it is finalized for use in the IRP. The Commission introduced the concepts of Total Reliability Need, Marginal Reliability Need, Perfect Capacity, and Annual Marginal ELCC percentage in this IRP cycle. Together, these concepts underly the framework used by LSEs to develop their individual plans and are intended to ensure the plans collectively lead to a reliable system. It is imperative these reliability-related inputs and assumptions be thoroughly reviewed and vetted by stakeholders because they are foundational to the IRP process; they should not be the product of a black-box analysis.

The Commission first conceptually described the new methodology at its April 7, 2022 Modeling Advisory Group (MAG) webinar and requested "informal stakeholder comments, suggestions about filing templates and potential updates" within two weeks. The Commission then held a second MAG webinar on July 19, 2022 to review the final results from its PRM[179] and ELCC[180] Studies and directed LSEs to use the Marginal Reliability Need and Annual

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[178] This Lessons Learned focuses on the process of developing reliability inputs for the IRP. *See* Sections I.A, II.B.1, and III.A.1 for a substantive discussion on SCE's recommended changes to the reliability modeling framework.

[179] *See* PRM Study Results presentation dated June 16, 2022 (PRM Study), available at: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2022-irp-cycle-events-and-materials/20220616-irp-lse-plan-prm-study-results.pdf. *See also* RESOLVE Modeling Results presentation dated June 15, 2022, available at: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2022-irp-cycle-events-and-materials/lse-filing-requirement-resolve-results.pdf. These presentations were released in mid-June but were first presented at the July 29, 2022 MAG webinar.

[180] *See* PRM and ELCC Study Results presentation dated July 29, 2022 (PRM and ELCC Study Results), available at: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2022-irp-cycle-events-and-materials/20220729-updated-fr-and-reliability-mag-slides.pdf. The Commission

Continued on the next page

Marginal ELCC percentages published on the Commission website[181] to begin developing their plans. The Commission provided stakeholders with the opportunity to "informally comment" on the PRM and ELCC results and invited parties to present their own methodology but made clear those would not change filing requirements for LSEs' 2022 IRPs.[182]

SCE acknowledges and appreciates the Commission's intention to initiate a formal process to discuss reliability modeling for "later use cases" such as developing the final 2023 PSP and a mid- to long-term procurement program.[183] However, the lack of transparency and opportunity for meaningful review of the Commission's reliability modeling for this instant use case of developing individual IRPs must also be addressed as an important "lessons learned." Stakeholders do not have visibility into the Commission's modeling efforts and thus cannot meaningfully review the methodology or results for reasonableness; there is also insufficient time in the IRP schedule to iteratively discuss and incorporate improvements to the analysis. For example, Section III.F.3 details one structural flaw SCE has identified with the Commission's methodology that demonstrates how LSE portfolios can pass the Commission's reliability test while being demonstrably unreliable. The Commission should establish a more formal process for future reliability analysis including, at minimum, agreed-upon datasets that will be available for review, multiple opportunities for feedback, and detailed responses from Commission staff on whether/how the feedback was incorporated.[184] The Commission should also formally address the issues raised in this stakeholder process in the ALJ Ruling finalizing the inputs and assumptions to be used in LSEs' IRPs.

SCE urges the Commission to establish strong reliability standards in the IRP process by adopting a 24-hour slice reliability framework. It is crucial that the reliability construct used in

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first reviewed the ELCC Study slides at the July MAG webinar and released an update to the slides on July 29.

[181] The Marginal Reliability Need and Marginal ELCC percentages were first published on July 15, 2022, and subsequently updated in August.

[182] PRM and ELCC Study Results at p. 58.

[183] *Id.* at p. 6.

[184] *See e.g.,* the process established in D.22-05-002 for reviewing updates to the Avoided Cost Calculator.

long-term planning considers capacity needs throughout the day as the grid evolves and the state plans for a high electrification future. Using a 24-hour slice reliability framework will help ensure long-term reliability needs are timely identified and addressed in an economic manner and better align the IRP process with the RA program.

D. <u>High Electrification as Base Planning Scenario</u>

As discussed previously, SCE urges the Commission to act quickly to incorporate a high electrification demand forecast in IRP base case planning and the PSP so that the resource additions needed in California's high electrification future are including in the state's resource planning going forward. The IRP will quickly become out-of-step with other planning processes if a high electrification case is not adopted soon. High electrification demand scenarios have already been included in the policy-driven sensitivity portfolio for the CAISO's 2022-2023 TPP, the distribution planning processes for the 2022-2023 planning cycle, and were recently recommended for the reliability and policy-driven base case portfolio for the CAISO's 2023-2024 TPP.[185] The Commission should plan for higher electrification now so both the resource additions and transmission needed to serve additional load from electrification are in place as California electrifies its transportation and buildings.

E. <u>Accurate Representation of Existing Resources in the IRP</u>

SCE urges the Commission to specify a common approach for all LSEs to use in future individual IRP filings to ensure there is a process to replace existing system assets and ensure equitable counting of existing resources. This approach should include both a process to avoid

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[185] *See* D.22-02-004 at OP 8; Transmittal Letter to CAISO for 2022-23 TPP High Electrification Portfolio, July 1, 2022, available at: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2019-2020-irp-events-and-materials/tpp-portfolio-transmittal-letter.pdf; Administrative Law Judge's Ruling Seeking Comments on Electricity Resource Portfolios for 2023-2024 Transmission Planning Process, R.20-05-003, October 7, 2022, at 3-9.

planned over-subscription of existing resources and an approach to appropriately and timely address significant changes in existing infrastructure assets.

The issue of oversubscription of existing resources needs to be addressed appropriately in the IRP process. As noted in the 2022 Narrative Template, the 2020 "aggregated LSE Preferred Conforming Portfolios failed to meet GHG and reliability targets due to insufficient new capacity being planned for, and that this was caused in part by LSEs over-relying on existing resources."[186] It was also identified that "the quantity of contracted and uncontracted existing resources in the 2020 IRPs exceeded the amount of existing resources available on the system."[187] Furthermore, a methodological approach to allocating the existing resource pool must be incorporated into the IRP process to better plan for the fair use of existing resources by LSEs upon contract expiration of those existing resources.

While the planned shutdown of the Diablo Canyon facilities has been considered in the IRP, the potential closure of the Aliso Canyon gas storage facility has not. The IRP assumptions need to address future known or anticipated risks regarding system assets and resources. For the current 2022 IRP, LSEs were not instructed to assume the closure of Aliso Canyon therefore LSE IRP modeling assumes Aliso Canyon will remain in operation during LSEs' 2022 IRP planning horizon. Without focused attention to clearly identify and understand the impacts of existing system assets in IRP planning, unplanned system reliability challenges may occur driving the need for additional emergency procurement outside of the normal IRP planning process.

Accurate representation of existing resources is seriously challenging the value of individual IRPs and their contribution to the IRP process overall. In the filing requirements for the next IRP, as described in Section III.H, the Commission should direct LSEs not to exceed their load share of existing resources in their IRP portfolios. Detailed information on each LSE's pro-rata share may be helpful to LSEs and can be provided as part of the IRP filing requirements,

[186] Narrative Template, June 15, 2022, Standard LSE Plan, June 15, 2022 at 14.
[187] *Ibid*.

so that each LSE can proceed with their individual modeling with confidence that their portfolios can be aggregated with other LSEs portfolios to develop an overall CAISO system portfolio that represents the portfolio developed by the LSE for their customers. For example, as part of the Filing Requirements or other guidance provided to LSEs ahead of conducting modeling for their IRPs, the Commission should provide a summary of the capacity by technology of uncontracted resources in the market on an annual basis for the next ten years. The Commission has unique visibility to all contracted and uncontracted resources in the market as provided through the aggregate RDTs. Using this information, LSE's can assume up to their load share of available resources and imports to meet some of the capacity or energy needs in their IRPs and fill the rest of the need with new resources. Without this information, LSEs will continue to over subscribe existing resources and may not include sufficient levels of new resources in their plans.

In addition, acknowledgment and understanding of the impacts of the Aliso Canyon natural gas facility, and in the future other major changes in existing resources and needed infrastructure, will play an important role in addressing how existing resources play a role in the IRP.

F. Transmission Costs

SCE recommends that transmission costs be evaluated more thoroughly within the IRP process. More transparent and updated information about transmission costs would help LSEs determine the tradeoffs among resource locations, especially between out-of-state and in-state resources, which would help LSEs to develop optimal portfolios. Transmission costs in RESOLVE are currently characterized by a single levelized cost without a description of the inputs, assumptions, and methodology that was used to determine that cost. More transparency on these issues could allow stakeholders to provide more useful feedback on the transmission costs in RESOLVE and provide LSEs with more assurance that such costs are reasonable.

Respectfully submitted,

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November 1, 2022

RULE 1.11 VERIFICATION

I am an officer of the applicant corporation herein and am authorized to make this verification on its behalf. I am informed and believe that the matters stated in the foregoing document are true.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 1st day of November, 2022 at Rosemead, California.

/s/ Michael Backstrom
Michael Backstrom
Vice President, Regulatory Affairs
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Appendix A.1

Demographics of DAC-Designated Census Tracts Aggregated to County Subdivision and Tribal Entity in SCE’s Service Area

Introduction

This Appendix contains demographic information on the DACs located within SCE's distribution service area. The document includes references to California averages regarding age, income, and educational attainment. These averages are as follows:

- Median age: 36.7 years
- Per capita income: $38,576
- Household income: $78,672
- High school diploma attainment: 83.9%
- Bachelor's degree or higher attainment: 34.7%

Demographic data in this Appendix is primarily sourced from the Knight Foundation's *Census Reporter* tool.[1] Population numbers for county census tracts were sourced from CalEnviroScreen to allow a direct comparison between DAC and overall county subdivision data with the exception of tribal population data which was sourced from *Census Reporter*. SCE has only reported population data from within its service area. If a county subdivision is split between two or more utilities, the information listed is only for SCE's area. SCE used the CEC's ArcGIS open-source mapping tool to determine California power plant locations.[2] Power plants located in or within five miles of a DAC are identified.

Income, age, and education data is stated as being significantly different from the California average if it is more than 30% above or below the average. The demographic parameter in those county subdivisions containing DACs that differed the most from state averages was college attendance, attainment of a bachelor's degree or higher was significantly

1 *See Census Reporter*, available at: https://censusreporter.org/. A News Challenge grant from the Knight Foundation funded the initial build-out of the site. After the original grant was spent, the project incorporated as Census Reporter, NFP, an Illinois not-for-profit corporation.

2 *See* CEC, *California Operational Power Plant*, updated March 23, 2020, available at: http://caenergy.maps.arcgis.com/apps/webappviewer/index.html?id=ad8323410d9b47c1b1a9f751d62fe495.

below state averages for 39 of the 57 listed county subdivisions as well as for 10 of the 11 tribes for which this information was available.

Because the 2020 census adjusted the numbers and locations of census tracts and county subdivisions in SCE's service area, the county subdivisions listed below may be different than those published in SCE's 2020 IRP filing and the data may not be directly comparable.

Anaheim-Santa Ana-Garden Grove

There are 69 DAC-designated census tracts in this subdivision, comprising 406,848 people out of a total population of 1,539,246 – 26% of the population. Anaheim-Santa Ana-Garden Grove is located in northwestern Orange County and is bounded or crossed by numerous freeways including the I-5, I-405, CA-22, CA-55, CA-57, CA-91, CA-39 and CA-90. It should be noted that the City of Anaheim is not in SCE's service territory. DACs are located throughout the subdivision but with the exception of several DAC census tracts in La Habra and the centers of Garden Grove and Santa Ana, the bulk are clustered near the transit corridors. The average age in the county subdivision is 36.1, which is younger than the California average. Household income is higher than the state average, with per capita income lower. The largest ethnic group is Hispanic (47%), followed by White (27%) and Asian (21%). The most common language spoken other than English is Spanish, and 35% of adults speak this language at home. High school graduation and college graduation rates are lower than the California averages. Multiple natural gas power plants are located in this subdivision. The 200 MW Canyon Power Plant Peaker is located in a DAC in the City of Placentia. The 121 MW Wellhead Stanton Energy Reliability Center and the 49 MW SCE Barre Peaker are located within a DAC in the City of Stanton. Kaiser Permanente and AT&T have small self-generation facilities in DACs in the cities of Placentia and Anaheim respectively. The 28 MW Linn Western Processing Generating Facility and the 32.8 MW Brea Power II LLC Brea Expansion Plant in the City of Brea are not located within a DAC but are located within 3-5 miles of DAC residential areas. B Braun Medical has a small self-generation/cogeneration facility in the City of Irvine that is not in a

DAC but is within 1.5 miles of DAC residential areas. The North Coast's four generating facilities (215 MW AES Huntington Beach power plant, 696 MW Huntington Beach Energy Project, 16 MW Orange County Sanitation District Plant No. 2 digester gas self-generation/cogeneration plant, and 7.5 MW Orange County Sanitation District's Plant No. 1 natural gas self-generation/cogeneration plant) are all located within 5 miles of the Santa Ana DAC residential areas. The Central Coast subdivision's two small natural gas self-generation/co-generation facilities (one at John Wayne Airport and the other at UC Irvine) are also located within two miles of the Santa Ana DAC residential area. The Whittier subdivision's small self-generation/co-generation facility at Biola University is within one mile of the Buena Park DAC residential areas. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the Community Action Partnership of Orange County and the executive director of the organization Walking Shield. SCE also worked closely with Breathe SoCal and Fierce Courage to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

<u>Agua Caliente Band of Cahuilla Indians</u>

There is one DAC-designated census tract representing the Aqua Caliente Band of Cahuilla Indians' tribal reservation lands and off-reservation trust lands, which is located in the Palm Springs area of Riverside County. The reservation lands are in the valley surrounded by Palm Springs and the trust lands are located nearby and in Palm Canyon in the San Jacinto Mountains. The population living on the reservation and trust lands is listed as 28,733. The median age is 62 years old, which is significantly older than the California median. The per capita income is higher than the state average, although household income is lower than average. The largest ethnic group is listed as White (72%), followed by Hispanic (17%) and Asian (3%). The most common language spoken other than English is Spanish, and 10% of adults speak this language in the home. High school and college graduation rates are higher than the California averages. The portion of the population living on trust lands is much younger, with an average age of 40 years old. This population also has a significantly lower per capita income that is significantly lower than the state median income. The ethnic population is also different with a distribution of White (52%), followed by Hispanic (27%) and Black (16%). College graduation rates were also much lower than on the joint reservation and trust lands and lower than the state average. There are three natural gas generating facilities located near the reservation. The small 1.1 MW Palm Springs Municipal Cogeneration Plant is located immediately adjacent to reservation lands in the City of Palm Springs, the 135 MW Indigo Generation LLC peaker plant is located approximately 4 miles from the northern boundary of the reservation in North Palm Springs, and the 800 MW Sentinel Energy Center peaker plant is located just over 5 miles north of the reservation boundary in North Palm Springs. There are multiple large wind farms also located in North Palm Springs and several small solar arrays scattered in both Palm Springs and North Palm Springs. SCE regularly engages with the tribe through its Local Public Affairs and Business Customer Division tribal liaisons. The Executive Director of Walking Shield represents American Indian interests on SCE's Consumer Advisory Panel. SCE also worked closely with the American Indian Chamber of Commerce of California to do tribal climate adaptation outreach and community member surveys as part of the Climate Resilience Leadership Group.

Barstow

There are five DAC-designated census tracts in this subdivision, comprising 20,500 people out of a total population of 42,5361,788 – 48% of the population. Barstow is located in the High Desert region of San Bernardino County on a major thoroughfare connecting traffic from the Los Angeles basin to Nevada and other major western traffic corridors. The DACs are clustered around the City of Barstow. The median age in the county subdivision is 34.4 years old, which is younger than the California median. Household and per capita income are significantly lower than the state averages. The largest ethnic group is Hispanic (39%), followed by White (36%) and Black (12%). The most common language spoken other than English is Spanish, and 18% of adults speak this language in the home. High school and college graduation rates are lower than the California averages with college graduation rates being significantly lower than the average. There is one solar facility located in the DAC area and several large solar facilities in the western end of the subdivision. There is are no fossil fuel power plants in the subdivision. The nearest facility is the 855 MW combined cycle power plant High Desert Power Plant, located in the neighboring Victorville-Hesperia county subdivision approximately 30 miles to the southwest. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff, through corporate philanthropy partnerships with the Mojave Valley United Way and the Barstow College Foundation, and through members of the Consumer Advisory Panel, including Inland Empire Community Newspapers, Inland Action, Inc., and Black Voice News.

Benton Utu Utu Gwaitu Paiute Tribe

There is one DAC-designated census tract representing the Benton Utu Utu Gwaitu Paiute Tribe's reservation and trust lands, which is located near the City of Benton in east Mono County approximately 10 miles from the Nevada Border. The population living on the reservation is listed as 85, there is no population listed as living on the trust lands. The median age is 44.8 years old, which is older than the California median. Household and per capita income are lower than the state averages. The largest ethnic group is Native (91%), followed by Hispanic (8%) and Asian (1%). The most common language spoken other than English is Spanish, and 27% of adults speak this language in the home. The high school graduation rate is higher than the California average and the college graduation rate is lower. There are no power plants located in the vicinity of the reservation and trust lands. SCE regularly attempts to engage with the tribe through its Local Public Affairs and Business Customer Division tribal liaisons. The Executive Director of Walking Shield represents American Indian interests on SCE's Consumer Advisory Panel. SCE also worked closely with the American Indian Chamber of

Commerce of California to do tribal climate adaptation outreach and community member surveys as part of the Climate Resilience Leadership Group.

Bishop Paiute Tribe

There is one DAC-designated census tract representing the Bishop Paiute Tribe's reservation, which is located in between cities of Bishop and West Bishop in Inyo County. The population living on the reservation is listed as 1,621. The median age is 31.8 years old, which is younger than the California median. Household and per capita income are lower than the state averages. The largest ethnic group is Native (60%), followed by Hispanic (25%) and White (7%). The most common language spoken other than English is Spanish, and 10% of adults speak this language in the home. The high school graduation rate is higher than the California average and the college graduation rate is lower. There are no fossil fuel fired power plants located in the vicinity of the reservation. However, several small hydro facilities are located nearby on Bishop Creek as well as slightly farther away on the Owens River. SCE regularly engages with the tribe through its Local Public Affairs and Business Customer Division tribal liaisons. Corporate philanthropy efforts support the Bishop Paiute Head Start and Education Center and STEM Scholarships. The Executive Director of Walking Shield represents American Indian interests on SCE's Consumer Advisory Panel. SCE also worked closely with the American Indian Chamber of Commerce of California to do tribal climate adaptation outreach and community member surveys as part of the Climate Resilience Leadership Group.

Blythe

There is only one DAC census tract in this San Bernardino County subdivision, comprising 2,871 people out of a total population of 14,924 – 19% of the population. The DAC is in the southern half of the City of Blythe along the I-10 freeway. The median age in the county subdivision is 35.5 years old, which is younger than the California median. Household and per capita income are both significantly lower than the state averages. The largest ethnic groups are Hispanic (56%), White (31%), and Black (7%). The most common language other than English is Spanish, and 41% of adults speak it at home. High school graduation rates are lower than the California average. College graduation rates are significantly lower than the California average. The 520 MW combined cycle natural gas Blythe Energy Project is located to the east outside of Blythe, approximately 5 miles from the city and the DAC census tract. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including Inland Empire Community Newspapers, Inland Action, Inc., and Black Voice News, and through corporate philanthropy partnerships including STEM Scholarships at Palo Verde College Foundation serving Blythe. SCE also worked closely with Building Resilient Communities to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

Bridgeport Indian Colony

There is one DAC-designated census tract representing the Bridgeport Indian Colony reservation, which is located just to the east of the City of Bridgeport in Mono County approximately 14 miles from the Nevada border. The population living on the reservation is listed as 43. The median age is 43 years old, which is older than the California median. The per capita income is lower than the state average and the household income information was not available. The largest ethnic group is Native (35%), followed by Asian (26%) and White (21%). The most common language spoken other than English is Asian/Islander, and 30% of adults speak this language in the home. The high school graduation rate is higher than the California average and the college graduation rate information is unavailable. Corporate philanthropy efforts support public safety and emergency preparedness programs. There are no fossil fuel fired power plants located in the vicinity of the reservation. However, there are two small hydroelectric plants located approximately 15 and 22 miles south of the reservation. SCE regularly attempts to engage with the tribe through its Local Public Affairs and Business Customer Division tribal liaisons. The Executive Director of Walking Shield represents

American Indian interests on SCE's Consumer Advisory Panel. SCE also worked closely with the American Indian Chamber of Commerce of California to do tribal climate adaptation outreach and community member surveys as part of the Climate Resilience Leadership Group.

Central Coast

There are two DAC-designated census tracts in this subdivision, comprising 9,457 people out of a total population of 258,293 – 4% of the population. Central Coast is located in southern Orange County bordered by the Newport coast and the I-405 freeway. The majority of the subdivision's census tracts are not rated as DACs, and the two census tracts that are designated as DACs are in industrialized and commercial areas. The median age in the county subdivision is 36.8 years old, which is about the same as the California median. Household and per capita income in the subdivision are significantly higher than the state averages. The largest ethnic group is White (57%), followed by Hispanic (22%) and Asian (14%). The most common language other than English is Spanish, and 16% of adults speak this language in the home. High school and college graduation rates are higher than the California averages, with college graduation rates being significantly higher. There are no large power plants in the subdivision. However, there are also two small natural gas self-generation/co-generation facilities (one at John Wayne Airport and the other is the UC Irvine Central Plant) that are located within 5 miles, even though they are not located in DACs themselves. In addition, the North Coast subdivision's 215 MW AES Huntington Beach generating station and 696 MW Huntington Beach Energy Project natural gas plants are located only 2 miles west of the DAC. The 16 MW Orange County Sanitation District's Plant No 2. digester gas self-generation/cogeneration plant is located about 1 mile away and its 7.5 MW Plant No 1 natural gas self-generation/cogeneration unit is located just over 3 miles away. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the Community Action Partnership of Orange County and the executive director of the organization Walking Shield. SCE also worked closely with

Breathe SoCal and Village Solutions to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

Chemehuevi Indian Tribe

There is one DAC-designated census tract representing the Chemehuevi reservation which is located on the California side of Lake Havasu on the Arizona border in San Bernardino County. The population living on the reservation is listed as 355. The median age in the reservation is 25.5 years old, which is significantly younger than the California median. Household and per capita income are lower than the state averages. The largest ethnic group is Native (62%), followed by White (20%) and Hispanic (15%). The most common language spoken other than English is Spanish, and 9% of adults speak this language in the home. The high school graduation rate is higher than the California average and the college graduation rate is lower. There are no fossil fuel fired power plants located in the vicinity of the reservation. However, the Parker Dam hydroelectric plant is located about 9 miles south of the reservation border. SCE regularly engages with the tribe through its Local Public Affairs and Business Customer Division tribal liaisons and corporate philanthropy efforts support the Headstart School Program. The Executive Director of Walking Shield represents American Indian interests on SCE's Consumer Advisory Panel. SCE also worked closely with the American Indian Chamber of Commerce of California to do tribal climate adaptation outreach and community member surveys as part of the Climate Resilience Leadership Group.

Colorado River Indian Tribes

There is one DAC-designated census tract representing the Colorado River Indian Tribes reservation. The reservation lies mainly in western La Paz County, Arizona, with small portions in southeast San Bernardino and northeast Riverside Counties just north of the City of Blythe along the Arizona border. The population living on the reservation is listed as 9,563. These residents would mostly be living on the Arizona portion of the reservation. The median age is 37.1 years old, which is older than the California median. Household and per capita income are lower than the state averages. The largest ethnic group is Hispanic (41%), followed by White (29%) and Native (24%). The most common language spoken other than English is Spanish, and 24% of adults speak this language in the home. The high school graduation rate and college graduation rate are lower than the California averages. The 520 MW combined cycle natural gas Blythe Energy Project is located approximately 9 miles from the southern edge of the reservation just west of the City of Blythe on I-10. There are multiple large solar farms in this area as well. The Parker Dam hydroelectric plant is located approximately 9 miles from the northern limit of the reservation. SCE regularly attempts to engage with the tribe through its Local Public Affairs and Business Customer Division tribal liaisons. The Executive Director of Walking Shield represents American Indian interests on SCE's Consumer Advisory Panel. SCE also worked closely with the American Indian Chamber of Commerce of California to do tribal climate adaptation outreach and community member surveys as part of the Climate Resilience Leadership Group.

Compton

There are 65 DAC-designated census tracts in this subdivision, comprising 317,970 people out of a total population of 346,215 – 92% of the population. This is one of the most impacted subdivision areas since it lies in between the heavily congested CA-110 and I-710 corridors that transports goods to and from the Ports of Long Beach and Los Angeles and is also traversed by the I-405 and CA-105 freeways. The median age in the county subdivision is 34.3 years old, which is younger than the California median. Household and per capita income are lower than the state averages, with per capita income being significantly lower. The largest ethnic group is Hispanic (63%), followed by Black (21%) and Asian (10%). The most common language other than English is Spanish, and 55% of adults speak this language in the home. High school and college graduation rates are lower than the California averages, with college graduation rates being significantly lower. There are five gas-powered plants in the subdivision, four operating and one apparently out of service. The operating facilities are Watson

Cogeneration Company's 398 MW natural gas self-generation/cogeneration plant, Tesoro LAR's Andeavor Los Angeles Refinery self-generation/cogeneration plant (MW not available), Sanitation Districts of Los Angeles County's 38 MW gas digester Total Energy Facilities plant, and Eco Services Operations Corp's 5 MW natural gas Rhodia Dominguez Plant self-generation/cogeneration facility. Carson Cogeneration Company's self-generation/cogeneration plant appears to be shut down. Several gas-powered power plants are also located in adjacent areas including South Gate-East Los Angeles subdivision's three plants (the City of Vernon's 42 MW Vernon plant, Colorado Energy Management LLC's 130 MW Malburg Generating Station, and Techni-Cast Corporation's 1.4 MW natural gas self-generation/cogeneration facility), four plants in the Long Beach-Lakewood subdivision (THUMS Long Beach Company's 48 MW natural gas THUMS plant, Long Beach Generation LLC's 260 MW natural gas Long Beach Generation LLC power plant, the SERFF Joint Powers Authority's 35 MW biofuel Southeast Resource Recovery plant, and), as well as the Downey-Norwalk subdivision's SCE's 48 MW natural gas Center Peaker and the Torrance subdivision's PBF Energy LLC's 49 MW natural gas Torrance Refinery self-generation/cogeneration unit. In addition, there are multiple plants in LADWP's service territory in the Los Angeles subdivision that are close to Compton DACs including Toyota Motor Engineering & Manufacturing NA Inc.'s 1.5 MW self-generation/cogeneration unit, LADWP's 83 MW natural gas Los Angeles Refinery Tesoro project, Wilmington Air Product's 32 MW natural gas self-generator/co-generator plant, Harbor Cogeneration Company's 107 MW natural gas cogeneration facility, and LADWP's 548 MW Harbor power plant. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff, corporate philanthropy partnerships, and through members of the Consumer Advisory Panel, including Ujima Housing Corp., American Cancer Society, and CicLAvia. Ujima Housing Corp. is also an active member of the Clean Energy Access Working Group. Prior to COVID, SCE and the Clean Energy Access Working Group started working with the Clean Power Alliance on an early-stage community solar project in Willowbrook, a city within this subdivision, to provide underserved community members access to locally produced solar energy. SCE also worked closely with Breathe SoCal, Fierce Courage, and Village Solutions to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

Corona

There are nine DAC-designated census tracts in this Riverside County subdivision, comprising 54,832 people out of a total population of 189,436 – 29% of the population. The most heavily impacted census tracts are located along the 91 freeway in and adjacent to the City of Corona. The median age in the county subdivision is 35 years old, which is slightly younger than the California median. Household income is higher than the state average, although per capita income is lower than average. However, because the subdivision also includes some areas that are non-DAC and fairly affluent, this data may not be DAC-representative. The largest ethnic group is Hispanic (49%), followed by White (32%) and Asian (10%). The most common language other than English is Spanish, with 33% of adults speaking this language in the home. The high school graduation rate is higher than the California average, and the college graduation rate is lower. The City of Riverside Public Utility Department's 32.5 MW Clearwater plant is located in the northwestern DAC area of the City of Corona. There are also two small hydroelectric facilities and one small solar facility in the subdivision. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including Inland Empire Community Newspapers, Inland Action, Inc., and Black Voice News. SCE also engages with this community through a variety of community and civic engagements led by SCE's Local Public Affairs staff (Soroptomist International of Corona) and our corporate philanthropy partnerships (Southwest Resource Management Association).

Delano-McFarland

There are six DAC-designated census tracts in this subdivision, comprising 44,852 people out of a total population of 59,024 – 76% of the population. The Delano-McFarland subdivision is located in the San Joaquin Valley in Kern County. Only a few neighborhoods in and around the City of Delano are not included in the DAC area. The most heavily impacted DACs are in the rural agricultural areas, outside of the more densely populated cities of McFarland and Delano. The median age in the county subdivision is 30.4 years old, which is younger than the California median. Household and per capita income are significantly lower than the state averages. The largest ethnic group is Hispanic (80%) followed by Asian (10%) and White (6%). The most common language other than English is Spanish, and 63% of adults speak this language in the home. High school and college graduation rates are both significantly lower than the California averages. Wellhead Power's 50 MW natural gas Delano Energy Center is located just northwest of the City of Delano and Clean Energy Systems operates the small Covanta Delano biofuel facility just south of the city (no MW listed). There are also a few facility-linked solar arrays in the area. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

Dinuba

There are only two DAC-designated census tracts that overlap with SCE's service area in this Tulare County subdivision, comprising 10,144 people – 100% of the population. This location is on the border of SCE's service area and SCE has only identified 5 residential and 3 non-residential customers in the subdivision. The vast majority of the subdivision, including the above two census tracts, falls in the Pacific Gas and Electric Company's ("PG&E") service area. The entire subdivision is designated at a DAC. The median age in the subdivision is 27.4 years old, which is much younger than the California median. Household and per capita income are significantly lower than the state averages. The largest ethnic group is Hispanic (81%) followed by White (16%) and Asian (1%). The most common language other than English is Spanish, and 63% of adults speak this language in the home. High school and college graduation rates are lower than the California averages, with college graduation rates being significantly lower. There are no large fossil fuel power plants in the subdivision. Community Renewable Energy Services operates the 11.5 MW Dinuba Energy biomass facility in the northwest corner of the subdivision and there are several solar facilities in various locations. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

Downey-Norwalk

There are 51 DAC-designated census tracts in this subdivision, comprising 253,500 people out of a total population of 416,789 – 61% of the population. The most heavily impacted DACs are along the transportation corridors of the I-710, I-605, and I-5. The subdivision is also transected by the I-105 and CA-91 freeways. Affluent neighborhoods also lie along these transportation corridors that are not identified as DACs. The median age in the subdivision is 35.8 years old, which is slightly younger than the California median. Household and per capita income are lower than the state averages. The largest ethnic group is Hispanic (62%) followed by Asian (17%) and White (12%). The most common language spoken other than English is Spanish, and 49% of adults speak this language in the home. High school and college graduation rates are lower than the California averages. There are two gas-powered generators in the subdivision, both located in DACs: SCE's 48 MW natural gas Center Peaker in Norwalk, and Marlow Power Steam Inc.'s O'Brian California Cogen facility (currently inactive) in Artesia. SCE regularly engages with the DAC-designated communities in this subdivision, including through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the American Cancer Society and CicLAvia. SCE also engages through its work with environmental justice organizations such as East Yard Communities for Environmental Justice, and its corporate philanthropy partnerships in the area, including with the Los Angeles County Public Library Foundation for Science Technology Engineering Art Math ("STEAM") education programs and the Columbia Memorial Space Science Learning Center Foundation. SCE also worked closely with East Yard Communities for Environmental Justice to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

Earlimart

There are only two census tracts in this subdivision. Both are DAC-designated, comprising 14,978 people – 100% of the population. Earlimart subdivision is a rural agricultural area in the San Joaquin Valley, along the CA-99 transportation corridor in Tulare County. The median age in the county subdivision is 28.5 years old, which is much younger than the California median. Household and per capita income are both significantly lower than the state average. The largest ethnic group is Hispanic (93%) followed by Asian (4%) and White (1%). The most common language spoken other than English is Spanish, and 84% of adults speak this language in the home. High school and college graduation rates are both significantly lower than the California average. There are no large generating stations located in this subdivision; however, Wellhead Power's 50 MW natural gas Delano Energy Center is located just over the subdivision's southern border. There are also a number of solar generation facilities on the western and eastern borders of the subdivision. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

East Kern

There are two DAC-designated census tracts in this subdivision, comprising 7,895 people out of a total population of 81,688 – 10% of the population. This subdivision covers a large swathe of land containing part of Edwards Air Force Base and north of the base to the edge of the county line on the east side of the Piute Mountains. The DAC surrounds but does not include the census tracts of California City. The median age in the county subdivision is 34.8 years old, which is slightly younger than the California median. Household and per capita income are lower than the state averages. The largest ethnic group is White (53%), followed by Hispanic (29%) and Black (10%). The most common language spoken other than English is Spanish, and 18% of adults speak this language in the home. The high school graduation rate is higher than the California average, but the college graduation rate is significantly lower. Rio Tinto Minerals operates the 42 MW US Borax natural gas self-generation/cogeneration facility on the eastern edge of the subdivision. There are also substantial numbers of solar facilities in the subdivision as well as a few wind turbine projects. There are substantial numbers of wind generators located in the Tehachapi Pass just across the border of the subdivision to the west of the City of Mohave in the lower southwest quadrant of the subdivision. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group. SCE also closely with Fierce Courage to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

East San Gabriel Valley

There are 80 DAC-designated census tracts in this subdivision, comprising 374,131 people out of a total population of 938,269 – 40% of the population. The most heavily impacted DACs are along the transportation corridor of the I-605 freeway, and where it intersects with

I-210, I-10, and CA-60. This area is heavily industrialized. The median age in the county subdivision is 37.8 years old, which is slightly older than the California median. Household income is higher than the state average, although per capita income is lower. The largest ethnic group is Hispanic (54%), followed by Asian (24%) and White (17%). The most common language spoken other than English is Spanish, and 37% of adults speak this language in the home. High school and college graduation rates are lower than the California averages.
There are three gas-powered generators in the subdivision: Walnut Creek LLC's 50 MW natural gas Walnut Creek Energy Park, the Sanitation Districts of Los Angeles County's 50 MW Puente Hills biogas Energy Recovery facility, and Irwindale Brew Yard LLC's 15 MW self-generation/cogeneration plant. The Walnut Creek and Irwindale Brew Yard facilities are located in DACs and the Puente Hills facility is located adjacent to one. There are also several small solar and hydroelectric plants. With respect to neighboring subdivisions, OLS Energy Chino's 26 MW natural gas Chino Cogeneration self-generation/cogeneration plant and San Antonio Community Hospital's 3 MW self- generation/cogeneration plant are located four to five miles from DACs in the Ontario subregion. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Community Advisory Panel, including the San Gabriel Valley Conservation Corps, American Cancer Society, and CicLAvia. SCE also worked closely with Day One and Happy 50+ to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

Elsinore Valley

There are two DAC-designated census tracts in this subdivision, comprising 11,362 people out of a total population of 18,666 – 98% of the population. The DACs cover the City of Lake Elsinore which is adjacent to the I-15 freeway. Elsinore Valley is located in western Riverside County along the I-15 freeway. The median age in the county subdivision is 34 years old, which is younger than the California median. Household income is above the state average, although per capita income is lower. The largest ethnic group is Hispanic (48%), followed by White (37%) and Asian (7%). The most common language spoken other than English is Spanish, and 32% of adults speak this language in the home. The high school graduation rate is higher than the California average, but the college graduation rate is significantly lower. There are no fossil fuel power plants in the subdivision. There is only one small solar plant in the subdivision. The City of Riverside Public Utility Department's 32.5 MW natural gas Clearwater plant is located approximately 2 miles north of the northernmost edge of this subdivision, but that area is not populated and is not a DAC. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Community Advisory Panel, including Inland Empire Community Newspapers, Inland Action, Inc., and Black Voice News.

Exeter

There are three DAC-designated census tracts in this San Joaquin Valley, Tulare County subdivision, comprising 17,190 people out of a total population of 27,437 – 63% of the population. The DACs represent most of the City of Farmersville, the southern part of the City of Exeter and the agricultural areas surrounding and to the south of these areas. The median age in this subdivision is 32.8 years old, which is younger than the California median. Household and per capita income are significantly lower than the state averages. The largest ethnic group is Hispanic (64%), followed by White (33%) and Asian (1%). The most common language spoken other than English is Spanish, and 48% of adults speak this language in the home. High school and college graduation rates are lower than the California averages, with the college graduation rate being significantly lower. There are no large power plants of any kind in the region, only a few solar farms. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

Hanford

There are seven DAC-designated census tracts in this subdivision, comprising 39,350 people out of a total population of 69,673 – 56% of the population. This subdivision includes the City of Hanford and rural farmland to the south of the city in the San Joaquin Valley in Kings County. The entire subdivision is a DAC, except for the majority of the City of Hanford. The southern part of the city that lies along CA 198 is included in the DAC. The median age in the county subdivision is 33.1 years old, which is younger than the California median. Household and per capita income are lower than the state averages, with per capita income being significantly lower. The largest ethnic group is Hispanic (53%), followed by White (36%) and Black (4%). The most common language spoken other than English is Spanish, and 33% of adults speak this language in the home. High school and college graduation rates are lower than the California averages, with the college graduation rate being significantly lower. There is one large power plant in the subdivision, the MRP San Joaquin Energy, LLC's 92 MW natural gas Hanford Energy Park Peaker plant which is located 2 miles south of the City of Hanford. There is also one solar farm in the subdivision. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

Hanford Northeast

There is one DAC-designated census tract making up this subdivision, comprising 3,053 people – 100% of the population. This subdivision consists of rural farmland to the north and east of the City of Hanford in the San Joaquin Valley in Kings County. The median age in the county subdivision is 41.2 years old, which is older than the California median. Household income is slightly higher than the state average, while per capita income is slightly lower. The largest ethnic group is White (57%), followed by Hispanic (36%) and Asian (5%). The most common language spoken other than English is Spanish, and 27% of adults speak this language in the home. High school and college graduation rates are lower than the California averages, with the college graduation rate being significantly lower. There are no fossil fuel power plants in the subdivision, KES Kingsburg LP's 34.5 MW Kingsburg Cogeneration plant is located approximately 3.5 miles north of the subdivision border, and there is one small solar facility in on the northwest edge of the subdivision, the Hanford Emergency Peaker. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

Hemet-San Jacinto

There are four DAC-designated census tracts in this Riverside County subdivision, comprising 26,201 people out of a total population of 171,135 – 15% of the population. These DACs include the downtown and northwest sections of the City of Hemet, the northern section of the City of Hemet extending into the City of San Jacinto, and the rural northern end of the San Jacinto Valley. The median age in the county subdivision is 35 years old, which is younger than the state median. Household and per capita income are significantly lower than the state averages. The largest ethnic groups are Hispanic (50%), White (37%), followed by Black (7%). The most common language spoken other than English is Spanish, and 31% of adults speak this language at home. The high school and college graduation rates are lower than the state average, with the college graduation rate being significantly lower. There are no fossil fuel power plants in the subdivision, which contains two solar facilities. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff, corporate philanthropy partnerships and through members of the Community Advisory Panel, including Inland Empire Community Newspapers, Inland Action, Inc., and Black Voice News. SCE also worked closely with Building Resilient Communities to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

Inglewood

There are 66 DAC-designated census tracts in this Los Angeles County subdivision, comprising 320,797 people out of a total population of 376,933 – 85% of the population. Many customers live in DACs, the worst of which lie along the west side of the I-710 corridor, which transports goods to and from the Port of Long Beach. The median age in the county subdivision is 35.4 years old, which is slightly younger than the California median. Household and per capita income are lower than the state averages, with per capita income being significantly lower. The largest ethnic group is Hispanic (54%), followed by Black (27%), Asian (8%), and White (8%). The most common language spoken other than English is Spanish, and 46% of adults speak this language in the home. High school and college graduation rates are lower than the California averages, with the college graduation rate being significantly lower. There are no power plants in the subdivision. However, there are numerous fossil fuel plants located nearby that could impact Inglewood DACs. The LAX Airport's 8 MW Central Facility Plant cogeneration facility, LADWP's 876 MW natural gas Scattergood plant, the City of Vernon's 42 MW Vernon plant, and Colorado Energy Management LLC's 130 MW Malburg Generating Station in the Los Angeles subdivision are all located within 5 miles of Inglewood DAC residential areas. The South Bay Cities subdivision's El Segundo Power LLC's 526 MW El Segundo Energy Center, Chevron's 180 MW El Segundo Refinery Cogeneration plant, and AES's 850 MW natural Redondo Beach power plant are similarly located within 5 miles of Inglewood's residential DACs. All of Compton subdivision's five plants (Watson Cogeneration Company's 398 MW natural gas self-generation/cogeneration plant; Tesoro LAR's Andeavor

Los Angeles Refinery self-generation/cogeneration plant (MW not available); Sanitation Districts of Los Angeles County's 38 MW gas digester Total Energy Facilities plant; Eco Services Operations Corp's 5 MW natural gas Rhodia Dominguez Plant self-generation/cogeneration facility and Carson Cogeneration Company's self-generation/cogeneration plant -- appears to be shut down) are also all within 5 miles of Inglewood's residential DACs, as are the Torrance subdivision's PBF Energy LLC's 49 MW natural gas Torrance Refinery self-generation/cogeneration plant and the Los Angeles subdivision's Toyota Motor Engineering & Manufacturing NA Inc.'s 1.5 MW self-generation/cogeneration facility. There are several small cogeneration facilities in the broader South Bay region, including adjacent subdivisions. SCE engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff, through members of the Consumer Advisory Panel, including the American Cancer Society and CicLAvia, several representatives on its Clean Energy Access Working Group (Village Solutions Foundation, Business Resource Group, Grid Alternatives, Social Justice Learning Institute), and through its corporate philanthropy partnerships (including I Have a Dream Foundation, Our Community Works, Social Justice Learning Institute, South Bay Workforce Investment Board, and Urban Scholars Academy). SCE also worked closely with Breathe SoCal and Village Solutions to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

Irvine-Lake Forest

There are two DAC-designated census tracts in this Orange County subdivision, comprising 9,672 people out of a total population of 270,166 – 4% of the population. The subdivision is located in south-central Orange County. The DAC census tracts are adjacent to the I-5 and CA-133 freeways. The majority of the subdivision's census tracts are not rated as DACs. The median age in the county subdivision is 37.1 years old, which is older than the California median. Household and per capita income in the subdivision are significantly higher than the state averages. The largest ethnic group is White (42%), followed by Asian (39%) and Hispanic (12%). The most common language other than English is Asian/Islander, and 26% of adults speak this language in the home. High school and college graduation rates are higher than the California averages, with college graduation rates being significantly higher. Bowerman Power LFG's 26 MW Bowerman Power Landfill Gas plant is the only generating facility in the subdivision and is located 1.5 miles from the DAC residential areas. The Anaheim-Santa Ana-Garden Grove subdivision's B Braun Medical's 6 MW generation/cogeneration facility is also located within 5 miles of the DAC residential areas. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the Community Action Partnership of Orange County and the executive director of the organization Walking Shield.

Ivanhoe

There is one DAC-designated census tract making up this subdivision, comprising 7,837 people – 100% of the population. Ivanhoe is a census-designated location just northeast of the City of Visalia in Tulare County. The median age in the county subdivision is 33.2 years old, which is younger than the California median. Household and per capita income in the subdivision are significantly lower than the state averages. The largest ethnic group is Hispanic (72%), followed by White (25%) and "Two plus" ethnicities (3%). The most common language other than English is Spanish, and 61% of adults speak this language in the home. High school and college graduation rates are lower than the California averages, with the college graduation rates being significantly lower. There are no fossil fuel fired generating stations in or near this subdivision, only one small solar generating facility. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air

Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

Jurupa

There are 14 DAC-designated census tracts in this subdivision, comprising 84,622 people out of a total population of 167,930 – 50% of the population. The DACs are located on both sides of the CA-60 freeway in the northern part of the subdivision to the west of the City of Riverside. The median age in the county subdivision is 32.9 years old, which is younger than the California median. Household income is higher than the state average, with per capita income lower than the state average. The largest ethnic group is Hispanic (59%), followed by White (20%) and Asian (13%). The most common language other than English spoken is Spanish, and 43% of adults speak this language in the home. High school and college graduation rates are lower than the California averages, with the college graduation rate being significantly lower. There are no power plants of any kind located in the subregion. However, to the northeast, SCE's 49 MW natural gas Mira Loma Peaker is located immediately adjacent to the border in the Ontario subdivision and close to DAC residential areas and New Indy Ontario LLC's 32 MW Ontario Mill (New-Indy Containerboard) self-generation/cogeneration facility is located approximately three quarters of a mile to the north in the San Bernardino subregion. To the southeast, the City of Riverside Public Utility Department's 192 MW gas-fired Riverside Energy Resource Center peaker plant is located immediately adjacent to the border and within a quarter mile of DAC residential areas. To the northeast, three of the City of Colton's gas facilities in the San Bernardino subregion are within one to three miles of DAC residential areas. These include the City of Colton's 61 MW Agua Mansa Power Plant, and Colton Power LP's 46 MW Alliance Draws peaker and 46 MW Alliance Century peaker. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff, corporate philanthropy partnerships (Reach Out West End) and through members of the Community

Advisory Panel, including Inland Empire Community Newspapers, Inland Action, Inc., and Black Voice News.

Lake Arrowhead

There is one DAC-designated census tracts in this San Bernardino County subdivision, comprising 3,820 people out of a total population of 19,181 – 20% of the population. The DAC census tract is located along the transportation corridors of I-215 and I-15 on the west side of the subdivision. The median age in the county subdivision is 45.2 years old, which is much older than the California median. Household and per capita income are lower than the state average. The largest ethnic groups are White (68%), followed by Hispanic (23%) and Black (3%). The most common language spoken other than English is Spanish, with 11% of adults speaking this language at home. The high school graduation rate is higher than the California average, but the college graduation rate is lower. There are no fossil fuel power plants in this subdivision. There is one hydroelectric plant, the California Department of Water Resources' 32 MW Mohave Siphon plant located north of Silverwood Lak close to the edge of the subdivision. SCE engages with the DAC-designated communities through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including Inland Empire Community Newspapers, Inland Action, Inc., and Black Voice News.

Lake Isabella

There is one DAC-designated census tract in this Kern County subdivision, comprising 5,963 people out of a total population of 15,427 – 39% of the population. The DAC area extends from Keyesville on Lake Isabella down the CA-178 highway towards Bakersfield.
The median age in the county subdivision is 54.8 years old, which is significantly older than the California median. Household and per capita income are significantly lower than the state averages. The largest ethnic group is White (85%), followed by Hispanic (8%) and Native (2%). The most common language spoken other than English is Spanish, and 4% of adults speak this language in the home. The high school graduation rate is higher than the California average,

and the college graduation rate is significantly lower than the California average. There are no fossil fuel fired power plants in the subdivision; however, there are several mid-sized hydroelectric facilities, SCE's Kern River 3, Isabella, and Borel plants, and the 64 MW Mt. Poso Cogeneration biofuel cogeneration plant near the western edge of the subdivision. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

Lake Mathews

There are two DAC-designated census tracts in this Riverside County subdivision, comprising 11,237 people out of a total population of 28,265 – 40% of the population. The DACs within this subdivision lie alongside the I-15, CA-91, and I-215 freeways that border the subdivision. A small part of the subdivision's northern area is located in the Riverside Public Utilities service area. The median age in the county subdivision is 36.4 years old, which is slightly younger than the California median. Household income is higher than the state average, with per capita income lower than the state average. The largest ethnic groups are Hispanic (53%), followed by White (35%) and Black (7%). The most common language spoken other than English is Spanish, and 42% of adults speak this language in the home. High school and college graduation rates are lower than the California averages, with the college graduation rate being significantly lower. There are no fossil fuel power plants in this subdivision. However, the City of Riverside's 40 MW Springs Generation Project is located approximately 4 miles north of the eastern border of the subdivision. There is one hydroelectric project, the Metropolitan Water District's Lake Mathews plant, located within the subdivision. SCE engages with the DAC-designated communities through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including Inland Empire Community Newspapers, Inland Action, Inc., and Black Voice News.

Lindsay

There are four DAC-designated census tracts in this subdivision, comprising 18,018 people out of a total population of 18,018 – 100% of the population. Lindsay county subdivision is located in the San Joaquin Valley in Tulare County, east of the City of Tulare. The median age in the county subdivision is 34 years old, which is younger than the California median. Household and per capita income are significantly less than the state average. The largest ethnic group is Hispanic (81%), followed by White (17%) and Asian (1%). The most common language spoken other than English is Spanish, and 69% of adults speak this language in the home. High school and college graduation rates are both significantly lower than the California averages. There are no fossil fuel power plants in the county subdivision, just one small solar farm. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

Long Beach-Lakewood

There are 67 DAC-designated census tracts in this Los Angeles County subdivision, comprising 295,584 people out of a total population of 574,378 – 51% of the population. The bulk of the DACs are located along the I-710 freeway, which is a major transportation corridor traversed by freight trucks coming from the ports and other vehicles. These DACs are contiguous with the larger South Bay DAC area in the Torrance, Los, Angeles, and Compton subdivision areas. There are also small DAC areas in Hawaiian Gardens and an industrial area just south of the intersection of the I-405 and I-605 freeways. The median age in the county subdivision is 35.8 years old, which is younger than the California median. Household and per capita income are lower than the state averages. The largest ethnic group is Hispanic (43%), followed by White (29%) and Asian (13%). The most common language spoken other than English is Spanish, and 31% of adults speak this language in the home. High school and college graduation rates are slightly lower than the California averages. Several gas power plants are situated near the I-710 transit corridor and within the adjacent DAC areas. Several more are located nearby in adjacent subdivisions. THUMS Long Beach Company's 48 MW natural gas THUMS plant is located in downtown Long Beach in a DAC and close to residential DAC areas. Long Beach Generation LLC's 260 MW natural gas Long Beach Generation LLC power plant and the SERFF Joint Powers Authority's 35 MW biofuel Southeast Resource Recovery plant are located just to the east of downtown in the Long Beach Port DAC region. Tesoro's 35 MW Calciner plant is also in that area. All three of these facilities are within 2-3 miles of DAC residential areas. Just over the LA subregion border in Wilmington, LADWP's 83 MW natural gas Los Angeles Refinery Tesoro project, Wilmington Air Product's 32 MW natural gas self-generator/cogenerator plant, Harbor Cogeneration Company's 107 MW natural gas cogeneration facility, and LADWP's 548 MW Harbor Plant are all within 0.5-4 miles of Long Beach DAC residential areas. Several refineries are also in that area. Just over the Compton subdivision border the Watson Cogeneration Company's 398 MW natural gas self-generation/cogeneration plant, Tesoro LAR's Andeavor Los Angeles Refinery self-generation/cogeneration plant (MW not available), Sanitation Districts of Los Angeles County's 38 MW gas digester Total Energy Facilities plant, and Eco Services Operations Corp's 5 MW natural gas Rhodia Dominguez Plant self-generation/cogeneration facility are all within a few miles of DAC residential areas. In the small industrial DAC area near the subdivision's southern border are located the LADWP's 1739 MW natural gas combined cycle Hanes Generating Station, AES Alamitos LLC's 1135 MW natural gas combined cycle Alamitos power plant, and AES Southland's 710 MW Alamitos Energy Center. There are no generating facilities within five miles of the Hawaiian Gardens DAC in the northeast of the subdivision. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including Ujima Housing Corps Long Beach City College, American Cancer Society and CicLAvia, members of the Clean Energy Access Working Group, including Ujima Housing Corp, as well as corporate philanthropy partnerships including, but not limited to, 100 Black Men of Long Beach, Aquarium of the Pacific, Boys and Girls Club – Long Beach, Cambodia Town, Centro CHA, Conservation Corps Long Beach, CSULB 49er Foundation, Disability Rights Legal Center, Disabled Resources Center, Inc., Friends of the Long Beach Firefighters, Habitat for Humanity of Greater Los Angeles, Hispanas Organized for Political Equality, Khmer Girls in Action, Leadership Long Beach, Long Beach BLAST, Long Beach City College Foundation, Long Beach Community Action Partnership, Long Beach Education Foundation, Long Beach Public Library Foundation, One in Long Beach. SCE also worked closely with Breathe SoCal and Fierce Courage to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

Los Angeles

There are 73 DAC-designated census tracts in the SCE service area portion of this Los Angeles County subdivision, comprising 298,546 people out of a total population of 760,6576 – 39% of the population. That represents about a quarter of the population of the overall subdivision. The bulk of the census tracts within the subdivision fall in the service area of the Los Angeles Department of Water and Power ("LADWP") and make up the western section of the subdivision. Many of the DACs in this subdivision fall along the major truck routes from the ports to metropolitan Los Angeles – the I-110 and I-710 freeways. The median age of the subdivision is 35.3 years old, which is slightly lower than the California median. Household income is lower than the California average, while per capita income is higher. The largest ethnic group is Hispanic (47%), followed by White (26%) and Asian (12%). The most common language spoken other than English is Spanish, and 39% of adults speak Spanish only. The high school graduation rate is lower than the state average, but the college graduation rate is slightly higher. There are several gas-powered plants in the subdivision, but they belong to LADWP and fall outside of SCE's service area. SCE engages with the DAC-designated communities through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the American Cancer Society and CicLAvia.

Morongo Band of Mission Indians

There is one DAC-designated census tract representing the Morongo Indian reservation and off-reservation trust land which is located along the I-10 near the City of Banning, in the Banning pass in Riverside County. The bulk of the reservation lands are located north of the I-10 freeway, with additional parcels south of the freeway in the San Jacinto Mountains. The tribe also controls two small trust land parcels adjacent to the City of Cabazon. The population living on the reservation is listed as 859. There are no residents listed as living on the trust land. The median age on the reservation is 41.4 years old, which is older than the California median. Household and per capita income are lower than the state averages. The largest ethnic group is Native (54%), followed by Hispanic (23%) and White (17%). The most common language spoken other than English is Spanish, and 4% of adults speak this language in the home. The high school graduation rate is higher than the California average and the college graduation rate is lower. The 135 MW Indigo Generation LLC natural gas peaker plant and the 800 MW Sentinel Energy Center natural gas peaker plant are located in North Palm Springs, approximately 9 miles from the easternmost parcel of the reservation. There are several wind farms located adjacent to the reservation in the pass and multiple large wind farms to the east in North Palm Springs. There are also a few small solar arrays located in North Palm Springs. SCE regularly engages with the tribe through its Local Public Affairs and Business Customer Division tribal liaisons. The Executive Director of Walking Shield represents American Indian interests on SCE's Consumer Advisory Panel. SCE also worked closely with the American Indian Chamber of Commerce of California to do tribal climate adaptation outreach and community member surveys as part of the Climate Resilience Leadership Group.

Newberry Springs-Baker

There is one DAC-designated census tract in this San Bernardino County subdivision, comprising 3,547 people out of a total population of 13,419 – 26% of the population. The subdivision consists of approximately half of Fort Irwin, a US military base, and a large area of open land that includes the Mojave National Preserve and extends to the Nevada border. The DAC includes all land in the subdivision other than Fort Irwin. The median age in the county subdivision is 24.9 years old, significantly younger than the California median. Household and per capita income are both lower than the state averages, with per capita income significantly lower. The largest ethnic group is White (49%), followed by Hispanic 22% and Black (13%). The most common language spoken other than English is Spanish, with 15% of adults speaking this language in the home. The high school graduation rate is higher than the California average, while the college graduation rate is significantly lower. There are no fossil fuel fired power plants in this subdivision, although there are several large solar projects including the 34 MW Clenera Renewable Energy Sunray project east of Barstow, and the Desert Stateline Solar LLC's 249 MW Desert Stateline Solar project and the Solar Partners I II VIII LLC's 392 MW Ivanpah concentrating solar power (CSP) plant located along the I-15 near the Nevada border. SCE engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including Inland Empire Community Newspapers, Inland Action, Inc., and Black Voice News.

North Antelope Valley

There are ten DAC-designated census tracts in this Los Angeles County subdivision, comprising 44,046 people out of a total population of 190,657 – 23% of the population. The DAC area covers a small portion of the northern part of the City of Lancaster and the rural land to the north and east of the city. The bulk of the city is not considered a DAC. The median age in the county subdivision is 34.3 years old, which is younger than the California median. Household and per capita income are lower than the state averages, with per capita income significantly lower. The largest ethnic group is Hispanic (42%), followed by White (32%) and Black (18%). The most common language spoken other than English is Spanish, and 24% of adults speak this language in the home. The high school graduation rate is lower than the California average, and the college graduation rate is significantly lower. There are no fossil fuel fired power plants in the subdivision. However, there are numerous solar facilities in the subdivision and a few wind projects. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff, through members of the Consumer Advisory Panel, including the American Cancer Society and CicLAvia, and through corporate philanthropy partnerships (including Antelope Valley College Foundation and Boys and Girls Club Antelope Valley).

North Coast

There are six DAC-designated census tracts in this Orange County subdivision, comprising 40,647 people out of a total population of 377,745 – 11% of the population. The DACs are located primarily between the CA-22 and I-405 freeways along CA-39, with one block in the center of the subdivision. The median age in the county subdivision is 43.7 years old, which is older than the state median. Household and per capita income are higher than the state averages. The largest ethnic group is White (49%), followed by Asian (26%) and Hispanic (20%). The most common language spoken other than English is Asian/Islander, and 22% of adults speak this language in the home. High school and college graduation rates are both higher than the California averages. Four gas-fired power plants are in this subdivision: the 215 MW AES Huntington Beach power plant, 696 MW Huntington Beach Energy Project, 16 MW Orange County Sanitation District Plant No. 2 digester gas self-generation/cogeneration plant in Huntington Beach, and the 7.5 MW Orange County Sanitation District's Plant No. 1 natural gas self-generation/cogeneration plant in Fountain Valley. These plants are not located near DACs, but they are within 5 miles of DAC residential areas. The Anaheim-Santa Ana-Garden Grove subdivision's 121 MW Wellhead Stanton Energy Reliability Center and 49 MW SCE Barre

Peaker are also located within 5 miles of the North Coast subdivision's DAC residential areas. SCE regularly engages with the DAC-designated communities in the North Coast subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the Community Action Partnership of Orange County and the executive director of the organization Walking Shield. SCE also worked closely with Fierce Courage and Village Solutions to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

Ontario

There are 55 DAC-designated census tracts in this San Bernardino County subdivision, comprising 286,398 people out of a total population of 666,032 – 43% of the population. The DACs are located in the heart of the subdivision surrounding the I-10, CA-60 I-15 freeway transit corridors (e.g., I-10 and CA-60 freeways) and near Ontario International Airport. The median age in the county subdivision is 35.5 years old, which is slightly younger than the California median. Household income is higher than the state average, but per capita income is lower. The largest ethnic group is Hispanic (50%), followed by White (26%) and Asian (14%). The most common language spoken other than English is Spanish, and 30% of adults speak this language in the home. The high school graduation is higher than the California average, and the college graduation rate is lower. There are three natural gas power plants in this subregion: SCE's 49 MW natural gas Mira Loma Peaker in the City of Mira Loma, OLS Energy Chino's 26 MW natural gas Chino Cogeneration self-generation/cogeneration plant in Chino, and San Antonio Community Hospital's 3 MW self-generation/cogeneration plant in Upland. The Chino Cogeneration facility is not located in a DAC, but within 2 miles of DAC residential areas. The other two facilities are located in DACs. Two fossil fuel facilities in the San Bernardino subsection are also located close to Ontario subregion DACs. SCE's 49 MW Etiwanda Peaker is located a half mile from the border and New Indy Ontario LLC's 32 MW Ontario Mill (New-Indy Containerboard) self-generation/cogeneration facility is about 2 miles away. There are also significant amounts of solar generation in the area. SCE regularly engages with the DAC-designated communities in the Ontario subdivision through representatives its Local Public Affairs staff and through members of the Consumer Advisory Panel, including Inland Empire Community Newspapers, Inland Action, Inc., and Black Voice News. SCE also engages through its Clean Energy Access Working Group representatives from KIGT and Los Angeles Cleantech Incubator), as well as through its corporate philanthropy partnerships (including Ontario-Montclair Schools Foundation). SCE also worked closely with East San Gabriel Valley Japanese Community Center, Happy Fifty Plus, and Inland Empire Concerned African American Churches to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

Orosi-Cutler

There is one DAC-designated census tract making up this subdivision within SCE's service area, comprising 6,998 people – 100% of the population. Orosi-Cutler county subdivision is located within the San Joaquin Valley in Tulare County. On a map, it appears that this subdivision falls within PG&E's service area, however SCE has 59 residential and 26 non-residential customers listed in this census tract. The median age in the county subdivision is 29.1 years old, which is much younger than the California median. Household income and per capita income are significantly lower than the state averages. The largest ethnic group is Hispanic (87%), followed by White (6%) and Asian (4%). The most common language spoken other than English is Spanish, with 73% of adults speaking this language in the home. High school and college graduation rates are both significantly lower than the California averages. There are no large power plants of any kind within or near this subdivision, although there are a few small solar facilities. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

<u>Oxnard</u>

There are nine DAC-designated census tracts in this Ventura County subdivision, comprising 48,725 people out of a total population of 244,352 – 20% of the population. The DAC areas include the coast between the Port Hueneme and Point Mugu sections of Naval Base Ventura County north to the I-101 freeway, a small portion of east Oxnard, the Oxnard Airport and neighborhoods north and to the coast, and an area just north of I-101 along CA-232. The median age in the county subdivision is 32.7 years old, which is younger than the California median. Household and per capita income are lower than the state averages, with per capita income being significantly lower. The largest ethnic group is Hispanic (73%), followed by White (16%) and Asian (6%). The most common language spoken other than English is Spanish, and 56% of adults speak this language in the home. The high school and college graduation rates are both lower than the California average, with the college graduation rate significantly lower. There are multiple fossil fuel and biofuel power plants scattered throughout the subdivision. GenOn Holding Inc.'s 1613 MW natural gas Ormond Beach Generating Station, New-Indy Oxnard LLC's 29 MW natural gas Oxnard Mill (New-Indy Containerboard) self-generation/cogeneration facility, and the City of Oxnard Wastewater Division's 1.5 MW Oxnard Wastewater Treatment Plant are all located along the coast in the DAC area between the two military base parcels. The Proctor and Gamble Paper Products Company operates a 70 MW natural gas self-generation/cogeneration facility and EF Oxnard Inc. operates a 49 MW natural gas self-generation/cogeneration facility in DAC areas just south of the I-101 freeway. SCE's 49 MW natural gas McGrath Peaker is located outside of but adjacent to a DAC area and is located approximately 2.5 miles from a DAC residential area. There are also three solar and one hydropower project in this area. SCE regularly engages with the DAC-designated communities in the Oxnard subdivision through its Local Public Affairs staff and corporate philanthropy partnerships, including Boys and Girls Club Greater Oxnard and Port Hueneme, El Concilio Family Services, Goodwill Industries of Ventura and Santa Barbara Counties, Mixteco/Indigena Community Organizing Project, The Oxnard College Foundation and the Ventura County Community Foundation. SCE also worked closely with Village Solutions to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

Pechanga Band of Indians

There is one DAC-designated census tract representing the Pechanga reservation, which is located south of the City of Temecula adjacent to the Agua Tibia Wilderness in Riverside County. The population living on the reservation is listed as 431. The median age on the reservation is 29.7 years old, which is younger than the California median. Household and per capita income are slightly lower than the state averages. The largest ethnic groups are Native (34%) and Hispanic (34%), followed by White (9%). The most common language spoken other than English is Indo-European, and 4% of adults speak this language in the home. The high school graduation rate is higher than the California average and the college graduation rate is lower. There is one 100 MW natural gas peaker, Orange Grove Energy, located approximately 5 miles southeast of the southern border of the reservation on the other side of the mountains. SCE regularly engages with the tribe through its Local Public Affairs and Business Customer Division tribal liaisons. The Executive Director of Walking Shield represents American Indian interests on SCE's Consumer Advisory Panel. SCE also worked closely with the American Indian Chamber of Commerce of California to do tribal climate adaptation outreach and community member surveys as part of the Climate Resilience Leadership Group.

Perris Valley

There are 10 DAC-designated census tracts in this Riverside County subdivision, comprising 78,386 people out of a total population of 305,694– 26% of the population. The DACs are primarily located in the heart of the valley along the I-215 and CA-74 freeways as well as to the northeast at the base of the Lakeview Mountains. The median age in the county subdivision is 33.2 years old, younger than the California median. Household and per capita income are lower than the state averages, with per capita income significantly lower. The largest ethnic group is Hispanic (56%), followed by White (27%) and Black (9%). The most common language spoken other than English is Spanish, and 42% of adults speak this language in the home. The high school graduation rate is lower than the California average, and the college graduation rate significantly lower. There are no natural gas power plants located in the subdivision, only two solar and two hydroelectric facilities including the Metropolitan Water District's 30 MW Diamond Valley Lake pumped hydro project. The City of Riverside Public Utilities Department's 40 MW natural gas Springs Generation Project in the Riverside subdivision is located within 5 miles of the northern subdivision border. SCE regularly engages with the DAC-designated communities in the Perris Valley subdivision through its Local Public Affairs staff, through members of the Consumer Advisory Panel, including Inland Empire Community Newspapers, Inland Action, Inc., and Black Voice News, and through two Clean Energy Access Working Group representatives in the Riverside area, from Grid Alternatives Inland Empire. SCE also worked closely with Building Resilient Communities to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

Pixley

There is one DAC-designated census tract making up this subdivision, comprising 5,934 people – 100% of the population. Pixley subdivision is located in the San Joaquin Valley in Tulare County just southwest of Porterville. The median age in the subdivision is 29.8 years old, much younger than the California median. Household and per capita income are both significantly lower than the state averages. The largest ethnic group is Hispanic (88%), followed by White (7%) and Black (3%). The most common language spoken other than English is Spanish, and 76% of adults speak this language in the home. High school and college graduation rates are both significantly lower than the California averages, with the college graduation rate being only 3%. There is one natural gas power plant in this subdivision, Calgreen Renewable Fuels LLC's 12 MW Pixley Cogen plant located about 2 miles north of Pixley. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

Porterville

There are nine DAC-designated census tracts in this subdivision, comprising 51,598 people out of a total population of 75,022 – 69% of the population. This subdivision is located in the San Joaquin Valley in Tulare County. The DAC covers the whole subdivision except for neighborhoods in the northwest quadrant of the City of Porterville. The median age in the subdivision is 31.5 years old, which is younger than the California median. Household and per capita income are both significantly lower than the state average. The largest ethnic group is Hispanic (67%), followed by White (25%) and Asian (4%). The most common language spoken other than English is Spanish, and 51% of adults speak this language in the home. High school and college graduation rates are lower than the California averages, with the college graduation rate being significantly lower. There are no fossil fuel power plants in the subdivision, but there are a few solar farms. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff, corporate philanthropy partnerships (including Porterville College Foundation) and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

Riverside

There are 27 DAC-designated census tracts in the SCE service area of this Riverside County subdivision, comprising 121,126 people out of a total population of 272,639 – 44% of the population in SCE's service area. Just under half of the population in the overall subdivision is in the service areas of the City of Riverside's Riverside Utilities Department which serves the northwest portion of the subdivision. SCE serves the northwestern, eastern and southern portions of the subsection, outside of the City of Riverside's boundary. In general, the DACs are located along the CA-91, CA-60, and I-215 freeways in the City of Riverside, the City of Moreno Valley and March Air Reserve Base. The DACs in SCE's service territory include one small area to the northwest and one to the northeast of the City of Riverside and the DACs surrounding the City of Moreno Valley and March Air Reserve Base. The median age in the subdivision is 31.6 years old, which is younger than the California median. Household and per capita income are lower than the state averages, with per capita income significantly lower. The largest ethnic group is Hispanic (56%), followed by White (25%) and Black (9%). The most common language spoken other than English is Spanish, and 39% of adults speak this language in the home. High school and college graduation rates are lower than the California averages, with the college graduation rate being significantly lower. SCE is only characterizing the DAC communities in its service area. There are no generating facilities in SCE's DAC parcel in the northwest, however the City of Riverside Public Utility Department's 192 MW gas-fired Riverside Energy Resource Center peaker plant is located immediately adjacent to this area and SCE's 49 MW gas-fired Mira Loma Peaker is located three miles to the northwest. Similarly, there are no generating facilities in SCE's DAC parcel to the northeast; however, four gas plants are located in the City of Colton in DACs just over the San Bernardino subdivision border within one to three miles from SCE's DAC area. They include the City of Colton's 61 MW Agua Mansa Power Plant, Colton Power LP's 46 MW Alliance Draws peaker and 46 MW Alliance Century peaker, and Loma Linda University's 10 MW self-generation/cogeneration plant. Again, there are no generating stations in SCE's Moreno Valley DAC area in the east. However, the City of Riverside Public Utilities Department's 40 MW natural gas Springs Generation

Project is not located in a DAC but is within a quarter mile of Moreno Valley DAC neighborhoods. This is the only fossil fuel plant in this area. There is also solar generation in this area. The City of Riverside Waste Management Department's RCWMD Badlands Power Plant that is located in a non-DAC area of SCE's service territory is currently out of service. SCE regularly engages with the DAC-designated communities in the Riverside subdivision through its Local Public Affairs staff, corporate philanthropy partnerships (including Building Resilient Communities, Conservation Lands Foundation, Grid Alternatives Inland Empire, Inland Empire Community Foundation, La Sierra University, Riverside County Office of Education, Riverside County Parks Foundation and University of California, Riverside), through members of the Consumer Advisory Panel, including Inland Empire Community Newspapers, Inland Action, Inc., and Black Voice News, and through two Clean Energy Access Working Group representatives in the Riverside area from Grid Alternatives Inland Empire. SCE also worked closely with Building Resilient Communities to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

San Bernardino

There are 96 DAC-designated census tracts in SCE's service area in this San Bernardino County subdivision, comprising 552,0137 people out of a total population of 849,858 – 65% of the population in SCE's area. The DACs comprise the bulk of the census tracts in the center of this subdivision and are located along the I-10 and I-215 freeways in and to the east of the City of San Bernardino. The City of Colton in the south of the subregion has its own municipal utility, Colton Electric Utility, and is not included in SCE's characterization of this region. The median age in the subdivision is 31.8 years old, which is younger than the California median. Household and per capita income are lower than the state averages, with per capita income significantly lower. The largest ethnic group is Hispanic (65%), followed by White (18%) and Black (9%). The most common language spoken other than English is Spanish, and 46% of adults speak this language in the home. The high school graduation rate is lower than the

California average, and the college graduation rate is significantly lower. There are numerous natural gas, solar, wind, and hydroelectric facilities located in the subregion. Natural gas facilities in SCE's service territory include SCE's 1054 MW Mountainview Generating Station in the City of Redlands, SCE's 49 MW Etiwanda Peaker in Rancho Cucamonga, New Indy Ontario LLC's 32 MW Ontario Mill (New-Indy Containerboard) 32 MW self-generation/cogeneration facility in the City of Ontario, and Loma Linda University's 10 MW self-generation/cogeneration plant in the City of Loma Linda. All of these power plants are located within DACs except for the Mountainview Generating Station, which is located immediately adjacent to a DAC. The gas generating plants in the City of Colton's service are all located in DACs that are immediately adjacent to DACs in SCE's service area. These include the City of Colton's 61 MW Agua Mansa Power Plant and Colton Power LP's 46 MW Alliance Draws peaker and 46 MW Alliance Century peaker, SCE's 49 MW gas-fired Mira Loma Peaker is also located one mile south of the southern corner of the subdistrict. SCE regularly engages with the DAC-designated communities in the San Bernardino subdivision through its Local Public Affairs staff, corporate philanthropy partnerships (including Breathe Southern California, California Releaf, California State University, San Bernardino, Coalition for Clean Air, Community Action Partnership of San Bernardino County, Inland Empire Community Foundation, Inland SoCal United Way, Rolling Start Incorporated, San Bernardino City Library Foundation and San Bernardino Valley College Foundation), and through members of the Consumer Advisory Panel, including Inland Empire Community Newspapers, Inland Action, Inc., and Black Voice News. SCE also worked closely with Building Resilient Communities, Happy Fifty Plus, and Inland Empire Concerned African American Churches to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

<u>San Fernando Valley</u>

There are 11 DAC-designated census tracts in the SCE service area of this Los Angeles County subdivision, comprising 52,741 people out of a total population of 239,207 – 22% of the population in SCE's area. Over 80% of the population within this subdivision is served by LADWP or other municipal utilities (Burbank Water and Power, Glendale Water and Power). In the overall subdivision, the DACs are located in the heart of the valley along the I-5, CA-170, and I-210 freeways. SCE's service territory covers the non-DAC census tracts on the periphery of the subdivision and 11 DAC census tracts in the City of San Fernando. The median age in the county subdivision is 38.2 years old, which is older than the California median. Household and per capita income are slightly lower than the state averages. The largest ethnic group is Hispanic (42%), followed by White (40%) and Asian (11%). The most common language spoken other than English is Spanish, and 33% of adults speak this language at home. The high school graduation rate is slightly lower than the California average, and the college graduation rate is slightly higher. This is a large subdivision and there are numerous power plants located in the valley: four large natural gas generating stations, three self-generation/ cogeneration facilities, two landfill digester gas plants, 4 facility solar arrays, and 5 small hydroelectric stations. Only the generating stations impacting the DAC community in the City of San Fernando (SCE's territory) are characterized here. The five fossil fuel generating stations that are located within five miles of the San Fernando DAC include the LADWP's 690 MW natural gas Valley Generating Station; Sunshine Gas Producers LLC's 23 MW landfill gas Sunshine Gas Producers Renewable Energy Project; LADWP's 6 MW landfill gas Bradley Landfill project; OPAL Fuels 3 MW waste-to-energy MM Lopez Energy LLC facility; and LA County ISD Health Services 6 MW Olive View Medical Center self-generation/cogeneration facility. All of these facilities are either located in a DAC or within one mile of one in the LADWP service territory portion of the subdivision. SCE regularly engages with the DAC-designated communities in the San Fernando Valley subdivision through its Local Public Affairs staff, corporate philanthropy partnerships (including DIY Girls and Theodore Payne Foundation) and through members of the Consumer

Advisory Panel, including the American Cancer Society and CicLAvia, and relationships with several Los Angeles-based Clean Energy Access Working Group representatives.

San Gorgonio Pass

There are three DAC-designated census tracts in this Riverside County subdivision, comprising 13,187 people out of a total population of 94,801 –14% of the population. This county subdivision is located where the CA-60 and I-10 freeways diverge, connecting traffic from the Los Angeles basin to the Coachella Valley. The DACs are located along the I-10 freeway in the City of Beaumont, the area surrounding the Banning Pass including Cabazon, and on the Morongo and Soboba reservations. It should be noted that the City of Banning is not in SCE's service area. Power is provided in this area by the city's Banning Electric Utility company. The median age in the county subdivision is 38.6 years old, which is slightly older than the California median. Household and per capita income are lower than the state averages. The largest ethnic group is Hispanic (43%), followed closely by White (40%) and Black (7%). The most common language spoken other than English is Spanish, with 24% of adults speaking this language at home. The high school graduation rate is higher than the California average, and the college graduation rate is significantly lower than the California average. There are no fossil fuel power plants in the subdivision or near the DACs; however, several large wind farms are located in the pass. SCE engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including Inland Empire Community Newspapers, Inland Action, Inc., and Black Voice News.

San Manuel Band of Mission Indians

There is one DAC-designated census tract representing the San Manuel reservation and off-reservation trust land, which is located just northeast of the City of Santa Bernardino and adjacent to the San Bernardino National Forest in San Bernardino County. The population living on the reservation is listed as 55. There are no residents listed as living on the adjacent trust land. The median age in the reservation is 48.1 years old, which is older than the California median. The per capita income is significantly higher than the California average and the household income information is unavailable. The largest ethnic groups are Native (51%) and Hispanic (36%), followed by White (7%). The high school graduation rate is higher than the California average and the college graduation rate is significantly lower. The closest natural gas fired power plant is the SCE's 1,054 MW Mountainview Generating Station which is located about 5 miles southwest of the southern border of the reservation in the City of Redlands. SCE regularly engages with the tribe through its Local Public Affairs and Business Customer Division tribal liaisons. The Executive Director of Walking Shield represents American Indian interests on SCE's Consumer Advisory Panel. SCE also worked closely with the American Indian Chamber of Commerce of California to do tribal climate adaptation outreach and community member surveys as part of the Climate Resilience Leadership Group

Santa Barbara

There is one DAC-designated census tract in this subdivision, comprising 5,766 people out of a total population of 192,676 – 3% of the population. The DAC is located in the City of Goleta in Santa Barbara County. The median age in the county subdivision is 33.4 years old, younger than the California median. Household income and per capita income are higher than the state averages. The largest ethnic groups are White (57%), Hispanic (31%), and Asian (8%). The most common language spoken other than English is Spanish, and 21% of adults speak this language at home. High school and college graduation rates are higher than the California averages, with the college graduation rate significantly higher. There is one natural gas generating facility in this subdivision. GenOn Holding's 56.7 MW natural gas Ellwood Generating Station peaker plant is located approximately 4 miles west of the DAC. SCE engages with the DAC-designated community in this subdivision through its Local Public Affairs staff.

Santa Monica

There are three DAC-designated census tracts in this Los Angeles County subdivision, comprising 16,305 people out of a total population of 91,577 – 18% of the population. These tracts are grouped around the I-10 freeway and are surrounded by a large urban non-DAC area. The median age in the subdivision is 40.5 years old, older than the California median. Household income is higher than the state average, with per capita income significantly higher at double the state average. The largest ethnic groups are White (63%), Hispanic (16%), and Asian (10%). The most common language spoken other than English is Spanish, although only 11% of adults speak this language at home. High school and college graduation rates are much higher than the California averages, with the college graduation rate significantly higher and double the state average. There are no fossil fuel power plants in the subdivision, however the 43 MW UCLA Energy Systems Facility natural gas self-generation/cogeneration plant is located approximately two and a half miles to the northwest. SCE engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the American Cancer Society and CicLAvia.

Soboba Band of Luiseño Indians

There is one DAC-designated census tract representing the Soboba reservation and off-reservation trust land, which is located just east of the City of San Jacinto in Riverside County, and adjacent to the San Jacinto Mountains. The population living on the reservation, which is home to both the Luiseño and Cahuilla people, is listed as 293. There are no residents listed as living on the adjacent trust land. The median age in the reservation is 32.2 years old, which is younger than the California median. The per capita income is lower than the California average, but the household income is higher. The largest ethnic groups are Native (71%) and Hispanic (20%), followed by White (6%). The most common language spoken other than English is listed as Other,[3] and 7% of adults speak this language in the home. The high school graduation rate is higher than the California average, but the college graduation rate is significantly lower at 4.8%. There are no fossil fuel or other large power plants in the vicinity of the reservation. SCE regularly engages with the tribe through its Local Public Affairs and Business Customer Division

[3] "Other" is likely the Luiseño language, which is still spoken.

tribal liaisons. The Executive Director of Walking Shield represents American Indian interests on SCE's Consumer Advisory Panel. SCE also worked closely with the American Indian Chamber of Commerce of California to do tribal climate adaptation outreach and community member surveys as part of the Climate Resilience Leadership Group.

South Antelope Valley

There are six DAC-designated census tracts in this Los Angeles County subdivision, comprising 25,202 people out of a total population of 219,119 – 12% of the population. The DAC area circles the City of Palmdale and is located primarily in rural land to the north, east, and southeast of the city. The majority of the city itself is not a DAC. The median age in the subdivision is 34.4 years old, younger than the California median. Household income is lower than the state average, with per capita income significantly lower. The largest ethnic groups are Hispanic (57%), White (27%), and Black (10%). The most common language spoken other than English is Spanish, and 39% of adults speak this language at home. High school and college graduation rates are lower than the California averages, with the college graduation rate significantly lower. There are no fossil fuel power plants in this subdivision. However, there are numerous solar facilities and one hydroelectric plant, the Los Angeles Flood Control District's San Gabriel Hydroelectric Project, close to the southern border of the subdivision, just above the City of Azusa. SCE engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the American Cancer Society and CicLAvia.

South Bay Cities

There are two DAC-designated census tracts in this Los Angeles County subdivision, comprising 0 people out of a total population of 139,193 – 0% of the population. These census tracts are commercial and industrial areas south of the Los Angeles International Airport and SCE has no residential customers in these locations. The median age in the subdivision is 40.5 years old, older than the California median. Household income and per capita income are significantly higher than the state averages, with household income 60% higher and per capita income double the state average. The largest ethnic groups are White (65%), Hispanic (13%), and Asian (11%). The most common language spoken other than English is Spanish, although only 7% of adults speak this language at home. High school and college graduation rates are both significantly higher than the California averages, with the college graduation rate almost double the state average. There are several large natural gas generating stations located in or adjacent to this subdivision. El Segundo Power LLC's 526 MW El Segundo Energy Center and Chevron's 180 MW El Segundo Refinery Cogeneration plant are located within the DAC area. LADWP's 876 MW Scattergood plant is located immediately outside of the subdivision and adjacent to the DAC. AES's 850 MW Redondo Beach power plant is located in the south of the subdivision but is not located in or adjacent to a DAC. SCE engages with the DAC-designated businesses in this subdivision through its Local Public Affairs Staff and Business Customer Division and through members of the Consumer Advisory Panel, including Long Beach City College, the American Cancer Society and CicLAvia.

South Gate - East Los Angeles

There are 115 DAC-designated census tracts in this Los Angeles County subdivision, comprising 487,074,015 people out of a total population of 498,109 – 98% of the population. Only two census tracts in this subdivision are not designated as DACs. The City of Vernon, in the upper northwest corner of the subdivision is not in SCE's service area but is served by the City of Vernon's Public Utilities Department. South Gate – East Los Angeles is located along the I-170 corridor and intersects with the I-10 and CA-60 freeways at the northern end of the subdivision. The median age in the county subdivision is 31.6 years old, which is much younger than the California median. Household and per capita income are both significantly lower than the state averages. The largest ethnic group is Hispanic (95%), followed by White (2%) and Black (1.4%). The most common language spoken other than English is Spanish, and 88% of adults speak this language at home. High school and college graduation rates are both significantly lower than the California averages with the college graduation rate being only 8.8%. There are three natural gas power plants in this subdivision, all of which are located in DACs. The City of Vernon's 42 MW Vernon plant and Colorado Energy Management LLC's 130 MW Malburg Generating Station are both located in the City of Vernon, which lies in the northwest corner of the subdivision. In SCE's service territory, the Techni-Cast Corporation's 1.4 MW natural gas self-generation/cogeneration facility is located near the southeastern corner of the subdivision. In addition, SCE's 49 MW Center Peaker Plant is located about three miles southeast of the subdivision border. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff, through members of the Consumer Advisory Panel, including Long Beach City College, the American Cancer Society and CicLAvia, through corporate philanthropy partnerships (including California Latino Leadership Institute, California State University, Los Angeles, Great Minds in STEM and TreePeople) and through members of the Consumer Advisory Panel, including the Southeast Community Development Corporation, and environmental justice stakeholders (EarthJustice, Right to Zero, East Yard Communities). SCE also regularly engages these stakeholders on transportation electrification issues. SCE also worked closely with East Yard Communities for Environmental Justice to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

<u>Southwest San Gabriel Valley</u>

There are 29 DAC-designated census tracts in this Los Angeles County subdivision, comprising 128,083 people out of a total population of 321,666 – 40% of the population. This subdivision is located in the western portion of the San Gabriel Valley, with the DAC areas located north of the 1-10 and south of CA-60 freeway truck routes, and on either side of the heavily used CA-19 Rosemead Boulevard. The median age in the county subdivision is 41.4 years old, which is older than the California median. Household and per capita income are lower than the state averages. The largest ethnic group is Asian (51%), followed by Hispanic (39%)

and White (7%). The most common language spoken other than English is Asian/Islander, and 45% of adults speak this language at home. High school and college graduation rates are lower than the California averages. There are no fossil fuel fired power plants in the subdivision. The only generating station is the Metropolitan Water District's 2 MW Rio Hondo hydroelectric plant. However, there are several fossil fuel facilities in neighboring areas that are close to Southwest San Gabriel County DAC residential areas. This includes two plants in the Pasadena subdivision (the City of Pasadena's 221 MW Glenarm facility and the California Institute of Technology's 12.5 MW self-generation/cogeneration unit0, the Sanitation Districts of Los Angeles County's 50 MW Puente Hills biogas Energy Recovery facility in the East San Gabriel Valley subdivision, the J&A Santa Maria's 2 MW Whittier LFG Power Plant 1 self-generation/cogeneration plant in the Whittier subdivision, and SCE's 49 MW Center Peaker plant in the Downey-Norwalk subdivision. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the San Gabriel Valley Conservation Corps, American Cancer Society, and CiLAvia. SCE also worked closely with Breathe SoCal and East San Gabriel Valley Japanese Community Center to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

Strathmore

There is one DAC-designated census tract making up this subdivision, comprising 8,019 people – 100% of the population. Strathmore county subdivision is located in the San Joaquin Valley in Tulare County, just north of the City of Porterville. The median age in the county subdivision is 37.2 years old, which is slightly older than the California median. Household and per capita income are both significantly less than half the state average, at about 40% of the state average. The largest ethnic group is Hispanic (66%), followed by White (33%). The most common language spoken other than English is Spanish, and 55% of adults speak this language at home. High school and college graduation rates are lower than the California averages, with the college graduation rate significantly lower at 9.4%. There are no fossil fuel fired power plants in the county subdivision or near its border. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

Terra Bella

There is one DAC-designated census tract making up this subdivision, comprising 6,161 people – 100% of the population. The Terra Bella county subdivision is located southeast of the City of Porterville in the San Joaquin Valley in Tulare County. The median age in the county subdivision is 38.6 years old, which is older than the California median. Household and per capita income are significantly lower than the California averages, at about half these levels. The largest ethnic group is Hispanic (73%) followed by White (27%). The most common language spoken other than English is Spanish, and 63% of adults speak this language at home. High school and college graduation rates are both significantly lower than the California averages, with the college graduation rate only 5.8%. There are no large power plants of any kind in the county subdivision, but there are several large solar farms in the southwest corner of the subdivision south of Ducor and throughout the broader region. SCE engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff, and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

Timbisha (also spelled as Timbi-sha) Shoshone Tribe

There is one DAC-designated census tract representing the Timbisha Shoshone reservation and off-reservation trust lands. The census-defined reservation lands consist of four small parcels located in both California and Nevada in the vicinity of Death Valley. No tribal members live on the census-defined reservation lands. The census-defined off-reservation trust land[4] consists of a parcel near Furnace Creek in Death Valley National Park, where the center of the tribal government is located. A population of 28 – 100% of the population – lives in this location. The median age in the reservation is 46.5 years old, which is older than the California median. Household and per capita income are lower than the California averages. The largest ethnic groups are Native (75%) and Two+ (25%). The most common language spoken other than English is Other,[5] and 27% of adults speak this language in the home. The high school graduation rate is higher than the California average (100%), but the college graduation rate is significantly lower at 10.5%. There are no fossil fuel or other large power plants in the vicinity of Furnace Creek. SCE regularly engages with the tribe through its Local Public Affairs and Business Customer Division tribal liaisons. Corporate philanthropy efforts supported Grid Alternatives Central Valley in installing local solar generation for the tribe. The Executive Director of Walking Shield represents American Indian interests on SCE's Consumer Advisory Panel. SCE also worked closely with the American Indian Chamber of Commerce of California to do tribal climate adaptation outreach and community member surveys as part of the Climate Resilience Leadership Group.

Tipton

There is one DAC-designated census tract making up this subdivision, comprising 7,396 people – 100% of the population. Tipton county subdivision is located in the San Joaquin Valley in Tulare County just east of the City of Porterville. The median age in the county subdivision is

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4 The tribe refers to this land as their reservation, so there is a discrepancy between the tribal designation and what is listed in Census Tracker.

5 "Other" may refer to the Timbisha language (also referred to as Panamint), which still has a few native speakers.

26.5 years old, which is much younger than the California median. Household and per capita income are both significantly lower than the state averages. The largest ethnic group is Hispanic (89%), followed by White (11%). The most common language spoken other than English is Spanish, and 83% of adults speak this language at home. High school and college graduation rates are lower than the California averages, with the high school graduation rate less than half the state average and the college graduation rate only 4.4%. There are no power plants of any kind in the county subdivision. However, Calgreen Renewable Fuels LLC's 12 MW Pixley Cogen plant is located about 2 miles south of the subdivision border. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

Torrance

There are two DAC-designated census tracts in this Los Angeles County subdivision, comprising 5,366 people out of a total population of 145,492 – 4% of the population. The DAC area is located south of the I-405 freeway just to the west of Western Blvd and adjacent to the large South Bay DAC region that crosses the Los Angeles (LADWP service area), Compton and Long Beach subdivisions. The median age in the county subdivision is 41.8 years old, which is older than the California median. Household and per capita income are higher than the state averages. The largest ethnic group is Asian (37%), followed by White (35%) and Hispanic (19%). The most common language spoken other than English is Asian/Islander, and 24% of adults speak this language at home. High school graduation and college graduation rates are higher than the California averages, with the college graduation rate being significantly higher. PBF Energy LLC's 49 MW natural gas Torrance Refinery self-generation/cogeneration unit is located in the DAC area. Toyota Motor Engineering & Manufacturing NA Inc.'s 1.5 MW self-generation/cogeneration unit in the Los Angeles subdivision is just across the border in this same area. AES's 850 MW natural Redondo Beach power plant in the adjacent South Bay subdivision is also located approximately 2.5 miles away from this DAC area. There is also a solar installation in the subdivision and the general region contains several gas refineries. SCE engages with organizations and individuals who represent this region. SCE also regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff, through members of the Consumer Advisory Panel, including the American Cancer Society and CicLAvia, and through corporate philanthropy partnerships (including El Camino Community College District Foundation and South Bay Wildlife Rehab).

Tulare

There are eight DAC-designated census tracts of this subdivision, comprising 40,531 people out of a total population of 72,613 – 56% of the population. Tulare is located in the San Joaquin Valley in Tulare County and covers the City of Tulare and adjacent farmland. The DAC areas cover the entire subdivision, except for neighborhoods in the north and east of the City of Tulare. The median age in the county subdivision is 28.4 years old, which is much younger than the California median. Household and per capita income are lower than the state averages, with per capita income significantly lower. The largest ethnic group is Hispanic (63%), followed by White (29%) and Black (3%). The most common language spoken other than English is Spanish, and 42% of adults speak this language at home. High school graduation and college graduation rates are lower than the California averages, with the college graduation rate significantly lower. There are no power plants in the subdivision. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff, corporate philanthropy partnerships (including Grid Alternatives Central Valley, Tulare Emergency Aid Council and United Way Tulare County), and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

Tule River Indian Tribe

There is one DAC-designated census tract representing the Tule River reservation and off-reservation trust land. The reservation is located adjacent to Giant Sequoia National Monument just southeast of the City of Porterville in Tulare County. The off-reservation trust land consists of a parcel approximately 10 miles away located adjacent to Lake Success. The population living on the reservation is listed as 924. No population is listed as living on the trust land, which is identified as belonging to the Tule River Economic Development Corporation. The median age on the reservation is 36.7 years old, which is the same as the California median. Household and per capita income are lower than the California averages. The largest ethnic groups are Native (48%) and Hispanic (30%), followed by White (9%). The most common language spoken other than English is Spanish, and 14% of adults speak this language in the home. The high school graduation rate is lower than the California average, and the college graduation rate is significantly lower at only 1.4%. There are no fossil fuel or other large power plants in the vicinity of either the reservation or trust land. A few small hydroelectric facilities are located within 10 miles of the reservation and a number of solar farms are located within 10 miles of the trust parcel. SCE regularly engages with the tribe through its Local Public Affairs and Business Customer Division tribal liaisons. The Executive Director of Walking Shield represents American Indian interests on SCE's Consumer Advisory Panel. SCE also worked closely with the American Indian Chamber of Commerce of California to do tribal climate adaptation outreach and community member surveys as part of the Climate Resilience Leadership Group.

Twenty-Nine Palms Band of Mission Indians

There is one DAC-designated census tract representing the Twenty-Nine Palms reservation and off-reservation trust land. Reservation land includes one parcel just south of the

City of Twentynine Palms and north of Joshua Tree National Monument in San Bernardino County, that houses the Turtle Rock Casino and one parcel within the City of Coachella adjacent to the Cabazon Reservation where the Spotlight 29 Casino is located. The tribe also owns trust land adjacent to its Coachella reservation parcel. Only the reservation land south of the City of Twentynine Palms is in SCE's service territory; the other parcels are served by the Imperial Irrigation District (IID). SCE only serves the Turtle Rock Casino and has no residential tribal customers. The population living on the reservation is listed as 14 and no population is listed as living on the trust land. The median age is 44 years old, which is older than the California median. The per capita income is higher than the California average and no information is available regarding household income. The largest ethnic groups are Hispanic (64%) and Native (21%), followed by White (14%). The most common language spoken other than English is Spanish, and 64% of adults speak this language in the home. The high school graduation rate is lower than the California average and no information is available regarding college graduation rates. There are no fossil fuel or other large power plants in the vicinity of the Twentynine Palms parcel, although there are several solar farms within 10 miles. The IID's 92.4 MW Coachella natural gas peaker plant is located approximately 3 miles southeast of the Coachella parcels and Desert View Power's 54.15 MW biofuel Mecca Plant is located about 10 miles to the southeast. SCE regularly engages with the tribe through its Local Public Affairs and Business Customer Division tribal liaisons and corporate philanthropy supports the Tribal Historic Preservation Office's educational outreach programming. The Executive Director of Walking Shield represents American Indian interests on SCE's Consumer Advisory Panel. SCE also worked closely with the American Indian Chamber of Commerce of California to do tribal climate adaptation outreach and community member surveys as part of the Climate Resilience Leadership Group.

<u>Upper San Gabriel Valley</u>

There are 33 DAC-designated census tracts in this Los Angeles County subdivision, comprising 150,082 people out of a total population of 325,872 – 46% of the population. The DACs are located primarily along the I-10, I-210 and I-605 freeways. The median age in the county subdivision is 39.5 years old, which is older than the California median. Household and per capita income are lower than the state averages. The largest ethnic group is Hispanic (44%), followed by Asian (35%) and White (16%). The most common language spoken other than English is Spanish, and 33% of adults speak this language at home. Additionally, 32% of adults speak Asian/Islander as their primary language in this county subdivision. High school and college graduation rates are slightly lower than the California averages. There are no power plants located in the subdivision. However, the three gas-fired generating stations in the East San Gabriel Valley subdivision (Walnut Creek LLC's 50 MW natural gas Walnut Creek Energy Park, the Sanitation Districts of Los Angeles County's 50 MW Puente Hills biogas Energy Recovery facility, and Irwindale Brew Yard LLC's 15 MW self-generation/cogeneration plant) are all located within 5 miles of DACs in this subdivision, as is the J&A Santa Maria's 2 MW Whittier LFG Power Plant 1 self-generation/cogeneration plant in the Whittier subdivision. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the San Gabriel Valley Conservation Corps, American Cancer Society, ad CicLAvia, the Nonprofit Finance Fund. SCE also worked closely with Day One and East San Gabriel Valley Japanese Community Center to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

Ventura

There are two DAC-designated census tracts in this Ventura County subdivision, comprising 9.121 people out of a total population of 115,189 – 8% of the population. The DAC area lies at the junction of CA-33 and I-101 along CA-33 into the canyon. The majority of the subdivision's census tracts are not rated as DACs. The median age in the county subdivision is

40.2 years old, which is older than the California median. Household income and per capita income is slightly higher but close to than the state average. The largest ethnic groups are White (53%), followed by Hispanic (38%) and Asian (4%). The most common language spoken other than English is Spanish, and 22% of adults speak this language at home. High school and college graduation rates are higher than the California averages. There are no power plants of any kind in the subdivision or outside of the subdivision within 5 miles of the DAC area. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and corporate philanthropy partnerships (including Coastal Quest, Direct Relief, Independent Living Resource Center, Los Padres Forest Association, United Way Ventura County, Ventura College Foundation and Ventura Regional Fire Safe Council). SCE also worked closely with Happy Fifty Plus to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

Victorville-Hesperia

There are ten DAC-designated census tracts in this subdivision, comprising 67,642 people out of a total population of 390,491 – 17% of the population. Victorville-Hesperia county subdivision is located in the High Desert region of San Bernardino County, traversed by I-15, a major thoroughfare connecting traffic from the Los Angeles basin to Nevada and major western traffic corridors. The DAC area covers the northern part of the City of Victorville along the I-15 freeway, one area in a more central location, the City of Adelanto, and rural areas to the west, north, and northeast of the City of Adelanto extending to the border of the subdivision. The median age in the county subdivision is 33.2 years old, which is younger than the California median. Household and per capita income are lower than the state averages, with per capita income significantly lower. The largest ethnic group is Hispanic (51%), followed by White (33%) and Black (10%). The most common language spoken other than English is Spanish, and 29% of adults speak this language at home. High school and college graduation rates are lower than the California averages, with the college graduation rate significantly lower. There is one large natural gas powerplant in the subdivision. The High Desert Power Project LLC's 855 MW combined cycle High Desert Power Project power plant is located on Edwards Air Force Base at the north end of the City of Victorville. The Base is not designated as a DAC, but the plant is located within one mile of the edge of the base and the borders one of the rural DAC regions. There are also numerous solar plants and two windfarms in the subdivision. There are several small facilities in the general region, including solar photovoltaic power plants. SCE engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff, corporate philanthropy partnerships (including Millionaire Mind Kids, Mojave Environmental Education Consortium, Streams in the Desert Foundation and Victor Valley College Foundation), and through members of the Consumer Advisory Panel, including Inland Empire Community Newspapers, Inland Action, Inc., and Black Voice News. SCE also worked closely with Inland Empire Concerned African American Churches to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

<u>Visalia</u>

There are seven DAC-designated census tracts in this subdivision, comprising 67,213 people out of a total population of 145,645 – 46% of the population. Visalia county subdivision is located within the San Joaquin Valley in Tulare County and covers the cities of Visalia and Goshen and the surrounding farmland. The DAC areas cover the subdivision except for the northern, eastern, and southern parts of the City of Visalia and the rural areas east of the city. The median age in the county subdivision is 32.4 years old, which is younger than the California median. Household and per capita income are lower than the state averages. The largest ethnic group is Hispanic (52%), followed by White (37%) and Asian (6%). The most common language spoken other than English is Spanish, and 32% of adults speak this language at home. The high school graduation rate is about the same as the California average and the college graduation rate is significantly lower than the California average. There are no large fossil fuel power plants operating in the region; however, MM Tulare Energy owns and operates the 1.8

MW MM Tulare Energy landfill gas generator in the northwest corner of the subdivision and Kaweah General Hospital owns and operates a small 3.5 MW natural gas self-generation unit in downtown Visalia. Both are located in DACs. There are several solar photovoltaic plants throughout the broader region. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff, including through corporate philanthropy partnerships (College of the Sequoias Foundation, Sequoia Riverlands Trust, Tulare County Office of Education Foundation and Valley Clean Air Now), and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

Wasco

There is one DAC-designated census tract in this Kern County subdivision that intersects with SCE's service territory, comprising 2,635 people – 100% of the population in SCE's area. On a map, it appears that this subdivision falls solely within PG&E's service territory. However, SCE has identified 3 residential and 11 non-residential customers that appear to be located in this subdivision on the far eastern side near the City of Wasco. The median age in the county subdivision is 30.2 years old, which is younger than the California median. Household and per capita income are significantly lower than the California averages, with household income about half of the state average and per capita income about 40% of the state average. The largest ethnic group is Hispanic (84%), followed by White (8%) and Black (5%). The most common language other than English spoken by adults at home is Spanish, and 67% of adults speak this language in the home. High school and college graduation rates are much lower than the California averages, with the college education rate significantly lower at only 4.5%. There are three natural gas facilities in the subdivision. Aera Energy's 9 MW Lost Hills Cogeneration Plant is located at the west end of the subdivision and Semitropic Water District has two small natural gas self- generation units, North Generator and South Generator (no MW listed), that do not appear to have operated since 2018. There are also numerous large and small solar facilities throughout the subdivision. SCE regularly engages with the DAC-designated communities in this subdivision through its Local Public Affairs staff and through members of the Consumer Advisory Panel, including the San Joaquin Valley Clean Energy Organization, which also serves on the Clean Energy Access Working Group. Valley Clean Air Now, which is active throughout the San Joaquin Valley, is a member of the Clean Energy Access Working Group.

Whittier

There are 36 DAC-designated census tracts in this Los Angeles County subdivision, comprising 157,876 people out of a total population of 325,236 – 49% of the population. The DACs are located on the west and south side of the subdivision clustered along the I-605 and I-5 freeways and most of the city from Norwalk to Whittier. The median age in the county subdivision is 37.8 years old, which is older than the California median. Household income and per capita income are lower than the state average. The largest ethnic group is Hispanic (70%), followed by White (19%) and Asian (8%). The most common language spoken other than English is Spanish, and 45% of adults speak this language at home. High school and college graduation rates are lower than the California averages, with the college graduation rate being significantly lower. Several small power plants are located throughout the subdivision: the Metropolitan Water District's 1.9 MW Rio Hondo hydroelectric facility, J&A Santa Maria's Whittier LFG 2.2 MW landfill gas plant, and a small 2.2 MW self-generation/cogen natural gas plant owned by Biola University (not in a DAC). However, there are several large natural and landfill gas generating facilities located within 2 miles of the subdivision edge and its DACs including the LA County Sanitation District's 50 MW landfill gas Puente Hills Energy Recovery plant to the northwest, SCE's 48 MW natural gas Center Peaker to the southwest, and Walnut Creek Energy LLC's 400.4 MW natural gas Walnut Creek Energy Park to the northeast. SCE regularly engages with the DAC-designated communities in the Whittier subdivision through its Local Public Affairs staff, corporate philanthropy partnerships (including Asian and Pacific

Islanders with Disabilities of California, Rio Hondo College Foundation, Whittier College and Whittier Conservancy) and relationships with several Los Angeles-based Clean Energy Access Working Group representatives. SCE also worked closely with Day One to do climate adaptation outreach and community member surveys in this area as part of the Climate Resilience Leadership Group.

Appendix A.2

SCE DAC and Non-DAC Residential and Non-Residential Customers by Census Tract

Appendix 2A – SCE Customer Data Calculated as Unique Contracts by Census Track

This table includes the number of SCE residential and non-residential customers located in DAC and non-DAC 2020 census tracts that are either in or have portions located inside SCE service territory. Customers were counted by unique contracts, formerly known as service account numbers. There are several reasons that a census tract may show no customers. For example, tracts may be located on the edge of SCE territory where only a small, uninhabited portion of the area is within SCE's jurisdiction.

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6003010000	-	-	-	No
6019006402	2,480	435	2,915	No
6019006403	-	-	-	No
6019006405	-	2	2	No
6025012400	339	50	389	No
6027000100	389	49	438	No
6027000200	585	45	630	No
6027000300	917	36	953	No
6027000400	607	138	745	No
6027000500	284	9	293	No
6027000800	425	184	609	No
6029003305	1,288	81	1,369	No
6029003306	3,278	387	3,665	No
6029004500	3	11	14	Yes
6029004601	-	4	4	No
6029004603	-	1	1	No
6029004604	5,173	2,129	7,302	Yes
6029004702	839	31	870	Yes
6029004800	2,148	210	2,358	Yes
6029004901	684	124	808	Yes
6029004902	1,872	58	1,930	No
6029005003	412	86	498	Yes
6029005004	1,616	394	2,010	Yes
6029005104	1	1	2	No
6029005201	3,467	674	4,141	No
6029005203	2,106	274	2,380	No
6029005204	3,616	689	4,305	Yes
6029005300	383	63	446	No

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6029005401	1,804	247	2,051	**No**
6029005402	1,926	228	2,154	**No**
6029005403	3,134	177	3,311	**No**
6029005404	2,042	155	2,197	**No**
6029005501	5,516	977	6,493	**No**
6029005506	1,497	207	1,704	**No**
6029005507	2,704	175	2,879	**No**
6029005508	2,282	288	2,570	**No**
6029005600	764	70	834	**No**
6029005700	-	7	7	**No**
6029005801	2,570	39	2,609	**No**
6029005802	1,615	195	1,810	**No**
6029005900	932	258	1,190	**Yes**
6029006002	-	3	3	**No**
6029006003	1,428	138	1,566	**No**
6029006004	748	161	909	**No**
6029006006	4,428	1,185	5,613	**No**
6029006007	3,847	725	4,572	**No**
6029006008	2,569	151	2,720	**No**
6029006100	2,649	373	3,022	**No**
6029006500	1,711	649	2,360	**Yes**
6031000100	258	75	333	**Yes**
6031000500	1,582	235	1,817	**Yes**
6031000601	3,809	75	3,884	**No**
6031000602	1,658	88	1,746	**No**
6031000701	1,992	78	2,070	**No**
6031000702	1,378	25	1,403	**No**
6031000800	1,533	249	1,782	**Yes**
6031000900	2,239	711	2,950	**Yes**
6031001001	1,543	169	1,712	**No**
6031001002	1,138	246	1,384	**Yes**
6031001003	1,995	22	2,017	**Yes**
6031001100	1,643	194	1,837	**Yes**
6031001200	3,212	2,399	5,611	**Yes**
6037103200	-	2	2	**No**
6037104124	222	15	237	**No**
6037104201	-	3	3	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	**Residential Customers**	**Non-Residential Customers**	**Total Customers**	**DAC (Y/N)**
6037104204	4	1	5	**Yes**
6037104310	-	1	1	**Yes**
6037106010	-	-	-	**No**
6037106020	1	-	1	**No**
6037106111	13	32	45	**No**
6037106112	-	4	4	**No**
6037106114	2	-	2	**No**
6037106403	-	-	-	**No**
6037106406	-	-	-	**No**
6037106510	-	-	-	**Yes**
6037106603	-	4	4	**No**
6037106648	-	-	-	**Yes**
6037106649	-	-	-	**No**
6037107010	-	-	-	**No**
6037107020	10	2	12	**No**
6037108104	-	-	-	**No**
6037108201	-	-	-	**No**
6037108202	-	1	1	**No**
6037109500	11	1	12	**Yes**
6037113211	20	10	30	**No**
6037113231	1	2	3	**No**
6037113235	406	13	419	**No**
6037113237	1	-	1	**No**
6037134424	-	-	-	**No**
6037135203	218	17	235	**No**
6037137302	-	-	-	**No**
6037137401	-	-	-	**No**
6037137402	-	4	4	**No**
6037138000	1	19	20	**No**
6037143100	-	1	1	**No**
6037143604	-	-	-	**No**
6037143700	1	-	1	**No**
6037183103	-	-	-	**No**
6037183104	-	-	-	**No**
6037189701	1	-	1	**No**
6037189800	-	1	1	**No**
6037189902	-	-	-	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037190100	-	-	-	**Yes**
6037191901	-	2	2	**Yes**
6037192001	-	1	1	**No**
6037194200	5	7	12	**No**
6037194300	8,610	501	9,111	**No**
6037194401	-	2	2	**No**
6037194402	4	8	12	**No**
6037194500	-	1	1	**No**
6037201110	-	-	-	**No**
6037201120	-	-	-	**No**
6037201402	-	1	1	**Yes**
6037201602	-	-	-	**Yes**
6037201700	2	-	2	**Yes**
6037203100	-	-	-	**Yes**
6037203800	4	-	4	**No**
6037203900	-	2	2	**Yes**
6037204920	561	91	652	**Yes**
6037214800	1,016	96	1,112	**No**
6037214901	-	4	4	**No**
6037214902	-	3	3	**No**
6037216300	-	1	1	**No**
6037216401	-	-	-	**No**
6037216402	-	-	-	**No**
6037217001	-	1	1	**No**
6037219902	-	-	-	**Yes**
6037220100	-	-	-	**Yes**
6037229420	-	-	-	**Yes**
6037234300	-	-	-	**Yes**
6037234501	-	1	1	**Yes**
6037234502	1	1	2	**Yes**
6037234600	-	1	1	**Yes**
6037234700	117	62	179	**Yes**
6037234902	-	-	-	**Yes**
6037235100	6	2	8	**No**
6037235201	2	3	5	**Yes**
6037235202	1	-	1	**Yes**
6037236000	-	8	8	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037236100	135	18	153	**Yes**
6037236400	1	-	1	**No**
6037237900	-	-	-	**Yes**
6037238000	2	1	3	**Yes**
6037238100	-	-	-	**Yes**
6037238200	1	-	1	**Yes**
6037238400	740	68	808	**Yes**
6037239202	-	-	-	**Yes**
6037239330	-	-	-	**Yes**
6037239501	-	-	-	**Yes**
6037239502	-	-	-	**Yes**
6037240300	-	-	-	**Yes**
6037240401	-	-	-	**Yes**
6037240402	-	-	-	**Yes**
6037240700	-	-	-	**Yes**
6037241001	-	3	3	**Yes**
6037241002	1	1	2	**Yes**
6037241201	-	-	-	**Yes**
6037241202	-	3	3	**Yes**
6037241300	-	1	1	**Yes**
6037241400	-	-	-	**Yes**
6037242000	-	1	1	**Yes**
6037242100	-	-	-	**Yes**
6037242200	-	-	-	**Yes**
6037242300	165	49	214	**Yes**
6037242600	-	1	1	**Yes**
6037242700	7	7	14	**Yes**
6037243000	-	-	-	**Yes**
6037243100	2	5	7	**Yes**
6037261101	2,125	503	2,628	**No**
6037261102	3	2	5	**No**
6037261200	-	-	-	**No**
6037262100	-	-	-	**No**
6037262604	-	-	-	**No**
6037262802	1	1	2	**No**
6037264000	-	-	-	**No**
6037264102	1	1	2	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037264103	-	-	-	**No**
6037264302	7	-	7	**No**
6037265100	-	-	-	**No**
6037265303	-	-	-	**No**
6037265305	-	-	-	**No**
6037265410	-	-	-	**No**
6037265420	-	-	-	**No**
6037265510	-	-	-	**No**
6037265520	-	2	2	**No**
6037267300	41	11	52	**No**
6037267402	-	5	5	**No**
6037267403	-	-	-	**No**
6037267502	-	-	-	**No**
6037267600	-	-	-	**No**
6037267901	1	1	2	**No**
6037269000	9	-	9	**No**
6037269100	1	-	1	**No**
6037269903	-	-	-	**No**
6037269905	-	-	-	**No**
6037270100	1	16	17	**Yes**
6037270200	3	1	4	**No**
6037271200	-	-	-	**No**
6037271300	-	-	-	**No**
6037271400	-	8	8	**No**
6037271801	-	-	-	**No**
6037271802	-	-	-	**No**
6037271901	-	-	-	**No**
6037272201	-	5	5	**No**
6037272202	-	3	3	**No**
6037272301	1	4	5	**No**
6037272302	1,008	143	1,151	**No**
6037273100	-	-	-	**No**
6037273200	-	12	12	**No**
6037273300	-	-	-	**No**
6037273402	-	1	1	**No**
6037273800	2	2	4	**No**
6037273902	-	-	-	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037274100	-	8	8	**No**
6037274202	-	-	-	**No**
6037275101	-	2	2	**No**
6037275102	3	2	5	**No**
6037275200	1	4	5	**No**
6037275302	-	1	1	**No**
6037275311	-	-	-	**No**
6037275400	-	5	5	**No**
6037275602	97	17	114	**No**
6037275603	-	75	75	**No**
6037276100	-	2	2	**No**
6037277100	-	1	1	**No**
6037277200	-	-	-	**Yes**
6037277400	-	-	-	**Yes**
6037278102	-	-	-	**No**
6037291110	2	-	2	**Yes**
6037291120	-	8	8	**Yes**
6037291130	-	10	10	**Yes**
6037291210	-	1	1	**Yes**
6037291220	509	464	973	**Yes**
6037291300	1	13	14	**Yes**
6037292000	1	66	67	**Yes**
6037293201	-	-	-	**Yes**
6037293202	-	2	2	**Yes**
6037293301	8	1	9	**No**
6037293302	1	5	6	**Yes**
6037293304	3	4	7	**Yes**
6037293306	6	-	6	**No**
6037293307	-	1	1	**Yes**
6037294110	-	1	1	**Yes**
6037294120	-	-	-	**Yes**
6037294200	1	-	1	**Yes**
6037294301	-	1	1	**Yes**
6037294410	41	3	44	**Yes**
6037295103	-	2	2	**No**
6037296300	-	-	-	**No**
6037296401	136	41	177	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037297000	-	-	-	**No**
6037297400	-	2	2	**No**
6037300100	2,049	29	2,078	**No**
6037300200	2,262	302	2,564	**No**
6037300301	-	-	-	**No**
6037300400	-	1	1	**No**
6037300501	982	116	1,098	**No**
6037300502	2,526	314	2,840	**No**
6037300600	6	11	17	**No**
6037300800	-	4	4	**No**
6037300901	1	-	1	**No**
6037320000	-	41	41	**Yes**
6037320100	1,463	159	1,622	**Yes**
6037320201	472	244	716	**Yes**
6037320202	2,722	729	3,451	**Yes**
6037320300	1,404	487	1,891	**Yes**
6037400204	2,194	78	2,272	**No**
6037400205	3,309	709	4,018	**No**
6037400206	1,808	49	1,857	**No**
6037400207	1,608	37	1,645	**No**
6037400302	868	74	942	**No**
6037400304	1,795	264	2,059	**No**
6037400402	1,322	95	1,417	**No**
6037400403	1,150	80	1,230	**No**
6037400404	1,503	28	1,531	**No**
6037400501	1,759	362	2,121	**No**
6037400603	1	1	2	**No**
6037400604	10	16	26	**No**
6037400800	439	27	466	**No**
6037400900	1,278	116	1,394	**No**
6037401001	1,059	13	1,072	**No**
6037401002	1,140	210	1,350	**No**
6037401101	3,514	1,039	4,553	**No**
6037401102	898	256	1,154	**No**
6037401201	1,014	112	1,126	**No**
6037401202	1,389	200	1,589	**No**
6037401203	1,274	86	1,360	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037401303	785	79	864	**No**
6037401304	1,851	76	1,927	**No**
6037401311	3,968	1,539	5,507	**No**
6037401312	1,194	119	1,313	**No**
6037401500	1,391	400	1,791	**No**
6037401601	1,123	214	1,337	**No**
6037401602	1,812	197	2,009	**No**
6037401603	663	64	727	**No**
6037401701	1,126	91	1,217	**No**
6037401703	593	165	758	**No**
6037401704	1,301	139	1,440	**Yes**
6037401800	2,719	203	2,922	**No**
6037401901	117	28	145	**No**
6037401902	1,844	474	2,318	**No**
6037402001	613	111	724	**No**
6037402002	1,140	107	1,247	**No**
6037402101	5,444	784	6,228	**Yes**
6037402102	1,043	192	1,235	**Yes**
6037402200	1,817	192	2,009	**Yes**
6037402301	1,267	40	1,307	**Yes**
6037402303	776	126	902	**Yes**
6037402304	476	123	599	**Yes**
6037402402	1,202	472	1,674	**Yes**
6037402403	572	30	602	**Yes**
6037402404	3	23	26	**Yes**
6037402405	639	14	653	**Yes**
6037402406	3,076	678	3,754	**Yes**
6037402501	726	148	874	**Yes**
6037402502	1,229	124	1,353	**Yes**
6037402600	2,030	187	2,217	**Yes**
6037402702	701	397	1,098	**Yes**
6037402703	1,159	97	1,256	**No**
6037402705	868	6	874	**No**
6037402706	889	65	954	**Yes**
6037402801	774	347	1,121	**Yes**
6037402803	622	35	657	**Yes**
6037402804	580	153	733	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	**Residential Customers**	**Non-Residential Customers**	**Total Customers**	**DAC (Y/N)**
6037402902	1,008	157	1,165	**Yes**
6037402903	804	103	907	**Yes**
6037402904	819	59	878	**Yes**
6037403000	5,816	1,013	6,829	**Yes**
6037403200	-	32	32	**Yes**
6037403303	650	293	943	**No**
6037403304	1,636	81	1,717	**No**
6037403305	562	46	608	**No**
6037403312	1,454	77	1,531	**No**
6037403316	1,485	216	1,701	**No**
6037403317	1,461	47	1,508	**No**
6037403318	2,194	50	2,244	**No**
6037403319	728	126	854	**No**
6037403320	1,570	81	1,651	**No**
6037403321	1,817	59	1,876	**No**
6037403322	1,128	58	1,186	**No**
6037403323	5,098	849	5,947	**No**
6037403324	1,616	128	1,744	**No**
6037403325	1,490	115	1,605	**No**
6037403401	1,512	99	1,611	**No**
6037403402	1,892	1,502	3,394	**No**
6037403403	1,542	34	1,576	**No**
6037403404	746	41	787	**No**
6037403405	488	21	509	**No**
6037403406	655	77	732	**No**
6037403407	818	20	838	**No**
6037403408	1,863	70	1,933	**No**
6037403500	415	13	428	**No**
6037403600	3,940	459	4,399	**No**
6037403702	1,214	62	1,276	**No**
6037403703	1,405	24	1,429	**No**
6037403721	1,241	530	1,771	**No**
6037403722	954	220	1,174	**No**
6037403801	1,091	184	1,275	**No**
6037403802	968	131	1,099	**No**
6037403901	885	59	944	**No**
6037403902	1,016	179	1,195	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037404000	547	27	574	**No**
6037404100	1,125	6	1,131	**No**
6037404201	-	12	12	**Yes**
6037404202	469	3	472	**No**
6037404302	-	1	1	**No**
6037404402	-	186	186	**Yes**
6037404501	304	37	341	**Yes**
6037404503	339	17	356	**Yes**
6037404504	360	2	362	**No**
6037404600	374	756	1,130	**Yes**
6037404701	1,005	64	1,069	**Yes**
6037404702	798	106	904	**Yes**
6037404703	461	136	597	**Yes**
6037404801	1,175	124	1,299	**Yes**
6037404802	657	60	717	**Yes**
6037404803	222	75	297	**Yes**
6037404901	1,000	86	1,086	**Yes**
6037404902	879	16	895	**Yes**
6037404903	556	42	598	**Yes**
6037405001	1,279	101	1,380	**Yes**
6037405002	641	168	809	**Yes**
6037405101	5,527	1,711	7,238	**Yes**
6037405102	905	175	1,080	**Yes**
6037405201	937	164	1,101	**Yes**
6037405202	876	116	992	**Yes**
6037405203	692	27	719	**Yes**
6037405301	462	75	537	**No**
6037405302	1,269	91	1,360	**Yes**
6037405400	1,276	53	1,329	**No**
6037405500	1,679	49	1,728	**No**
6037405600	1,500	94	1,594	**No**
6037405701	708	80	788	**No**
6037405702	721	137	858	**No**
6037405800	1,338	70	1,408	**No**
6037405900	997	104	1,101	**No**
6037406000	3,369	506	3,875	**No**
6037406101	1,063	411	1,474	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037406102	3,669	969	4,638	**No**
6037406200	865	199	1,064	**Yes**
6037406300	1,370	119	1,489	**No**
6037406402	3,308	368	3,676	**No**
6037406411	522	18	540	**Yes**
6037406412	755	15	770	**No**
6037406500	1,484	215	1,699	**No**
6037406601	1,499	40	1,539	**No**
6037406602	1,141	93	1,234	**No**
6037406701	687	30	717	**No**
6037406702	4,314	880	5,194	**Yes**
6037406800	1,234	46	1,280	**Yes**
6037406901	840	64	904	**Yes**
6037406902	716	37	753	**No**
6037407001	1,017	22	1,039	**Yes**
6037407002	707	134	841	**Yes**
6037407101	926	91	1,017	**Yes**
6037407102	959	44	1,003	**Yes**
6037407200	1,388	85	1,473	**Yes**
6037407301	1,017	31	1,048	**No**
6037407302	734	11	745	**Yes**
6037407400	552	28	580	**No**
6037407501	768	191	959	**Yes**
6037407502	824	30	854	**No**
6037407601	541	216	757	**Yes**
6037407602	923	56	979	**Yes**
6037407701	667	131	798	**Yes**
6037407702	1,570	227	1,797	**Yes**
6037407801	1,013	16	1,029	**Yes**
6037407802	3,477	714	4,191	**Yes**
6037407900	1,501	50	1,551	**Yes**
6037408003	1,294	46	1,340	**No**
6037408004	538	113	651	**No**
6037408005	1,531	73	1,604	**No**
6037408006	463	189	652	**No**
6037408133	790	46	836	**Yes**
6037408134	3,731	402	4,133	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037408135	996	24	1,020	**No**
6037408136	914	14	928	**No**
6037408137	748	88	836	**No**
6037408138	653	9	662	**Yes**
6037408139	733	31	764	**Yes**
6037408140	616	85	701	**Yes**
6037408141	929	18	947	**No**
6037408202	938	1,851	2,789	**Yes**
6037408211	773	730	1,503	**Yes**
6037408212	1,089	256	1,345	**No**
6037408301	1,062	148	1,210	**Yes**
6037408302	1,079	80	1,159	**Yes**
6037408303	1,125	59	1,184	**No**
6037408401	996	52	1,048	**Yes**
6037408402	1,378	106	1,484	**No**
6037408501	656	110	766	**Yes**
6037408503	2,011	58	2,069	**No**
6037408504	3,030	535	3,565	**No**
6037408505	772	25	797	**No**
6037408623	598	53	651	**Yes**
6037408624	1,020	17	1,037	**No**
6037408625	1,240	109	1,349	**No**
6037408626	915	170	1,085	**No**
6037408627	932	11	943	**No**
6037408628	1,432	110	1,542	**No**
6037408629	988	38	1,026	**No**
6037408630	557	62	619	**Yes**
6037408631	1,365	9	1,374	**Yes**
6037408703	1,947	39	1,986	**No**
6037408704	663	41	704	**No**
6037408705	1,406	78	1,484	**No**
6037408706	484	5	489	**No**
6037408722	1,289	28	1,317	**No**
6037408723	4,520	1,120	5,640	**No**
6037408724	99	141	240	**No**
6037408800	616	539	1,155	**Yes**
6037430002	1,755	265	2,020	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	**Residential Customers**	**Non-Residential Customers**	**Total Customers**	**DAC (Y/N)**
6037430003	3,602	338	3,940	**No**
6037430101	986	348	1,334	**Yes**
6037430102	1,037	51	1,088	**No**
6037430200	341	40	381	**No**
6037430301	1,617	57	1,674	**No**
6037430302	1,979	143	2,122	**No**
6037430400	3,804	1,000	4,804	**No**
6037430501	1,663	45	1,708	**No**
6037430502	2,012	363	2,375	**No**
6037430600	1,515	57	1,572	**No**
6037430701	1,439	138	1,577	**No**
6037430721	6,271	690	6,961	**No**
6037430723	148	199	347	**No**
6037430724	74	245	319	**No**
6037430801	528	746	1,274	**No**
6037430802	1,294	69	1,363	**No**
6037430803	1,657	91	1,748	**No**
6037430901	731	274	1,005	**No**
6037430902	647	179	826	**No**
6037431001	1,528	443	1,971	**No**
6037431002	796	136	932	**No**
6037431100	1,218	685	1,903	**Yes**
6037431200	1,367	47	1,414	**No**
6037431300	736	37	773	**No**
6037431400	1,337	97	1,434	**No**
6037431501	928	102	1,030	**No**
6037431502	1,277	139	1,416	**No**
6037431600	1,275	92	1,367	**No**
6037431700	1,786	123	1,909	**No**
6037431800	1,326	137	1,463	**No**
6037431900	1,136	260	1,396	**No**
6037432000	3,946	592	4,538	**No**
6037432101	1,331	48	1,379	**No**
6037432102	1,741	139	1,880	**No**
6037432201	1,045	80	1,125	**Yes**
6037432202	1,046	170	1,216	**Yes**
6037432300	931	215	1,146	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037432401	657	105	762	**Yes**
6037432402	1,067	122	1,189	**Yes**
6037432500	1,822	261	2,083	**Yes**
6037432601	1,374	181	1,555	**Yes**
6037432602	1,113	39	1,152	**Yes**
6037432700	4,183	1,121	5,304	**Yes**
6037432801	312	109	421	**Yes**
6037432802	428	98	526	**Yes**
6037432901	907	186	1,093	**Yes**
6037432902	845	89	934	**No**
6037433101	500	138	638	**Yes**
6037433102	708	120	828	**Yes**
6037433200	1,075	338	1,413	**Yes**
6037433302	182	143	325	**Yes**
6037433304	419	149	568	**Yes**
6037433305	4,783	536	5,319	**Yes**
6037433306	343	71	414	**Yes**
6037433307	535	42	577	**Yes**
6037433401	520	74	594	**Yes**
6037433402	739	159	898	**Yes**
6037433403	628	185	813	**Yes**
6037433501	303	513	816	**Yes**
6037433503	472	313	785	**Yes**
6037433504	643	357	1,000	**Yes**
6037433601	1,254	86	1,340	**Yes**
6037433602	551	105	656	**Yes**
6037433700	3,300	1,752	5,052	**Yes**
6037433801	823	475	1,298	**Yes**
6037433802	862	153	1,015	**Yes**
6037433901	719	160	879	**Yes**
6037433902	783	99	882	**Yes**
6037434001	638	83	721	**Yes**
6037434003	836	103	939	**Yes**
6037434004	596	40	636	**Yes**
6037460000	971	171	1,142	**No**
6037460100	2,157	94	2,251	**No**
6037460200	1,954	94	2,048	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037460301	1,661	54	1,715	**No**
6037460302	1,354	73	1,427	**No**
6037460401	2	9	11	**No**
6037460501	2,137	320	2,457	**No**
6037460502	1,489	164	1,653	**No**
6037460600	1,535	79	1,614	**No**
6037460700	1,715	224	1,939	**No**
6037460800	1	-	1	**No**
6037460900	1	2	3	**No**
6037461000	1,638	135	1,773	**No**
6037461100	1,364	165	1,529	**No**
6037461200	1,675	50	1,725	**No**
6037461300	2,091	134	2,225	**No**
6037461400	2	-	2	**No**
6037461501	-	-	-	**No**
6037462500	290	11	301	**No**
6037463000	-	2	2	**No**
6037463101	853	170	1,023	**No**
6037463102	1,190	139	1,329	**No**
6037463200	6	2	8	**No**
6037463300	646	46	692	**No**
6037463400	3	3	6	**No**
6037463800	-	-	-	**No**
6037463900	-	2	2	**No**
6037464000	3	-	3	**No**
6037464100	2,453	397	2,850	**No**
6037464200	2,005	198	2,203	**No**
6037480002	2,922	111	3,033	**No**
6037480011	1,032	119	1,151	**No**
6037480012	1,141	61	1,202	**No**
6037480101	1,168	117	1,285	**No**
6037480102	1,065	107	1,172	**No**
6037480201	1,339	113	1,452	**No**
6037480202	881	99	980	**No**
6037480302	722	227	949	**No**
6037480303	323	179	502	**No**
6037480304	178	275	453	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037480400	1,099	177	1,276	**No**
6037480500	1,717	236	1,953	**No**
6037480600	1,297	412	1,709	**No**
6037480702	1,268	89	1,357	**No**
6037480703	959	105	1,064	**No**
6037480704	5,594	589	6,183	**No**
6037480802	967	333	1,300	**No**
6037480803	1,072	173	1,245	**No**
6037480804	631	212	843	**No**
6037480901	584	230	814	**No**
6037480902	434	151	585	**Yes**
6037480903	595	98	693	**No**
6037481001	13,076	1,001	14,077	**Yes**
6037481002	598	241	839	**No**
6037481101	341	306	647	**No**
6037481102	145	327	472	**No**
6037481103	7,412	1,120	8,532	**Yes**
6037481201	881	189	1,070	**No**
6037481202	1,400	135	1,535	**No**
6037481300	793	39	832	**Yes**
6037481401	895	212	1,107	**Yes**
6037481402	1,354	309	1,663	**No**
6037481500	1,054	151	1,205	**Yes**
6037481603	550	162	712	**Yes**
6037481604	582	129	711	**Yes**
6037481605	810	62	872	**No**
6037481606	750	257	1,007	**No**
6037481711	194	184	378	**No**
6037481712	671	152	823	**No**
6037481713	318	99	417	**No**
6037481714	251	145	396	**No**
6037481800	895	6	901	**No**
6037481901	5,308	718	6,026	**No**
6037481902	666	99	765	**No**
6037482001	839	131	970	**No**
6037482002	5,726	1,176	6,902	**No**
6037482101	937	211	1,148	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037482102	908	49	957	**No**
6037482201	516	176	692	**No**
6037482202	388	163	551	**No**
6037482301	556	76	632	**Yes**
6037482303	1,269	113	1,382	**No**
6037482304	633	93	726	**No**
6037482401	3,040	1,060	4,100	**Yes**
6037482402	1,799	173	1,972	**Yes**
6037482502	773	52	825	**No**
6037482503	980	74	1,054	**No**
6037482521	1,425	62	1,487	**No**
6037482522	904	144	1,048	**No**
6037482600	6,256	310	6,566	**No**
6037482701	1,191	196	1,387	**No**
6037482702	817	15	832	**No**
6037482800	1,152	158	1,310	**No**
6037500100	1,241	23	1,264	**No**
6037500201	2,860	306	3,166	**No**
6037500202	1,497	76	1,573	**No**
6037500300	3,765	554	4,319	**Yes**
6037500402	819	223	1,042	**Yes**
6037500403	1,005	103	1,108	**Yes**
6037500404	1,158	37	1,195	**Yes**
6037500500	316	50	366	**Yes**
6037500600	1,185	88	1,273	**Yes**
6037500700	1,510	180	1,690	**Yes**
6037500800	4,012	539	4,551	**No**
6037500900	1,166	118	1,284	**No**
6037501001	647	39	686	**Yes**
6037501002	1,392	97	1,489	**Yes**
6037501200	1,218	78	1,296	**No**
6037501300	1,950	106	2,056	**No**
6037501400	837	172	1,009	**Yes**
6037501501	896	35	931	**No**
6037501503	857	162	1,019	**No**
6037501504	354	461	815	**Yes**
6037501600	5,386	485	5,871	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037501700	1,041	67	1,108	**No**
6037501802	832	77	909	**No**
6037501803	386	252	638	**Yes**
6037501804	322	136	458	**Yes**
6037501900	2,856	454	3,310	**No**
6037502003	632	99	731	**Yes**
6037502004	928	68	996	**Yes**
6037502005	960	126	1,086	**Yes**
6037502100	1,615	262	1,877	**Yes**
6037502200	2,701	443	3,144	**Yes**
6037502301	1,301	85	1,386	**Yes**
6037502302	324	211	535	**Yes**
6037502401	1,038	40	1,078	**Yes**
6037502402	989	16	1,005	**Yes**
6037502500	777	289	1,066	**Yes**
6037502601	1,804	113	1,917	**Yes**
6037502602	751	238	989	**Yes**
6037502700	1,503	1,081	2,584	**Yes**
6037502801	1,632	154	1,786	**Yes**
6037502802	1,955	2,049	4,004	**Yes**
6037502901	1,372	27	1,399	**No**
6037502902	693	636	1,329	**Yes**
6037503000	1,079	92	1,171	**Yes**
6037503103	1,022	52	1,074	**Yes**
6037503104	514	38	552	**Yes**
6037503105	562	69	631	**Yes**
6037503106	784	114	898	**No**
6037503201	1,122	20	1,142	**No**
6037503202	938	57	995	**No**
6037503301	1,062	82	1,144	**No**
6037503302	1,228	74	1,302	**No**
6037503401	1,786	209	1,995	**No**
6037503402	1,330	148	1,478	**No**
6037503501	4,583	300	4,883	**No**
6037503502	1,090	62	1,152	**No**
6037503601	1,204	109	1,313	**No**
6037503602	1,145	163	1,308	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037503701	1,044	58	1,102	**No**
6037503702	1,419	78	1,497	**No**
6037503703	1,892	201	2,093	**No**
6037503801	1,017	99	1,116	**No**
6037503802	3,797	460	4,257	**No**
6037503901	848	26	874	**No**
6037503902	1,353	360	1,713	**Yes**
6037504001	977	43	1,020	**No**
6037504002	1,577	100	1,677	**No**
6037504101	1,057	60	1,117	**Yes**
6037504102	3	779	782	**Yes**
6037530003	956	134	1,090	**Yes**
6037530004	875	92	967	**Yes**
6037530005	1,403	121	1,524	**Yes**
6037530006	358	136	494	**Yes**
6037530101	1,004	239	1,243	**Yes**
6037530102	8,064	1,189	9,253	**Yes**
6037530202	1,084	183	1,267	**Yes**
6037530203	602	107	709	**Yes**
6037530204	956	195	1,151	**Yes**
6037530301	554	200	754	**Yes**
6037530302	1,627	151	1,778	**Yes**
6037530400	715	69	784	**Yes**
6037530500	894	178	1,072	**Yes**
6037530601	730	49	779	**Yes**
6037530602	347	28	375	**Yes**
6037530700	491	221	712	**Yes**
6037530801	1,255	58	1,313	**Yes**
6037530802	801	49	850	**Yes**
6037530901	1,803	173	1,976	**Yes**
6037530902	744	48	792	**Yes**
6037531000	1,188	107	1,295	**Yes**
6037531101	1,061	222	1,283	**Yes**
6037531102	605	80	685	**Yes**
6037531201	1,036	45	1,081	**Yes**
6037531202	940	85	1,025	**Yes**
6037531301	959	147	1,106	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037531302	1,291	190	1,481	**Yes**
6037531502	641	134	775	**Yes**
6037531503	613	67	680	**Yes**
6037531504	937	71	1,008	**Yes**
6037531602	924	186	1,110	**Yes**
6037531603	783	17	800	**Yes**
6037531604	768	107	875	**Yes**
6037531701	3,400	755	4,155	**Yes**
6037531702	850	301	1,151	**Yes**
6037531800	1,130	115	1,245	**Yes**
6037531901	1,390	180	1,570	**Yes**
6037531902	996	115	1,111	**Yes**
6037532001	797	237	1,034	**Yes**
6037532002	426	145	571	**Yes**
6037532101	840	347	1,187	**Yes**
6037532102	844	71	915	**No**
6037532200	735	478	1,213	**Yes**
6037532302	1,069	324	1,393	**Yes**
6037532303	1,522	1,652	3,174	**Yes**
6037532304	737	882	1,619	**Yes**
6037532400	-	24	24	**Yes**
6037532500	363	298	661	**Yes**
6037532603	379	119	498	**Yes**
6037532604	256	114	370	**Yes**
6037532605	202	380	582	**Yes**
6037532606	348	93	441	**Yes**
6037532700	572	137	709	**Yes**
6037532800	784	101	885	**Yes**
6037532900	1,262	116	1,378	**Yes**
6037533001	907	85	992	**Yes**
6037533002	522	81	603	**Yes**
6037533103	298	111	409	**Yes**
6037533104	201	319	520	**Yes**
6037533105	282	48	330	**Yes**
6037533106	8,099	1,026	9,125	**Yes**
6037533107	382	133	515	**Yes**
6037533201	359	80	439	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037533202	445	45	490	**Yes**
6037533203	193	41	234	**Yes**
6037533300	439	77	516	**Yes**
6037533401	799	61	860	**Yes**
6037533402	631	143	774	**Yes**
6037533403	2,707	262	2,969	**Yes**
6037533501	364	71	435	**Yes**
6037533502	274	17	291	**Yes**
6037533503	217	27	244	**Yes**
6037533601	515	154	669	**Yes**
6037533602	582	171	753	**Yes**
6037533603	771	178	949	**Yes**
6037533701	496	121	617	**Yes**
6037533702	491	87	578	**Yes**
6037533703	629	91	720	**Yes**
6037533803	756	212	968	**Yes**
6037533804	598	71	669	**Yes**
6037533805	473	85	558	**Yes**
6037533806	9,019	944	9,963	**Yes**
6037533901	1,180	64	1,244	**Yes**
6037533902	700	100	800	**Yes**
6037534001	998	157	1,155	**Yes**
6037534002	814	147	961	**Yes**
6037534101	413	88	501	**Yes**
6037534102	1,164	127	1,291	**Yes**
6037534201	575	68	643	**Yes**
6037534202	888	115	1,003	**Yes**
6037534203	519	93	612	**Yes**
6037534301	600	206	806	**Yes**
6037534302	535	41	576	**Yes**
6037534403	620	34	654	**Yes**
6037534404	439	72	511	**Yes**
6037534405	479	101	580	**Yes**
6037534406	529	56	585	**Yes**
6037534501	827	162	989	**Yes**
6037534502	708	49	757	**Yes**
6037534700	873	-	873	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037534802	561	128	689	**Yes**
6037534803	1,002	146	1,148	**Yes**
6037534804	822	13	835	**Yes**
6037534900	1,232	154	1,386	**Yes**
6037535001	851	74	925	**Yes**
6037535002	1,671	409	2,080	**Yes**
6037535101	1,522	143	1,665	**Yes**
6037535102	894	99	993	**Yes**
6037535200	1,157	41	1,198	**Yes**
6037535300	1,221	141	1,362	**Yes**
6037535400	683	108	791	**Yes**
6037535501	525	180	705	**Yes**
6037535502	766	76	842	**Yes**
6037535503	363	69	432	**Yes**
6037535603	520	111	631	**Yes**
6037535604	718	21	739	**Yes**
6037535605	516	139	655	**Yes**
6037535606	273	45	318	**Yes**
6037535607	785	100	885	**Yes**
6037535701	1,085	100	1,185	**Yes**
6037535702	798	155	953	**Yes**
6037535802	1,088	152	1,240	**No**
6037535803	501	127	628	**Yes**
6037535804	695	117	812	**Yes**
6037535901	9,458	819	10,277	**Yes**
6037535902	1,380	76	1,456	**Yes**
6037536000	457	255	712	**Yes**
6037536102	781	203	984	**Yes**
6037536103	1,002	136	1,138	**Yes**
6037536104	551	289	840	**Yes**
6037536200	1,433	365	1,798	**Yes**
6037540000	1,155	177	1,332	**Yes**
6037540101	1,150	110	1,260	**Yes**
6037540102	6,368	693	7,061	**Yes**
6037540201	142	135	277	**Yes**
6037540202	489	210	699	**Yes**
6037540203	543	172	715	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037540300	864	242	1,106	**Yes**
6037540400	431	30	461	**Yes**
6037540501	863	94	957	**Yes**
6037540502	449	105	554	**Yes**
6037540600	787	68	855	**Yes**
6037540700	1,139	130	1,269	**Yes**
6037540800	1,460	87	1,547	**Yes**
6037540901	1,473	137	1,610	**Yes**
6037540902	1,180	339	1,519	**Yes**
6037541001	315	531	846	**Yes**
6037541002	513	516	1,029	**Yes**
6037541100	647	160	807	**Yes**
6037541200	1,665	98	1,763	**Yes**
6037541300	2,678	281	2,959	**Yes**
6037541400	1,299	71	1,370	**Yes**
6037541500	937	98	1,035	**Yes**
6037541603	384	214	598	**Yes**
6037541604	738	153	891	**Yes**
6037541605	865	172	1,037	**Yes**
6037541606	318	69	387	**Yes**
6037541700	1,176	73	1,249	**Yes**
6037541801	763	56	819	**Yes**
6037541802	1,004	39	1,043	**Yes**
6037542000	1,095	64	1,159	**Yes**
6037542103	725	60	785	**Yes**
6037542104	578	44	622	**Yes**
6037542105	745	58	803	**Yes**
6037542106	499	90	589	**Yes**
6037542200	1,127	115	1,242	**Yes**
6037542401	1,069	196	1,265	**Yes**
6037542402	3,112	497	3,609	**Yes**
6037542501	569	91	660	**Yes**
6037542502	671	127	798	**Yes**
6037542601	423	64	487	**Yes**
6037542602	802	168	970	**Yes**
6037542700	1,216	129	1,345	**Yes**
6037542800	877	53	930	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037542900	654	43	697	**Yes**
6037543000	1,131	67	1,198	**Yes**
6037543100	1,612	228	1,840	**Yes**
6037543201	783	49	832	**Yes**
6037543202	4,555	748	5,303	**Yes**
6037543304	1,991	72	2,063	**No**
6037543305	7	593	600	**Yes**
6037543306	1,363	323	1,686	**Yes**
6037543321	2,691	911	3,602	**Yes**
6037543322	2,134	26	2,160	**Yes**
6037543400	980	137	1,117	**Yes**
6037543501	958	286	1,244	**Yes**
6037543502	1,071	64	1,135	**Yes**
6037543503	3,640	593	4,233	**Yes**
6037543601	623	39	662	**No**
6037543602	1,299	213	1,512	**No**
6037543603	961	50	1,011	**No**
6037543604	1,438	66	1,504	**Yes**
6037543701	4,340	1,005	5,345	**No**
6037543702	1,819	129	1,948	**Yes**
6037543703	892	93	985	**No**
6037543801	923	80	1,003	**Yes**
6037543802	1,379	187	1,566	**Yes**
6037543903	860	104	964	**Yes**
6037543905	959	194	1,153	**Yes**
6037544001	1,149	132	1,281	**Yes**
6037544002	818	72	890	**Yes**
6037550000	67	7	74	**Yes**
6037550100	1,814	52	1,866	**Yes**
6037550201	479	44	523	**Yes**
6037550202	1,238	50	1,288	**Yes**
6037550300	1,659	106	1,765	**Yes**
6037550400	388	25	413	**No**
6037550500	1,850	209	2,059	**No**
6037550601	1,035	93	1,128	**No**
6037550602	3,109	406	3,515	**No**
6037550700	1,774	91	1,865	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	**Residential Customers**	**Non-Residential Customers**	**Total Customers**	**DAC (Y/N)**
6037550800	1,846	231	2,077	**Yes**
6037550901	6,603	880	7,483	**No**
6037550902	686	208	894	**No**
6037551000	1,660	285	1,945	**No**
6037551101	463	313	776	**Yes**
6037551102	383	481	864	**Yes**
6037551201	745	107	852	**No**
6037551202	5,535	469	6,004	**No**
6037551300	816	300	1,116	**Yes**
6037551401	710	88	798	**Yes**
6037551402	1,078	103	1,181	**No**
6037551501	748	72	820	**No**
6037551502	856	123	979	**No**
6037551600	-	20	20	**No**
6037551700	1,536	106	1,642	**Yes**
6037551800	1,463	118	1,581	**Yes**
6037551900	1,351	87	1,438	**Yes**
6037552001	925	31	956	**Yes**
6037552002	551	115	666	**Yes**
6037552100	6,647	743	7,390	**Yes**
6037552200	815	396	1,211	**Yes**
6037552301	1,047	75	1,122	**Yes**
6037552302	679	57	736	**Yes**
6037552400	591	205	796	**Yes**
6037552601	1,138	63	1,201	**Yes**
6037552602	807	108	915	**Yes**
6037552700	1,633	93	1,726	**Yes**
6037552800	1,257	152	1,409	**No**
6037552900	1,290	83	1,373	**Yes**
6037553000	1,221	88	1,309	**Yes**
6037553100	1,164	157	1,321	**Yes**
6037553200	1,804	119	1,923	**Yes**
6037553300	685	113	798	**No**
6037553400	822	60	882	**No**
6037553502	536	161	697	**Yes**
6037553503	387	40	427	**No**
6037553504	739	130	869	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037553601	6,240	1,072	7,312	**Yes**
6037553602	529	78	607	**Yes**
6037553701	620	132	752	**Yes**
6037553702	740	44	784	**Yes**
6037553801	419	512	931	**Yes**
6037553802	903	431	1,334	**Yes**
6037553901	1,375	245	1,620	**Yes**
6037553902	858	210	1,068	**Yes**
6037554001	1,139	105	1,244	**Yes**
6037554002	10,626	974	11,600	**Yes**
6037554101	447	106	553	**Yes**
6037554103	413	60	473	**No**
6037554104	322	50	372	**Yes**
6037554105	199	104	303	**Yes**
6037554201	1,059	139	1,198	**No**
6037554203	788	176	964	**Yes**
6037554204	649	266	915	**Yes**
6037554301	582	95	677	**Yes**
6037554302	706	135	841	**Yes**
6037554403	669	204	873	**Yes**
6037554404	833	226	1,059	**Yes**
6037554405	406	220	626	**Yes**
6037554406	1,087	96	1,183	**No**
6037554511	1,221	237	1,458	**No**
6037554512	1,918	282	2,200	**No**
6037554513	829	55	884	**No**
6037554514	2,660	848	3,508	**No**
6037554515	1,083	126	1,209	**No**
6037554516	1,205	69	1,274	**No**
6037554517	1,253	91	1,344	**No**
6037554518	1,672	74	1,746	**No**
6037554519	1,109	44	1,153	**No**
6037554521	1,578	465	2,043	**No**
6037554522	1,542	152	1,694	**No**
6037554600	862	53	915	**Yes**
6037554700	997	80	1,077	**No**
6037554801	761	155	916	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	**Residential Customers**	**Non-Residential Customers**	**Total Customers**	**DAC (Y/N)**
6037554802	2,109	706	2,815	**No**
6037554900	1,532	387	1,919	**No**
6037555001	1,358	89	1,447	**Yes**
6037555002	692	88	780	**No**
6037555102	3,256	244	3,500	**Yes**
6037555103	872	80	952	**No**
6037555104	617	139	756	**No**
6037555202	1,197	34	1,231	**No**
6037555211	2,200	323	2,523	**Yes**
6037555212	549	136	685	**Yes**
6037570001	1,302	138	1,440	**No**
6037570002	914	25	939	**No**
6037570003	1,432	38	1,470	**No**
6037570100	659	181	840	**Yes**
6037570202	1,331	138	1,469	**Yes**
6037570203	390	265	655	**Yes**
6037570204	699	54	753	**Yes**
6037570301	760	118	878	**Yes**
6037570303	730	92	822	**Yes**
6037570304	729	172	901	**Yes**
6037570402	908	93	1,001	**Yes**
6037570403	619	76	695	**Yes**
6037570404	697	42	739	**Yes**
6037570501	10,971	757	11,728	**Yes**
6037570502	1,536	200	1,736	**Yes**
6037570601	1,120	176	1,296	**Yes**
6037570602	1,365	142	1,507	**Yes**
6037570603	86	183	269	**Yes**
6037570701	2,791	501	3,292	**No**
6037570702	842	47	889	**No**
6037570800	1,825	309	2,134	**No**
6037570901	2,286	161	2,447	**No**
6037570902	1,135	83	1,218	**No**
6037571000	2,018	66	2,084	**No**
6037571101	1,594	74	1,668	**No**
6037571102	1,359	76	1,435	**No**
6037571200	2,396	285	2,681	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037571300	1,548	50	1,598	**No**
6037571400	1,509	171	1,680	**No**
6037571502	997	186	1,183	**No**
6037571503	1,002	49	1,051	**No**
6037571504	879	102	981	**No**
6037571600	20	26	46	**Yes**
6037571701	1,199	188	1,387	**Yes**
6037571703	646	45	691	**Yes**
6037571704	726	101	827	**Yes**
6037571800	1,059	198	1,257	**No**
6037571900	5,664	855	6,519	**No**
6037572001	2,012	197	2,209	**No**
6037572002	532	179	711	**Yes**
6037572100	281	23	304	**Yes**
6037572201	1,472	152	1,624	**Yes**
6037572202	927	196	1,123	**No**
6037572301	3,123	492	3,615	**Yes**
6037572302	707	50	757	**Yes**
6037572400	284	10	294	**Yes**
6037572500	104	29	133	**Yes**
6037572600	1,206	60	1,266	**Yes**
6037572700	1,152	144	1,296	**Yes**
6037572800	5	58	63	**Yes**
6037572900	767	135	902	**Yes**
6037573002	348	178	526	**Yes**
6037573003	530	34	564	**Yes**
6037573004	565	215	780	**Yes**
6037573100	6,807	796	7,603	**Yes**
6037573201	803	142	945	**Yes**
6037573202	1,034	130	1,164	**Yes**
6037573300	556	149	705	**Yes**
6037573401	452	192	644	**No**
6037573402	1,105	878	1,983	**Yes**
6037573403	3,002	841	3,843	**No**
6037573601	2,323	100	2,423	**No**
6037573700	2,519	483	3,002	**No**
6037573800	1,564	49	1,613	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037573902	615	17	632	**No**
6037574000	1,989	62	2,051	**No**
6037574100	1,957	84	2,041	**No**
6037574201	1,130	43	1,173	**No**
6037574202	703	84	787	**No**
6037574300	5,585	561	6,146	**No**
6037574400	1,965	125	2,090	**No**
6037574500	2,346	59	2,405	**No**
6037574601	-	15	15	**No**
6037574602	520	15	535	**No**
6037574700	-	4	4	**No**
6037574800	804	119	923	**No**
6037574901	1,356	97	1,453	**No**
6037574902	396	216	612	**No**
6037575001	707	123	830	**No**
6037575002	1,190	235	1,425	**No**
6037575101	529	128	657	**Yes**
6037575102	593	186	779	**Yes**
6037575103	403	285	688	**Yes**
6037575201	718	168	886	**Yes**
6037575202	607	114	721	**Yes**
6037575300	551	188	739	**Yes**
6037575401	307	390	697	**Yes**
6037575402	11,588	579	12,167	**Yes**
6037575500	18	684	702	**Yes**
6037575801	297	83	380	**Yes**
6037575802	660	128	788	**Yes**
6037575803	270	108	378	**Yes**
6037575901	188	77	265	**Yes**
6037575902	224	198	422	**Yes**
6037576001	34	307	341	**Yes**
6037576200	464	465	929	**Yes**
6037576301	284	231	515	**Yes**
6037576302	572	154	726	**Yes**
6037576401	435	136	571	**Yes**
6037576402	587	101	688	**Yes**
6037576403	473	169	642	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037576501	269	178	447	**No**
6037576502	334	208	542	**No**
6037576503	521	184	705	**No**
6037576601	550	231	781	**No**
6037576602	507	226	733	**No**
6037576700	847	234	1,081	**No**
6037576801	552	254	806	**No**
6037576802	648	221	869	**No**
6037576901	627	235	862	**Yes**
6037576903	331	229	560	**Yes**
6037576904	612	138	750	**No**
6037577000	10,675	742	11,417	**No**
6037577100	6,870	493	7,363	**No**
6037577200	882	360	1,242	**No**
6037577300	1,638	361	1,999	**No**
6037577400	950	225	1,175	**No**
6037577501	1,423	169	1,592	**No**
6037577504	8,861	587	9,448	**No**
6037577602	564	113	677	**No**
6037577603	2,913	186	3,099	**No**
6037577604	742	100	842	**No**
6037599000	2,926	538	3,464	**No**
6037599100	1,710	780	2,490	**No**
6037600100	4,236	232	4,468	**Yes**
6037600201	955	100	1,055	**No**
6037600202	1,371	142	1,513	**Yes**
6037600302	962	48	1,010	**Yes**
6037600303	628	71	699	**Yes**
6037600304	693	95	788	**Yes**
6037600400	1,390	53	1,443	**Yes**
6037600501	666	76	742	**No**
6037600502	602	78	680	**Yes**
6037600601	744	39	783	**No**
6037600602	72	141	213	**Yes**
6037600702	1,143	118	1,261	**No**
6037600703	217	63	280	**No**
6037600704	2,746	234	2,980	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037600801	1,211	106	1,317	**No**
6037600802	875	106	981	**No**
6037600902	8,035	554	8,589	**Yes**
6037600911	816	122	938	**No**
6037600912	1,230	133	1,363	**Yes**
6037601001	1,237	429	1,666	**Yes**
6037601002	435	253	688	**Yes**
6037601100	315	234	549	**Yes**
6037601202	773	101	874	**Yes**
6037601211	202	162	364	**Yes**
6037601212	8,007	887	8,894	**Yes**
6037601301	589	132	721	**No**
6037601302	244	403	647	**Yes**
6037601303	153	221	374	**Yes**
6037601401	534	495	1,029	**Yes**
6037601402	1,091	132	1,223	**Yes**
6037601501	332	91	423	**Yes**
6037601502	633	64	697	**Yes**
6037601600	2,481	323	2,804	**Yes**
6037601700	790	116	906	**Yes**
6037601801	677	107	784	**Yes**
6037601802	760	89	849	**Yes**
6037601900	725	90	815	**Yes**
6037602002	664	35	699	**Yes**
6037602003	998	73	1,071	**Yes**
6037602004	3,337	346	3,683	**Yes**
6037602103	475	270	745	**Yes**
6037602104	404	229	633	**Yes**
6037602105	341	131	472	**Yes**
6037602106	488	240	728	**Yes**
6037602200	1,450	180	1,630	**Yes**
6037602301	1,782	215	1,997	**Yes**
6037602302	1,213	139	1,352	**No**
6037602402	1,186	287	1,473	**Yes**
6037602403	16,202	1,223	17,425	**Yes**
6037602404	312	122	434	**No**
6037602504	288	103	391	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037602505	148	103	251	**Yes**
6037602506	317	84	401	**Yes**
6037602507	311	115	426	**Yes**
6037602508	550	192	742	**Yes**
6037602509	669	331	1,000	**Yes**
6037602600	1,914	288	2,202	**Yes**
6037602700	1,175	122	1,297	**Yes**
6037602801	682	105	787	**Yes**
6037602802	1,140	116	1,256	**Yes**
6037602900	651	944	1,595	**Yes**
6037603001	853	200	1,053	**Yes**
6037603004	43	77	120	**Yes**
6037603005	408	227	635	**Yes**
6037603006	381	160	541	**No**
6037603101	8,736	892	9,628	**Yes**
6037603102	502	180	682	**Yes**
6037603200	705	219	924	**Yes**
6037603301	542	249	791	**Yes**
6037603302	694	253	947	**Yes**
6037603400	940	214	1,154	**Yes**
6037603500	3,349	675	4,024	**Yes**
6037603600	1,158	109	1,267	**No**
6037603702	1,577	106	1,683	**Yes**
6037603703	805	64	869	**Yes**
6037603704	410	208	618	**Yes**
6037603801	590	186	776	**Yes**
6037603802	3,073	465	3,538	**Yes**
6037603900	1,556	287	1,843	**Yes**
6037604001	1,142	75	1,217	**No**
6037604002	1,040	132	1,172	**No**
6037604100	1,759	167	1,926	**Yes**
6037620001	1,043	136	1,179	**No**
6037620002	4,205	1,072	5,277	**No**
6037620101	1,250	153	1,403	**No**
6037620102	693	461	1,154	**No**
6037620201	673	46	719	**No**
6037620301	1,603	16	1,619	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037620303	3,607	1,129	4,736	**No**
6037620305	2,367	245	2,612	**No**
6037620400	1,698	198	1,896	**No**
6037620501	1,024	237	1,261	**No**
6037620521	385	260	645	**No**
6037620522	10,162	750	10,912	**No**
6037620601	431	415	846	**No**
6037620602	1,201	206	1,407	**No**
6037620701	1,368	325	1,693	**No**
6037620702	1,561	197	1,758	**No**
6037620800	2,343	181	2,524	**No**
6037620901	893	93	986	**No**
6037620904	1,084	101	1,185	**No**
6037621001	1,269	166	1,435	**No**
6037621002	423	43	466	**No**
6037621004	4,755	682	5,437	**No**
6037621102	1,068	111	1,179	**No**
6037621104	1,863	520	2,383	**No**
6037621201	1,027	373	1,400	**No**
6037621204	137	239	376	**No**
6037621301	1,190	326	1,516	**No**
6037621324	11,321	1,016	12,337	**No**
6037621326	313	364	677	**No**
6037621400	1,187	188	1,375	**No**
6037650001	1,693	133	1,826	**No**
6037650003	456	75	531	**No**
6037650004	738	87	825	**No**
6037650101	1,676	154	1,830	**No**
6037650102	4,096	404	4,500	**No**
6037650200	1,666	172	1,838	**No**
6037650300	1,536	201	1,737	**No**
6037650401	1,434	269	1,703	**No**
6037650501	1,068	45	1,113	**No**
6037650502	1,295	48	1,343	**No**
6037650602	440	338	778	**No**
6037650603	1,055	58	1,113	**No**
6037650604	8,652	1,080	9,732	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037650605	346	83	429	**No**
6037650701	751	179	930	**No**
6037650702	1,446	46	1,492	**No**
6037650800	483	123	606	**No**
6037650901	4,661	2,026	6,687	**Yes**
6037650902	1,325	350	1,675	**No**
6037651001	1,373	61	1,434	**No**
6037651002	1,278	123	1,401	**No**
6037651101	6,572	1,811	8,383	**No**
6037651102	652	177	829	**No**
6037651201	1,756	67	1,823	**No**
6037651221	495	110	605	**No**
6037651222	813	159	972	**No**
6037651302	2,209	116	2,325	**No**
6037651304	1,260	186	1,446	**No**
6037651401	681	26	707	**No**
6037651402	1,769	248	2,017	**No**
6037670001	953	146	1,099	**No**
6037670002	3,950	572	4,522	**No**
6037670003	1,862	256	2,118	**No**
6037670100	1,218	262	1,480	**No**
6037670201	2,032	809	2,841	**No**
6037670202	934	28	962	**No**
6037670324	1,985	160	2,145	**No**
6037670326	1,439	9	1,448	**No**
6037670328	1,569	52	1,621	**No**
6037670403	913	180	1,093	**No**
6037670405	1,025	50	1,075	**No**
6037670406	700	20	720	**No**
6037670407	1,333	115	1,448	**No**
6037670411	1,626	26	1,652	**No**
6037670413	1,566	23	1,589	**No**
6037670416	1,233	45	1,278	**No**
6037670500	675	21	696	**No**
6037670602	4,964	571	5,535	**No**
6037670701	2,176	158	2,334	**No**
6037670702	2,084	68	2,152	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037700101	862	405	1,267	**No**
6037700102	272	352	624	**No**
6037700200	682	423	1,105	**No**
6037700300	314	436	750	**No**
6037700400	1,182	747	1,929	**No**
6037700501	576	367	943	**No**
6037700502	253	389	642	**No**
6037700600	1,938	116	2,054	**No**
6037700700	1,178	116	1,294	**No**
6037700801	443	1,016	1,459	**No**
6037700802	578	334	912	**No**
6037700901	3,084	798	3,882	**No**
6037700902	992	580	1,572	**No**
6037701000	4,825	747	5,572	**No**
6037701100	-	25	25	**No**
6037701201	1,558	113	1,671	**No**
6037701202	12,344	610	12,954	**No**
6037701302	202	397	599	**No**
6037701304	3,093	351	3,444	**No**
6037701402	108	392	500	**No**
6037701501	263	419	682	**No**
6037701502	114	383	497	**No**
6037701601	1,026	219	1,245	**No**
6037701602	384	374	758	**No**
6037701701	210	359	569	**No**
6037701702	114	422	536	**No**
6037701801	9,969	1,285	11,254	**Yes**
6037701802	327	476	803	**Yes**
6037701902	5,200	1,444	6,644	**Yes**
6037702002	588	432	1,020	**No**
6037702102	708	406	1,114	**No**
6037702201	10,391	787	11,178	**No**
6037702202	996	179	1,175	**No**
6037702300	1,540	390	1,930	**No**
6037702400	3,414	1,109	4,523	**No**
6037702501	1,422	199	1,621	**No**
6037702502	1,513	176	1,689	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037702600	5,752	691	6,443	**No**
6037702700	1,253	157	1,410	**No**
6037702801	1,150	434	1,584	**No**
6037702802	659	119	778	**No**
6037702803	628	259	887	**Yes**
6037702901	6,810	366	7,176	**No**
6037703001	315	316	631	**No**
6037703002	3,030	291	3,321	**No**
6037703100	2,036	157	2,193	**No**
6037703200	2,187	103	2,290	**No**
6037800101	1,727	68	1,795	**No**
6037800102	2,554	324	2,878	**No**
6037800202	4,466	1,100	5,566	**No**
6037800203	1,557	152	1,709	**No**
6037800204	1,377	180	1,557	**No**
6037800324	2,403	122	2,525	**No**
6037800325	1,316	54	1,370	**No**
6037800326	1,382	194	1,576	**No**
6037800327	1,216	155	1,371	**No**
6037800328	581	70	651	**No**
6037800329	3,344	1,543	4,887	**No**
6037800330	295	61	356	**No**
6037800331	231	87	318	**No**
6037800332	2,106	86	2,192	**No**
6037800406	2,851	1,078	3,929	**No**
6037800408	1,887	253	2,140	**No**
6037800410	651	143	794	**No**
6037800504	911	336	1,247	**No**
6037800506	1,222	97	1,319	**No**
6037900102	342	152	494	**No**
6037900103	1,735	20	1,755	**No**
6037900104	1,826	35	1,861	**No**
6037900201	4,365	947	5,312	**Yes**
6037900300	924	83	1,007	**Yes**
6037900501	1,935	135	2,070	**Yes**
6037900504	1,920	250	2,170	**No**
6037900505	1,085	60	1,145	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037900506	1,071	76	1,147	**No**
6037900507	1,429	36	1,465	**No**
6037900508	1,200	15	1,215	**No**
6037900602	628	140	768	**Yes**
6037900605	1,253	27	1,280	**No**
6037900606	1,078	148	1,226	**Yes**
6037900607	1,000	126	1,126	**Yes**
6037900608	950	18	968	**No**
6037900609	1,049	76	1,125	**No**
6037900701	1,444	182	1,626	**Yes**
6037900703	595	258	853	**Yes**
6037900704	10	291	301	**No**
6037900705	685	291	976	**No**
6037900803	2,582	100	2,682	**No**
6037900804	944	78	1,022	**Yes**
6037900805	1,655	193	1,848	**No**
6037900806	698	362	1,060	**Yes**
6037900900	7,185	2,059	9,244	**No**
6037901003	1	6	7	**No**
6037901004	4,417	33	4,450	**No**
6037901007	745	91	836	**No**
6037901008	814	126	940	**No**
6037901009	1,639	82	1,721	**No**
6037901010	1,639	60	1,699	**No**
6037901011	1,438	114	1,552	**No**
6037901101	1,538	105	1,643	**No**
6037901102	1,608	119	1,727	**No**
6037901205	3,322	46	3,368	**No**
6037901209	3,405	860	4,265	**No**
6037901210	649	16	665	**No**
6037901213	1,343	110	1,453	**No**
6037910001	1,429	54	1,483	**No**
6037910002	2,068	131	2,199	**Yes**
6037910101	417	119	536	**Yes**
6037910201	1,224	273	1,497	**No**
6037910202	1,700	144	1,844	**No**
6037910205	398	37	435	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037910206	2,770	1,031	3,801	**No**
6037910207	1,865	22	1,887	**No**
6037910208	1,896	114	2,010	**No**
6037910209	1,423	16	1,439	**No**
6037910210	2,391	21	2,412	**No**
6037910301	1,479	58	1,537	**No**
6037910302	1,605	49	1,654	**No**
6037910401	1,819	123	1,942	**No**
6037910402	502	163	665	**Yes**
6037910403	140	152	292	**Yes**
6037910404	925	41	966	**No**
6037910501	240	269	509	**Yes**
6037910502	755	127	882	**Yes**
6037910504	1,169	51	1,220	**No**
6037910505	882	20	902	**No**
6037910601	1,558	109	1,667	**No**
6037910602	501	124	625	**No**
6037910603	1,765	62	1,827	**No**
6037910605	973	20	993	**No**
6037910606	793	28	821	**No**
6037910705	3,544	255	3,799	**No**
6037910706	1,523	53	1,576	**No**
6037910707	889	54	943	**No**
6037910709	535	27	562	**No**
6037910711	1,777	71	1,848	**No**
6037910712	738	24	762	**No**
6037910713	1,478	27	1,505	**No**
6037910714	924	16	940	**No**
6037910715	1,792	37	1,829	**No**
6037910716	1,744	22	1,766	**No**
6037910804	1,052	118	1,170	**No**
6037910805	1,422	356	1,778	**No**
6037910807	1,504	88	1,592	**No**
6037910808	1,144	38	1,182	**No**
6037910809	775	49	824	**No**
6037910810	813	60	873	**No**
6037910811	13,197	2,217	15,414	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	**Residential Customers**	**Non-Residential Customers**	**Total Customers**	**DAC (Y/N)**
6037910812	165	16	181	**No**
6037910813	1,266	251	1,517	**No**
6037911001	1,466	355	1,821	**No**
6037920011	574	160	734	**No**
6037920012	492	45	537	**No**
6037920013	2,423	118	2,541	**No**
6037920015	1,702	90	1,792	**No**
6037920016	1,206	72	1,278	**No**
6037920017	1,298	59	1,357	**No**
6037920018	762	9	771	**No**
6037920020	2,026	108	2,134	**No**
6037920023	344	131	475	**No**
6037920026	102	51	153	**No**
6037920028	4,235	1,260	5,495	**No**
6037920029	680	20	700	**No**
6037920030	1,137	248	1,385	**No**
6037920031	1,734	257	1,991	**No**
6037920032	1,548	65	1,613	**No**
6037920033	71	27	98	**No**
6037920034	4,563	1,077	5,640	**No**
6037920035	1,556	287	1,843	**No**
6037920036	719	120	839	**No**
6037920037	1	262	263	**No**
6037920038	106	172	278	**No**
6037920039	586	8	594	**No**
6037920040	805	72	877	**No**
6037920041	548	125	673	**No**
6037920042	1,012	311	1,323	**No**
6037920043	2,390	155	2,545	**No**
6037920044	719	34	753	**No**
6037920045	1,327	17	1,344	**No**
6037920102	1,955	574	2,529	**No**
6037920104	862	56	918	**No**
6037920106	997	286	1,283	**No**
6037920107	2,977	881	3,858	**No**
6037920108	1,924	296	2,220	**No**
6037920109	1,641	58	1,699	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037920110	778	21	799	**No**
6037920111	1,028	25	1,053	**No**
6037920112	1,340	48	1,388	**No**
6037920114	6,856	2,523	9,379	**No**
6037920115	951	248	1,199	**No**
6037920116	1,454	177	1,631	**No**
6037920118	1,798	70	1,868	**No**
6037920119	522	28	550	**No**
6037920200	-	5	5	**No**
6037920303	742	131	873	**No**
6037920312	5,879	1,035	6,914	**No**
6037920313	1,545	171	1,716	**No**
6037920314	1,004	311	1,315	**No**
6037920322	826	60	886	**No**
6037920326	4,611	799	5,410	**No**
6037920328	390	167	557	**No**
6037920329	1,455	187	1,642	**No**
6037920330	928	153	1,081	**No**
6037920331	1,341	34	1,375	**No**
6037920332	355	130	485	**No**
6037920334	1,602	103	1,705	**No**
6037920336	780	329	1,109	**No**
6037920337	475	191	666	**No**
6037920338	1,532	45	1,577	**No**
6037920339	1,728	200	1,928	**No**
6037930101	8,307	952	9,259	**No**
6037930200	147	116	263	**No**
6037930301	2,133	904	3,037	**No**
6037980002	-	117	117	**Yes**
6037980003	-	-	-	**No**
6037980004	-	32	32	**No**
6037980005	-	125	125	**Yes**
6037980006	-	97	97	**No**
6037980007	-	61	61	**Yes**
6037980013	-	468	468	**Yes**
6037980014	1	13	14	**Yes**
6037980015	-	2	2	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6037980018	-	341	341	**No**
6037980019	1	10	11	**No**
6037980025	33	89	122	**Yes**
6037980026	-	-	-	**No**
6037980028	429	16	445	**Yes**
6037980030	-	16	16	**Yes**
6037980031	113	25	138	**Yes**
6037980033	19,147	1,118	20,265	**Yes**
6039000102	5	17	22	**No**
6039000103	-	1	1	**No**
6043000400	2	28	30	**No**
6051000101	11,425	1,939	13,364	**No**
6051000102	833	304	1,137	**No**
6051000200	1,794	688	2,482	**No**
6059001101	9,259	1,407	10,666	**No**
6059001102	787	147	934	**No**
6059001103	689	176	865	**Yes**
6059001201	752	153	905	**Yes**
6059001202	879	152	1,031	**Yes**
6059001301	1,334	150	1,484	**No**
6059001303	856	172	1,028	**No**
6059001304	378	209	587	**Yes**
6059001401	1,040	222	1,262	**Yes**
6059001402	1,036	97	1,133	**Yes**
6059001403	1,087	54	1,141	**No**
6059001404	894	333	1,227	**Yes**
6059001501	1,695	184	1,879	**No**
6059001503	1,322	382	1,704	**No**
6059001504	889	295	1,184	**No**
6059001505	2,094	174	2,268	**No**
6059001506	1,222	67	1,289	**No**
6059001507	961	308	1,269	**No**
6059001601	3,923	552	4,475	**No**
6059001602	1,749	113	1,862	**No**
6059001704	6,008	1,016	7,024	**No**
6059001705	1,018	101	1,119	**No**
6059001706	1,212	82	1,294	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6059001707	2,075	122	2,197	**No**
6059001708	1,322	57	1,379	**No**
6059001801	627	300	927	**Yes**
6059001802	862	208	1,070	**Yes**
6059001901	756	69	825	**No**
6059001902	702	56	758	**No**
6059001903	706	40	746	**No**
6059011000	1,578	258	1,836	**No**
6059011101	887	119	1,006	**No**
6059011102	1,150	55	1,205	**No**
6059011200	6,214	791	7,005	**No**
6059011300	950	436	1,386	**No**
6059011401	598	75	673	**No**
6059011402	870	24	894	**No**
6059011403	1,099	306	1,405	**Yes**
6059011502	604	230	834	**Yes**
6059011503	7,902	1,030	8,932	**No**
6059011504	223	176	399	**No**
6059011601	608	272	880	**Yes**
6059011602	473	622	1,095	**Yes**
6059011707	1,322	112	1,434	**No**
6059011708	520	95	615	**No**
6059011709	1,484	105	1,589	**No**
6059011710	1,156	52	1,208	**No**
6059011711	587	354	941	**No**
6059011712	989	127	1,116	**No**
6059011714	-	29	29	**Yes**
6059011715	6,551	1,293	7,844	**No**
6059011716	1,384	35	1,419	**No**
6059011717	878	38	916	**No**
6059011718	1,089	28	1,117	**No**
6059011720	469	85	554	**Yes**
6059011721	669	220	889	**Yes**
6059011722	18	177	195	**No**
6059021802	2,257	377	2,634	**No**
6059021807	-	-	-	**No**
6059021809	993	58	1,051	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6059021810	1,150	74	1,224	**No**
6059021812	429	7	436	**No**
6059021813	5	92	97	**Yes**
6059021814	1,759	198	1,957	**No**
6059021815	9,106	2,204	11,310	**No**
6059021816	1,765	53	1,818	**No**
6059021817	1,257	134	1,391	**No**
6059021820	1,317	28	1,345	**No**
6059021821	1,307	235	1,542	**No**
6059021822	3,891	1,267	5,158	**No**
6059021823	1,332	54	1,386	**No**
6059021824	867	16	883	**No**
6059021825	993	35	1,028	**No**
6059021826	687	117	804	**No**
6059021827	1,733	640	2,373	**No**
6059021828	1,330	6	1,336	**No**
6059021829	1,788	16	1,804	**No**
6059021830	2,030	76	2,106	**No**
6059021912	1,577	50	1,627	**No**
6059021913	1,667	95	1,762	**No**
6059021914	1,058	76	1,134	**No**
6059021915	46	8	54	**No**
6059021916	-	-	-	**No**
6059021917	4,368	576	4,944	**No**
6059021918	1,030	83	1,113	**No**
6059021920	479	4	483	**No**
6059021923	93	2	95	**No**
6059021924	1	129	130	**No**
6059032002	3,507	1,151	4,658	**No**
6059032003	1,584	41	1,625	**No**
6059032011	637	131	768	**No**
6059032012	-	-	-	**No**
6059032014	589	166	755	**No**
6059032015	1,824	74	1,898	**No**
6059032020	3,009	503	3,512	**No**
6059032023	-	-	-	**No**
6059032027	1,548	130	1,678	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	**Residential Customers**	**Non-Residential Customers**	**Total Customers**	**DAC (Y/N)**
6059032028	598	174	772	**No**
6059032029	1,097	23	1,120	**No**
6059032030	1,317	37	1,354	**No**
6059032031	1,169	60	1,229	**No**
6059032032	1,037	42	1,079	**No**
6059032033	891	36	927	**No**
6059032034	1,849	21	1,870	**No**
6059032035	1,064	91	1,155	**No**
6059032036	1,226	69	1,295	**No**
6059032037	2,594	143	2,737	**No**
6059032038	-	-	-	**No**
6059032041	340	199	539	**No**
6059032042	1,660	82	1,742	**No**
6059032043	1,588	398	1,986	**No**
6059032044	1,635	36	1,671	**No**
6059032046	-	-	-	**No**
6059032047	1,000	61	1,061	**No**
6059032048	2,248	16	2,264	**No**
6059032049	2,551	90	2,641	**No**
6059032050	1,749	36	1,785	**No**
6059032051	2,019	28	2,047	**No**
6059032053	4,391	1,736	6,127	**No**
6059032054	1,104	87	1,191	**No**
6059032055	940	79	1,019	**No**
6059032056	696	17	713	**No**
6059042307	815	56	871	**No**
6059042317	-	2	2	**No**
6059042319	787	45	832	**No**
6059042320	1	42	43	**No**
6059042324	-	-	-	**No**
6059042325	1,056	71	1,127	**No**
6059042326	1,440	86	1,526	**No**
6059042329	830	488	1,318	**No**
6059042334	-	-	-	**No**
6059052404	10,356	4,913	15,269	**Yes**
6059052408	2,150	187	2,337	**No**
6059052410	1,191	357	1,548	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6059052411	1,164	123	1,287	**No**
6059052415	6,702	2,161	8,863	**No**
6059052416	1,177	69	1,246	**No**
6059052417	3,571	1,973	5,544	**No**
6059052418	9,672	156	9,828	**No**
6059052419	1,138	8	1,146	**No**
6059052420	10,123	120	10,243	**No**
6059052421	3,631	27	3,658	**No**
6059052422	3,711	447	4,158	**No**
6059052423	1,258	197	1,455	**No**
6059052424	1,024	79	1,103	**No**
6059052425	2,260	226	2,486	**No**
6059052426	8,601	1,403	10,004	**No**
6059052427	2,308	715	3,023	**No**
6059052428	2,664	92	2,756	**No**
6059052502	1,850	163	2,013	**No**
6059052505	1,564	53	1,617	**No**
6059052506	826	18	844	**No**
6059052511	2,068	120	2,188	**No**
6059052513	2,165	65	2,230	**No**
6059052514	1,693	47	1,740	**No**
6059052515	3,122	18	3,140	**No**
6059052517	4,116	220	4,336	**No**
6059052518	3,009	470	3,479	**No**
6059052519	1,361	8	1,369	**No**
6059052520	1,200	18	1,218	**No**
6059052521	5,637	2,262	7,899	**No**
6059052522	1,434	12	1,446	**No**
6059052523	1,538	16	1,554	**No**
6059052524	4,907	1,098	6,005	**No**
6059052525	5,412	80	5,492	**No**
6059052526	1,364	57	1,421	**No**
6059052527	3,946	958	4,904	**No**
6059052528	1,900	706	2,606	**No**
6059062604	6,282	1,050	7,332	**No**
6059062605	1,014	519	1,533	**No**
6059062610	2,133	708	2,841	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6059062611	7,432	1,070	8,502	**No**
6059062612	2,507	91	2,598	**No**
6059062614	4,507	459	4,966	**No**
6059062619	1,748	163	1,911	**No**
6059062620	2,411	89	2,500	**No**
6059062621	6,372	620	6,992	**No**
6059062622	18	210	228	**No**
6059062625	99	4	103	**No**
6059062626	1,031	14	1,045	**No**
6059062627	1,007	56	1,063	**No**
6059062628	977	31	1,008	**No**
6059062629	912	7	919	**No**
6059062630	742	23	765	**No**
6059062631	1,274	49	1,323	**No**
6059062632	3,422	1,077	4,499	**No**
6059062633	1,835	16	1,851	**No**
6059062634	2,061	93	2,154	**No**
6059062635	1,674	8	1,682	**No**
6059062636	738	48	786	**No**
6059062637	6,313	1,883	8,196	**No**
6059062638	1,488	28	1,516	**No**
6059062639	2,038	42	2,080	**No**
6059062640	907	94	1,001	**No**
6059062641	1,373	95	1,468	**No**
6059062642	1,933	349	2,282	**No**
6059062643	3,854	636	4,490	**No**
6059062644	3,318	118	3,436	**No**
6059062645	2,560	62	2,622	**No**
6059062646	-	54	54	**No**
6059062647	312	81	393	**No**
6059062648	12,104	307	12,411	**No**
6059062649	683	239	922	**No**
6059062701	1,393	106	1,499	**No**
6059062702	2,265	210	2,475	**No**
6059062800	2,465	272	2,737	**No**
6059062900	859	28	887	**No**
6059063004	3,548	1,485	5,033	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6059063005	856	55	911	**No**
6059063006	1,875	224	2,099	**No**
6059063007	3,152	156	3,308	**No**
6059063008	1,192	324	1,516	**No**
6059063009	740	49	789	**No**
6059063010	1,635	149	1,784	**No**
6059063101	530	153	683	**No**
6059063102	1,284	222	1,506	**No**
6059063103	730	51	781	**No**
6059063201	801	129	930	**No**
6059063202	930	91	1,021	**No**
6059063301	403	266	669	**No**
6059063302	1,035	160	1,195	**No**
6059063400	1,772	255	2,027	**No**
6059063500	2,111	350	2,461	**No**
6059063601	1,344	99	1,443	**No**
6059063603	5,898	1,116	7,014	**No**
6059063604	377	376	753	**Yes**
6059063605	472	314	786	**Yes**
6059063701	366	158	524	**No**
6059063702	13,401	2,342	15,743	**No**
6059063802	883	79	962	**No**
6059063803	950	85	1,035	**No**
6059063805	758	23	781	**No**
6059063806	1,023	135	1,158	**No**
6059063807	455	95	550	**No**
6059063808	430	137	567	**No**
6059063902	11,256	3,226	14,482	**No**
6059063903	990	65	1,055	**No**
6059063904	889	140	1,029	**No**
6059063905	1,002	44	1,046	**No**
6059063906	538	170	708	**No**
6059063907	1,231	310	1,541	**No**
6059063908	1,016	192	1,208	**No**
6059074003	6,232	1,421	7,653	**Yes**
6059074004	779	133	912	**Yes**
6059074005	939	64	1,003	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6059074006	122	90	212	**No**
6059074102	952	70	1,022	**No**
6059074103	874	33	907	**No**
6059074106	264	618	882	**Yes**
6059074107	377	238	615	**No**
6059074108	9,555	1,893	11,448	**Yes**
6059074109	524	16	540	**Yes**
6059074110	951	11	962	**No**
6059074111	1,018	89	1,107	**No**
6059074200	1,518	177	1,695	**Yes**
6059074300	690	10	700	**Yes**
6059074403	18	1,442	1,460	**Yes**
6059074405	8,562	1,396	9,958	**Yes**
6059074406	454	238	692	**Yes**
6059074407	13	83	96	**No**
6059074408	144	60	204	**No**
6059074501	367	110	477	**Yes**
6059074502	744	44	788	**Yes**
6059074601	1,259	152	1,411	**No**
6059074602	1,101	128	1,229	**Yes**
6059074701	1,068	58	1,126	**No**
6059074702	817	76	893	**No**
6059074801	759	86	845	**Yes**
6059074802	380	236	616	**Yes**
6059074803	6,212	822	7,034	**No**
6059074805	191	49	240	**Yes**
6059074806	502	50	552	**No**
6059074901	985	90	1,075	**Yes**
6059074902	550	78	628	**No**
6059075002	442	533	975	**Yes**
6059075003	217	213	430	**No**
6059075004	180	154	334	**Yes**
6059075100	1,085	164	1,249	**Yes**
6059075201	846	66	912	**Yes**
6059075202	907	57	964	**Yes**
6059075301	886	75	961	**No**
6059075302	876	71	947	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6059075303	4,379	563	4,942	**No**
6059075401	1,164	25	1,189	**No**
6059075403	1,110	290	1,400	**No**
6059075404	1,013	109	1,122	**No**
6059075405	485	106	591	**No**
6059075504	1,006	137	1,143	**No**
6059075505	738	414	1,152	**No**
6059075506	943	102	1,045	**No**
6059075507	9,761	2,504	12,265	**No**
6059075512	340	72	412	**No**
6059075513	273	38	311	**No**
6059075514	152	85	237	**Yes**
6059075515	4,195	1,608	5,803	**No**
6059075603	1,204	67	1,271	**No**
6059075604	2,550	128	2,678	**No**
6059075605	1,667	107	1,774	**No**
6059075606	8,810	2,359	11,169	**No**
6059075607	1,995	34	2,029	**No**
6059075701	1,331	153	1,484	**No**
6059075702	1,112	46	1,158	**No**
6059075703	1,376	26	1,402	**No**
6059075805	966	239	1,205	**No**
6059075806	1,363	296	1,659	**No**
6059075807	1,033	172	1,205	**No**
6059075808	1,154	10	1,164	**No**
6059075809	1,090	52	1,142	**No**
6059075810	1,027	60	1,087	**No**
6059075811	547	85	632	**No**
6059075812	1,205	151	1,356	**No**
6059075813	1,297	79	1,376	**No**
6059075814	896	58	954	**No**
6059075815	929	91	1,020	**No**
6059075816	354	120	474	**No**
6059075901	1,055	258	1,313	**No**
6059075902	3,347	674	4,021	**No**
6059076000	1,502	414	1,916	**No**
6059076101	7,255	1,200	8,455	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6059076102	287	150	437	**No**
6059076103	829	229	1,058	**No**
6059076201	3,598	780	4,378	**No**
6059076202	1,251	214	1,465	**No**
6059076204	3,887	2,902	6,789	**Yes**
6059076205	1,257	140	1,397	**No**
6059076206	1,197	329	1,526	**No**
6059076208	1,444	282	1,726	**No**
6059086303	-	-	-	**No**
6059086304	14	4	18	**No**
6059086305	-	-	-	**No**
6059086306	-	-	-	**Yes**
6059086407	-	6	6	**Yes**
6059086501	-	-	-	**Yes**
6059086601	-	-	-	**Yes**
6059086701	27	10	37	**Yes**
6059086801	558	21	579	**No**
6059086802	-	-	-	**Yes**
6059086803	286	18	304	**Yes**
6059086901	-	-	-	**No**
6059087101	95	7	102	**No**
6059087103	-	-	-	**No**
6059087503	136	1	137	**No**
6059087504	-	-	-	**Yes**
6059087602	78	3	81	**No**
6059087701	385	14	399	**No**
6059087703	1,094	22	1,116	**No**
6059087704	-	-	-	**No**
6059087801	823	163	986	**No**
6059087802	719	180	899	**No**
6059087803	461	352	813	**Yes**
6059087805	463	92	555	**Yes**
6059087806	418	52	470	**Yes**
6059087901	4,327	884	5,211	**Yes**
6059087902	944	83	1,027	**Yes**
6059088001	1,117	53	1,170	**No**
6059088002	911	51	962	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6059088101	667	531	1,198	**Yes**
6059088104	556	122	678	**No**
6059088105	4,139	768	4,907	**No**
6059088106	748	172	920	**No**
6059088107	1,048	151	1,199	**No**
6059088201	819	106	925	**No**
6059088202	888	23	911	**No**
6059088203	861	224	1,085	**No**
6059088301	1,193	95	1,288	**No**
6059088302	1,234	81	1,315	**No**
6059088401	6,146	559	6,705	**No**
6059088402	681	111	792	**No**
6059088403	627	63	690	**No**
6059088501	1,037	165	1,202	**Yes**
6059088502	665	176	841	**No**
6059088601	990	336	1,326	**No**
6059088602	847	122	969	**No**
6059088701	636	245	881	**No**
6059088702	1,049	268	1,317	**No**
6059088801	815	332	1,147	**No**
6059088802	987	118	1,105	**Yes**
6059088901	4,137	586	4,723	**No**
6059088902	946	168	1,114	**Yes**
6059088903	1,462	229	1,691	**No**
6059088904	1,138	83	1,221	**No**
6059088905	1,178	137	1,315	**No**
6059089001	1,066	79	1,145	**Yes**
6059089003	5,291	1,259	6,550	**Yes**
6059089004	713	101	814	**Yes**
6059089102	1,159	187	1,346	**No**
6059089104	210	151	361	**No**
6059089105	654	110	764	**Yes**
6059089106	257	129	386	**Yes**
6059089107	1,217	37	1,254	**No**
6059099202	1,427	126	1,553	**No**
6059099203	1,303	68	1,371	**No**
6059099204	922	152	1,074	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6059099212	913	238	1,151	**No**
6059099214	859	51	910	**No**
6059099215	1,945	95	2,040	**No**
6059099216	1,389	70	1,459	**No**
6059099217	769	78	847	**No**
6059099220	1,300	236	1,536	**No**
6059099222	978	241	1,219	**No**
6059099223	718	131	849	**No**
6059099224	998	65	1,063	**No**
6059099225	1,040	94	1,134	**No**
6059099226	1,135	15	1,150	**No**
6059099227	1,366	139	1,505	**No**
6059099229	1,388	510	1,898	**No**
6059099230	1,539	154	1,693	**No**
6059099231	1,812	82	1,894	**No**
6059099232	1,787	61	1,848	**No**
6059099233	996	72	1,068	**No**
6059099234	1,067	75	1,142	**No**
6059099235	1,042	203	1,245	**No**
6059099237	6,005	529	6,534	**No**
6059099238	1,391	23	1,414	**No**
6059099239	1,372	22	1,394	**No**
6059099240	1,345	126	1,471	**No**
6059099241	746	150	896	**No**
6059099242	860	95	955	**No**
6059099243	1,129	97	1,226	**No**
6059099244	683	49	732	**No**
6059099245	955	133	1,088	**No**
6059099246	1,241	25	1,266	**No**
6059099247	291	53	344	**No**
6059099248	194	100	294	**No**
6059099249	357	97	454	**No**
6059099250	604	61	665	**No**
6059099251	4,283	1,590	5,873	**No**
6059099305	550	360	910	**No**
6059099306	1,430	219	1,649	**No**
6059099307	683	79	762	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6059099308	11,815	1,327	13,142	**No**
6059099309	1,328	206	1,534	**No**
6059099310	982	213	1,195	**No**
6059099311	1,029	210	1,239	**No**
6059099402	351	619	970	**Yes**
6059099404	1,293	83	1,376	**No**
6059099405	854	80	934	**No**
6059099406	11,808	1,437	13,245	**No**
6059099407	753	67	820	**No**
6059099408	1,148	104	1,252	**No**
6059099410	504	321	825	**No**
6059099411	430	342	772	**No**
6059099412	1,052	94	1,146	**No**
6059099413	1,799	381	2,180	**No**
6059099415	1,878	71	1,949	**No**
6059099416	476	320	796	**No**
6059099417	1,051	141	1,192	**No**
6059099502	9,077	559	9,636	**No**
6059099504	1,033	97	1,130	**No**
6059099506	808	117	925	**No**
6059099508	5,994	1,119	7,113	**No**
6059099509	8	42	50	**No**
6059099510	10	82	92	**No**
6059099511	842	248	1,090	**No**
6059099512	840	126	966	**No**
6059099513	931	102	1,033	**No**
6059099514	2,328	66	2,394	**No**
6059099601	8,523	2,306	10,829	**Yes**
6059099602	980	115	1,095	**No**
6059099603	2,200	764	2,964	**No**
6059099604	1,215	59	1,274	**No**
6059099605	1,240	167	1,407	**No**
6059099701	2,596	232	2,828	**No**
6059099702	1,583	148	1,731	**Yes**
6059099703	1,156	93	1,249	**No**
6059099801	982	193	1,175	**Yes**
6059099802	534	242	776	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6059099803	821	167	988	**No**
6059099902	1,086	75	1,161	**No**
6059099903	961	118	1,079	**No**
6059099904	821	210	1,031	**Yes**
6059099905	320	50	370	**No**
6059099906	1,664	43	1,707	**No**
6059110001	1,284	114	1,398	**No**
6059110003	1,498	215	1,713	**No**
6059110004	1,578	57	1,635	**No**
6059110005	1,142	66	1,208	**No**
6059110006	952	38	990	**No**
6059110007	1,682	15	1,697	**No**
6059110008	1,191	98	1,289	**No**
6059110010	1,421	29	1,450	**No**
6059110011	1,110	97	1,207	**No**
6059110012	1,795	43	1,838	**No**
6059110014	966	348	1,314	**No**
6059110015	2,891	757	3,648	**No**
6059110102	1,664	86	1,750	**No**
6059110104	4,792	867	5,659	**No**
6059110106	1,246	39	1,285	**No**
6059110108	821	530	1,351	**No**
6059110109	1,197	112	1,309	**No**
6059110110	1,363	231	1,594	**No**
6059110111	1,755	162	1,917	**No**
6059110113	686	421	1,107	**No**
6059110114	1,517	83	1,600	**No**
6059110115	1,010	90	1,100	**No**
6059110116	2,295	267	2,562	**No**
6059110117	1,145	141	1,286	**No**
6059110118	764	11	775	**No**
6059110201	1,462	118	1,580	**No**
6059110202	796	31	827	**No**
6059110203	902	34	936	**No**
6059110301	1,629	75	1,704	**No**
6059110302	1,342	180	1,522	**Yes**
6059110303	3,717	786	4,503	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6059110304	1,302	14	1,316	**No**
6059110401	1,529	134	1,663	**No**
6059110402	483	122	605	**Yes**
6059110500	950	452	1,402	**Yes**
6059110603	754	313	1,067	**Yes**
6059110604	2,598	99	2,697	**No**
6059110605	1,943	121	2,064	**No**
6059110606	615	137	752	**Yes**
6059110607	6,427	1,143	7,570	**No**
6065030104	-	5	5	**Yes**
6065030200	111	243	354	**Yes**
6065030800	-	-	-	**No**
6065030900	-	2	2	**Yes**
6065031701	56	144	200	**Yes**
6065031702	-	-	-	**No**
6065040101	1,102	220	1,322	**Yes**
6065040102	1,594	53	1,647	**Yes**
6065040201	1,507	77	1,584	**Yes**
6065040202	508	15	523	**No**
6065040203	515	85	600	**Yes**
6065040204	546	104	650	**Yes**
6065040301	1,223	165	1,388	**Yes**
6065040302	5,369	1,004	6,373	**No**
6065040303	829	70	899	**Yes**
6065040402	980	90	1,070	**Yes**
6065040403	1,278	45	1,323	**Yes**
6065040404	907	112	1,019	**No**
6065040405	1,616	67	1,683	**Yes**
6065040501	1,348	153	1,501	**Yes**
6065040502	950	112	1,062	**Yes**
6065040503	607	133	740	**Yes**
6065040603	564	25	589	**No**
6065040604	4,123	1,117	5,240	**No**
6065040605	668	48	716	**No**
6065040606	698	54	752	**No**
6065040607	2,906	369	3,275	**Yes**
6065040609	5,814	1,282	7,096	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6065040611	2,042	33	2,075	**No**
6065040613	3,323	33	3,356	**No**
6065040615	2,707	127	2,834	**No**
6065040616	2,709	53	2,762	**No**
6065040701	670	38	708	**No**
6065040702	892	128	1,020	**No**
6065040703	877	58	935	**No**
6065040806	859	12	871	**No**
6065040807	1,005	23	1,028	**No**
6065040808	1,101	109	1,210	**No**
6065040809	876	118	994	**No**
6065040812	1,234	874	2,108	**No**
6065040813	1,785	134	1,919	**No**
6065040814	744	89	833	**No**
6065040815	817	87	904	**No**
6065040816	538	40	578	**No**
6065040821	866	139	1,005	**No**
6065040902	-	-	-	**No**
6065041004	49	7	56	**Yes**
6065041403	-	-	-	**No**
6065041404	172	1	173	**No**
6065041409	4,246	432	4,678	**Yes**
6065041410	5,468	1,375	6,843	**Yes**
6065041411	540	28	568	**Yes**
6065041412	955	133	1,088	**Yes**
6065041500	229	718	947	**Yes**
6065041600	801	421	1,222	**Yes**
6065041702	1,260	27	1,287	**No**
6065041703	142	231	373	**Yes**
6065041704	465	123	588	**Yes**
6065041803	1,730	55	1,785	**No**
6065041804	1,303	33	1,336	**No**
6065041805	1,163	97	1,260	**No**
6065041806	1,222	34	1,256	**No**
6065041807	663	18	681	**No**
6065041808	1,719	97	1,816	**No**
6065041809	749	238	987	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6065041810	1,648	96	1,744	**No**
6065041812	1,021	25	1,046	**No**
6065041813	1,151	109	1,260	**Yes**
6065041904	2,025	229	2,254	**No**
6065041905	486	24	510	**No**
6065041906	1,359	142	1,501	**No**
6065041909	2,647	656	3,303	**No**
6065041910	1,796	138	1,934	**No**
6065041911	4,622	1,145	5,767	**No**
6065041912	1,654	98	1,752	**No**
6065041913	1,457	104	1,561	**No**
6065042003	1,291	26	1,317	**No**
6065042004	1,016	101	1,117	**No**
6065042005	961	56	1,017	**No**
6065042007	2,336	101	2,437	**Yes**
6065042008	2,773	75	2,848	**No**
6065042009	1,471	72	1,543	**No**
6065042010	1,421	82	1,503	**Yes**
6065042012	212	1	213	**No**
6065042013	-	1	1	**No**
6065042014	66	134	200	**No**
6065042206	-	-	-	**No**
6065042209	8	5	13	**Yes**
6065042210	-	-	-	**No**
6065042212	1,671	58	1,729	**No**
6065042213	1	-	1	**No**
6065042214	2,333	49	2,382	**No**
6065042217	-	-	-	**No**
6065042300	2,243	181	2,424	**Yes**
6065042401	632	17	649	**No**
6065042402	1,350	17	1,367	**No**
6065042403	1,192	55	1,247	**No**
6065042404	430	73	503	**Yes**
6065042405	363	83	446	**Yes**
6065042406	1,065	10	1,075	**No**
6065042407	906	13	919	**No**
6065042408	902	10	912	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6065042409	970	13	983	**Yes**
6065042410	4,077	577	4,654	**No**
6065042411	798	5	803	**No**
6065042412	1,728	55	1,783	**No**
6065042505	738	84	822	**Yes**
6065042506	1,531	158	1,689	**Yes**
6065042507	1,673	152	1,825	**Yes**
6065042508	1,028	27	1,055	**Yes**
6065042509	868	54	922	**No**
6065042510	1,218	12	1,230	**Yes**
6065042511	749	70	819	**Yes**
6065042512	563	32	595	**Yes**
6065042513	834	42	876	**Yes**
6065042514	546	61	607	**Yes**
6065042515	524	199	723	**Yes**
6065042516	6,242	1,736	7,978	**Yes**
6065042517	775	12	787	**Yes**
6065042518	707	18	725	**Yes**
6065042519	273	104	377	**Yes**
6065042520	943	41	984	**Yes**
6065042521	1,204	60	1,264	**Yes**
6065042617	2,432	38	2,470	**No**
6065042618	2,076	44	2,120	**No**
6065042619	2,774	27	2,801	**No**
6065042620	4,592	1,072	5,664	**Yes**
6065042621	1,321	33	1,354	**No**
6065042622	182	14	196	**No**
6065042623	1,084	17	1,101	**No**
6065042624	644	188	832	**Yes**
6065042706	1,759	39	1,798	**Yes**
6065042708	1,527	72	1,599	**No**
6065042709	2,007	31	2,038	**No**
6065042711	3,976	367	4,343	**No**
6065042714	1,389	30	1,419	**No**
6065042715	4,985	538	5,523	**No**
6065042716	2,123	29	2,152	**No**
6065042717	1,704	245	1,949	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6065042719	1,274	102	1,376	**Yes**
6065042720	1,516	120	1,636	**No**
6065042723	5,595	583	6,178	**No**
6065042724	1,269	17	1,286	**No**
6065042726	3,315	56	3,371	**No**
6065042728	1,033	71	1,104	**No**
6065042729	3,850	106	3,956	**No**
6065042730	2,108	305	2,413	**No**
6065042731	2,439	68	2,507	**No**
6065042732	2,611	58	2,669	**No**
6065042733	4,234	93	4,327	**No**
6065042737	2,720	520	3,240	**No**
6065042738	2,297	109	2,406	**No**
6065042739	2,690	57	2,747	**No**
6065042740	1,059	10	1,069	**No**
6065042741	1,266	48	1,314	**No**
6065042742	2,292	126	2,418	**No**
6065042743	2,805	928	3,733	**No**
6065042744	1,097	162	1,259	**No**
6065042745	2,497	50	2,547	**No**
6065042800	1,354	277	1,631	**Yes**
6065042901	1,957	82	2,039	**Yes**
6065042902	1,196	61	1,257	**Yes**
6065042903	2,833	835	3,668	**No**
6065042904	2,248	123	2,371	**Yes**
6065043001	2,489	226	2,715	**No**
6065043003	1,232	75	1,307	**No**
6065043005	1,454	158	1,612	**Yes**
6065043006	980	359	1,339	**Yes**
6065043007	2,019	39	2,058	**No**
6065043008	1,947	63	2,010	**No**
6065043009	1,692	21	1,713	**No**
6065043010	1,652	14	1,666	**No**
6065043206	1,446	170	1,616	**No**
6065043211	1,684	56	1,740	**No**
6065043216	1,224	361	1,585	**No**
6065043217	1,065	44	1,109	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6065043218	5,851	1,360	7,211	**No**
6065043220	652	74	726	**No**
6065043222	1,671	107	1,778	**No**
6065043227	1,736	82	1,818	**No**
6065043228	753	42	795	**No**
6065043229	2,415	60	2,475	**No**
6065043235	3,843	62	3,905	**No**
6065043239	4,596	1,508	6,104	**No**
6065043240	3,204	65	3,269	**No**
6065043242	2,625	83	2,708	**No**
6065043244	2,558	55	2,613	**No**
6065043246	1,636	69	1,705	**No**
6065043247	3,910	171	4,081	**No**
6065043248	1,344	20	1,364	**No**
6065043250	2,942	135	3,077	**No**
6065043252	2,837	41	2,878	**No**
6065043254	1,573	95	1,668	**No**
6065043256	1,069	74	1,143	**No**
6065043257	2,325	139	2,464	**No**
6065043262	1,671	117	1,788	**No**
6065043264	2,300	44	2,344	**No**
6065043265	2,158	109	2,267	**No**
6065043266	727	73	800	**No**
6065043267	2,254	53	2,307	**No**
6065043270	1,686	60	1,746	**No**
6065043271	1,362	43	1,405	**No**
6065043272	6,860	2,599	9,459	**No**
6065043274	574	24	598	**No**
6065043276	1,184	23	1,207	**No**
6065043278	1,672	150	1,822	**No**
6065043279	2,939	640	3,579	**No**
6065043291	2,877	43	2,920	**No**
6065043304	5,176	574	5,750	**No**
6065043306	1,606	75	1,681	**No**
6065043307	1,606	146	1,752	**No**
6065043308	569	110	679	**No**
6065043309	527	135	662	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6065043310	905	106	1,011	**No**
6065043311	655	58	713	**No**
6065043312	1,181	15	1,196	**No**
6065043313	921	24	945	**No**
6065043314	1,181	20	1,201	**No**
6065043315	723	11	734	**No**
6065043316	1,799	38	1,837	**No**
6065043317	6,987	1,027	8,014	**No**
6065043401	1,364	499	1,863	**Yes**
6065043403	828	31	859	**No**
6065043404	1,479	21	1,500	**No**
6065043405	680	200	880	**Yes**
6065043503	373	213	586	**No**
6065043504	1,762	242	2,004	**No**
6065043505	1,580	34	1,614	**No**
6065043506	1,828	67	1,895	**No**
6065043507	1,148	255	1,403	**Yes**
6065043508	1,879	239	2,118	**No**
6065043509	1,375	57	1,432	**No**
6065043512	2,145	79	2,224	**No**
6065043513	674	27	701	**No**
6065043517	2,241	355	2,596	**Yes**
6065043601	906	84	990	**No**
6065043602	893	117	1,010	**No**
6065043701	1,009	74	1,083	**No**
6065043702	1,167	47	1,214	**No**
6065043703	981	17	998	**No**
6065043802	2,985	431	3,416	**No**
6065043807	1,410	67	1,477	**No**
6065043809	3,006	56	3,062	**No**
6065043810	2,139	35	2,174	**No**
6065043811	1,234	78	1,312	**No**
6065043812	1,029	8	1,037	**No**
6065043813	1,576	472	2,048	**Yes**
6065043814	122	16	138	**No**
6065043818	1,146	49	1,195	**No**
6065043820	1,767	75	1,842	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6065043821	1,298	68	1,366	**No**
6065043822	1,517	101	1,618	**No**
6065043823	8,970	1,627	10,597	**No**
6065043900	3,455	887	4,342	**No**
6065044000	449	278	727	**Yes**
6065044103	-	-	-	**No**
6065044104	168	15	183	**No**
6065044200	-	-	-	**Yes**
6065044300	-	-	-	**No**
6065044402	388	83	471	**No**
6065044403	476	65	541	**No**
6065044404	2,133	305	2,438	**No**
6065044405	1,797	127	1,924	**No**
6065044507	1,626	134	1,760	**No**
6065044509	4,530	661	5,191	**No**
6065044510	1,206	165	1,371	**No**
6065044515	779	54	833	**No**
6065044516	1,736	89	1,825	**No**
6065044517	1,271	25	1,296	**No**
6065044518	2,276	65	2,341	**No**
6065044520	33	16	49	**No**
6065044521	529	97	626	**No**
6065044522	1,484	233	1,717	**No**
6065044602	1,155	124	1,279	**No**
6065044604	1,757	49	1,806	**No**
6065044605	1,637	183	1,820	**No**
6065044606	8,274	2,683	10,957	**No**
6065044701	837	145	982	**No**
6065044702	581	50	631	**No**
6065044804	778	264	1,042	**No**
6065044805	828	137	965	**No**
6065044806	573	165	738	**No**
6065044807	553	63	616	**No**
6065044904	1,858	29	1,887	**No**
6065044907	472	66	538	**No**
6065044911	2,185	106	2,291	**No**
6065044915	482	78	560	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6065044916	1,526	111	1,637	**No**
6065044917	4,210	1,798	6,008	**No**
6065044918	2,405	88	2,493	**No**
6065044919	3,422	81	3,503	**No**
6065044921	923	21	944	**No**
6065044922	5,323	1,814	7,137	**No**
6065044923	1,017	39	1,056	**No**
6065044924	1,095	19	1,114	**No**
6065044925	1,154	27	1,181	**No**
6065044926	7,910	2,153	10,063	**No**
6065044927	3,004	131	3,135	**No**
6065044928	2,933	200	3,133	**No**
6065044929	2,384	133	2,517	**No**
6065044930	1,179	165	1,344	**No**
6065044931	699	15	714	**No**
6065044932	988	14	1,002	**No**
6065045000	1,166	233	1,399	**No**
6065045103	1,835	320	2,155	**No**
6065045108	1,491	288	1,779	**No**
6065045114	1,891	70	1,961	**No**
6065045115	1,563	55	1,618	**No**
6065045116	620	177	797	**No**
6065045117	1,397	438	1,835	**No**
6065045118	1,126	107	1,233	**No**
6065045119	907	42	949	**No**
6065045122	1,069	78	1,147	**No**
6065045123	1,518	45	1,563	**No**
6065045124	6,956	3,562	10,518	**No**
6065045125	1,674	616	2,290	**No**
6065045214	-	-	-	**No**
6065045215	-	-	-	**No**
6065045233	-	-	-	**No**
6065045900	503	97	600	**No**
6065046101	894	119	1,013	**No**
6065046102	318	162	480	**No**
6065046103	931	56	987	**No**
6065046200	796	262	1,058	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6065046401	4,387	1,572	5,959	**No**
6065046402	1,418	57	1,475	**No**
6065046403	2,078	75	2,153	**No**
6065046404	1,484	177	1,661	**No**
6065046405	1,198	27	1,225	**No**
6065046601	146	40	186	**No**
6065046602	1,043	190	1,233	**No**
6065046700	852	523	1,375	**Yes**
6065046800	1,534	23	1,557	**No**
6065046900	3,092	772	3,864	**No**
6065047000	627	107	734	**No**
6065047201	23	30	53	**No**
6065047202	730	119	849	**No**
6065047900	3,314	90	3,404	**No**
6065048100	7,383	1,104	8,487	**No**
6065048200	1,232	37	1,269	**No**
6065048300	1,244	10	1,254	**No**
6065048700	46	22	68	**No**
6065048800	1,104	25	1,129	**Yes**
6065048901	1,006	4	1,010	**No**
6065048902	1,126	67	1,193	**Yes**
6065049000	1,242	25	1,267	**No**
6065049600	2,001	157	2,158	**No**
6065049700	2,769	150	2,919	**No**
6065049800	494	553	1,047	**No**
6065050300	6,355	1,600	7,955	**No**
6065050400	2,685	62	2,747	**No**
6065050500	2,859	273	3,132	**No**
6065050600	2,153	155	2,308	**No**
6065050700	3,124	135	3,259	**No**
6065050900	173	3	176	**No**
6065051100	1,218	18	1,236	**No**
6065051200	1,993	3,513	5,506	**No**
6065051300	4,596	831	5,427	**No**
6065940100	14	4	18	**No**
6065940500	8,127	967	9,094	**No**
6065940600	2,877	149	3,026	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6065940700	1,189	78	1,267	**No**
6065940800	1,339	107	1,446	**No**
6065940900	1,256	46	1,302	**No**
6065941000	1,968	275	2,243	**No**
6065941100	1,501	114	1,615	**No**
6065941200	2,821	168	2,989	**No**
6065941300	1,847	42	1,889	**No**
6065941400	1,108	297	1,405	**No**
6065941500	1,379	35	1,414	**No**
6065981000	-	2	2	**No**
6071000103	1,111	91	1,202	**No**
6071000104	1,614	73	1,687	**No**
6071000105	1,681	105	1,786	**No**
6071000107	830	76	906	**No**
6071000108	1,316	51	1,367	**No**
6071000109	2,081	23	2,104	**No**
6071000111	951	49	1,000	**No**
6071000113	2,629	205	2,834	**No**
6071000115	2,040	243	2,283	**No**
6071000116	8,240	1,478	9,718	**No**
6071000117	1,874	75	1,949	**No**
6071000118	1,376	49	1,425	**No**
6071000201	511	468	979	**Yes**
6071000203	1,035	48	1,083	**Yes**
6071000205	1,195	145	1,340	**Yes**
6071000207	925	34	959	**Yes**
6071000208	5,028	1,064	6,092	**Yes**
6071000301	829	528	1,357	**Yes**
6071000303	1,019	128	1,147	**Yes**
6071000304	1,272	222	1,494	**Yes**
6071000401	1,793	307	2,100	**No**
6071000403	1,029	58	1,087	**Yes**
6071000404	1,077	164	1,241	**No**
6071000501	1,700	87	1,787	**No**
6071000503	926	141	1,067	**No**
6071000504	6,763	3,390	10,153	**No**
6071000603	1,110	232	1,342	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6071000604	1,091	227	1,318	**Yes**
6071000605	1,021	158	1,179	**Yes**
6071000606	724	46	770	**Yes**
6071000804	1,141	35	1,176	**No**
6071000808	1,582	143	1,725	**No**
6071000812	1,370	120	1,490	**No**
6071000813	1,299	42	1,341	**No**
6071000814	1,359	27	1,386	**No**
6071000815	1,528	82	1,610	**No**
6071000816	1,406	23	1,429	**No**
6071000817	1,168	178	1,346	**No**
6071000818	1,614	225	1,839	**No**
6071000819	2,157	145	2,302	**No**
6071000820	1,374	44	1,418	**No**
6071000821	588	344	932	**Yes**
6071000823	564	411	975	**Yes**
6071000824	10,023	2,558	12,581	**Yes**
6071000825	359	251	610	**Yes**
6071000826	886	290	1,176	**Yes**
6071000901	825	207	1,032	**Yes**
6071000903	664	300	964	**Yes**
6071000904	918	114	1,032	**Yes**
6071001001	905	139	1,044	**Yes**
6071001002	772	132	904	**Yes**
6071001101	612	104	716	**Yes**
6071001103	1,127	56	1,183	**Yes**
6071001104	1,330	107	1,437	**Yes**
6071001200	1,478	42	1,520	**Yes**
6071001305	529	113	642	**Yes**
6071001307	953	25	978	**Yes**
6071001308	780	127	907	**Yes**
6071001309	757	111	868	**Yes**
6071001310	1,345	35	1,380	**Yes**
6071001311	1,055	64	1,119	**Yes**
6071001312	8,639	953	9,592	**Yes**
6071001400	565	416	981	**Yes**
6071001501	756	56	812	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6071001503	454	56	510	**Yes**
6071001504	490	155	645	**Yes**
6071001600	925	693	1,618	**Yes**
6071001702	908	105	1,013	**Yes**
6071001703	1,776	71	1,847	**No**
6071001704	909	131	1,040	**Yes**
6071001706	1,011	101	1,112	**Yes**
6071001707	1,341	50	1,391	**Yes**
6071001803	271	806	1,077	**Yes**
6071001804	1,180	77	1,257	**Yes**
6071001806	1,267	71	1,338	**Yes**
6071001808	971	68	1,039	**Yes**
6071001809	660	63	723	**Yes**
6071001810	695	40	735	**Yes**
6071001812	516	43	559	**Yes**
6071001813	641	118	759	**Yes**
6071001901	1,534	51	1,585	**No**
6071001903	15,184	2,068	17,252	**No**
6071001905	2,320	361	2,681	**No**
6071001906	2,984	161	3,145	**Yes**
6071002010	3,158	76	3,234	**No**
6071002011	1,298	20	1,318	**No**
6071002013	1,009	77	1,086	**No**
6071002014	1,534	36	1,570	**No**
6071002015	1,435	122	1,557	**No**
6071002016	1,132	94	1,226	**No**
6071002017	1,860	59	1,919	**No**
6071002018	1,543	60	1,603	**No**
6071002019	885	84	969	**No**
6071002021	1,708	54	1,762	**No**
6071002022	3,919	77	3,996	**No**
6071002023	794	158	952	**No**
6071002025	1,273	35	1,308	**No**
6071002027	1,603	168	1,771	**No**
6071002028	1,320	112	1,432	**No**
6071002029	1,928	25	1,953	**No**
6071002031	1,866	33	1,899	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6071002033	2,256	82	2,338	**No**
6071002034	2,585	274	2,859	**No**
6071002035	1,795	88	1,883	**No**
6071002036	968	162	1,130	**No**
6071002037	2,134	44	2,178	**No**
6071002038	1,473	63	1,536	**No**
6071002101	828	72	900	**No**
6071002103	466	76	542	**No**
6071002105	1,371	301	1,672	**Yes**
6071002107	628	117	745	**Yes**
6071002109	192	430	622	**No**
6071002110	12,751	4,532	17,283	**Yes**
6071002204	867	460	1,327	**Yes**
6071002206	1,641	72	1,713	**Yes**
6071002207	407	193	600	**Yes**
6071002301	3,183	137	3,320	**Yes**
6071002304	8,350	1,216	9,566	**No**
6071002305	3,075	137	3,212	**No**
6071002306	977	85	1,062	**No**
6071002307	1,173	39	1,212	**No**
6071002401	1,590	201	1,791	**Yes**
6071002402	10,036	1,792	11,828	**Yes**
6071002501	1,167	219	1,386	**Yes**
6071002502	1,534	78	1,612	**Yes**
6071002601	2,741	934	3,675	**No**
6071002602	1,732	39	1,771	**Yes**
6071002604	1,483	8	1,491	**No**
6071002606	1,520	39	1,559	**Yes**
6071002607	2,024	15	2,039	**No**
6071002703	1,666	8	1,674	**No**
6071002704	4,934	368	5,302	**Yes**
6071002705	1,428	42	1,470	**No**
6071002706	3,726	178	3,904	**No**
6071002801	869	78	947	**No**
6071002803	467	89	556	**Yes**
6071002804	279	105	384	**Yes**
6071002901	739	100	839	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6071002902	1,128	100	1,228	**Yes**
6071003000	582	324	906	**Yes**
6071003101	791	67	858	**Yes**
6071003102	563	113	676	**Yes**
6071003200	1,716	138	1,854	**Yes**
6071003301	766	142	908	**Yes**
6071003302	686	189	875	**Yes**
6071003401	1,583	63	1,646	**Yes**
6071003403	938	20	958	**No**
6071003404	382	44	426	**No**
6071003405	605	60	665	**Yes**
6071003503	1,407	73	1,480	**Yes**
6071003505	980	191	1,171	**Yes**
6071003506	1,068	118	1,186	**Yes**
6071003507	8,135	1,460	9,595	**Yes**
6071003509	972	158	1,130	**Yes**
6071003510	547	160	707	**Yes**
6071003603	892	14	906	**No**
6071003605	769	15	784	**No**
6071003606	828	158	986	**Yes**
6071003607	1,237	91	1,328	**Yes**
6071003609	646	111	757	**Yes**
6071003611	122	2	124	**No**
6071003612	48	49	97	**Yes**
6071003700	655	260	915	**Yes**
6071003801	1,076	86	1,162	**Yes**
6071003803	1,061	120	1,181	**Yes**
6071003804	1,208	31	1,239	**Yes**
6071003900	992	94	1,086	**Yes**
6071004001	960	59	1,019	**Yes**
6071004003	1,265	93	1,358	**Yes**
6071004004	1,553	492	2,045	**Yes**
6071004101	1,209	70	1,279	**Yes**
6071004103	1,102	113	1,215	**Yes**
6071004104	935	69	1,004	**Yes**
6071004201	1,339	116	1,455	**Yes**
6071004202	2,157	306	2,463	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6071004301	1,055	28	1,083	**Yes**
6071004302	973	78	1,051	**Yes**
6071004401	632	45	677	**Yes**
6071004403	616	31	647	**Yes**
6071004404	410	50	460	**No**
6071004503	5,954	824	6,778	**No**
6071004504	2,170	80	2,250	**No**
6071004505	1,160	122	1,282	**No**
6071004507	990	68	1,058	**No**
6071004509	1,390	38	1,428	**No**
6071004510	715	28	743	**Yes**
6071004601	1,440	79	1,519	**Yes**
6071004603	1,132	88	1,220	**Yes**
6071004604	3,611	365	3,976	**Yes**
6071004700	1,300	105	1,405	**Yes**
6071004800	770	53	823	**Yes**
6071004900	1,366	260	1,626	**Yes**
6071005100	2,443	164	2,607	**Yes**
6071005200	1,197	40	1,237	**Yes**
6071005300	1,435	174	1,609	**Yes**
6071005400	1,415	278	1,693	**Yes**
6071005500	1,592	233	1,825	**Yes**
6071005600	1,441	274	1,715	**Yes**
6071005701	6,782	1,751	8,533	**Yes**
6071005800	527	177	704	**Yes**
6071006100	2,392	58	2,450	**Yes**
6071006201	1,081	64	1,145	**Yes**
6071006203	440	79	519	**Yes**
6071006204	301	184	485	**Yes**
6071006301	1,009	158	1,167	**Yes**
6071006302	1,960	108	2,068	**Yes**
6071006401	140	115	255	**Yes**
6071006402	774	70	844	**Yes**
6071006500	1,031	194	1,225	**Yes**
6071006601	343	4	347	**Yes**
6071006603	121	7	128	**Yes**
6071006604	1	1	2	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6071006700	2	1	3	**Yes**
6071007000	10	2	12	**Yes**
6071007104	2,558	374	2,932	**No**
6071007105	117	26	143	**No**
6071007106	1,065	113	1,178	**No**
6071007107	110	28	138	**Yes**
6071007109	706	84	790	**Yes**
6071007110	564	53	617	**Yes**
6071007200	2,839	2,141	4,980	**Yes**
6071007302	2,822	144	2,966	**No**
6071007303	895	202	1,097	**Yes**
6071007305	678	95	773	**Yes**
6071007306	4,017	933	4,950	**No**
6071007403	1,785	92	1,877	**No**
6071007404	1,185	37	1,222	**No**
6071007407	363	97	460	**Yes**
6071007408	424	21	445	**No**
6071007409	1,573	94	1,667	**No**
6071007410	892	168	1,060	**No**
6071007601	1,004	108	1,112	**Yes**
6071007603	947	74	1,021	**Yes**
6071007604	1,145	112	1,257	**Yes**
6071007800	825	829	1,654	**No**
6071007901	2,614	39	2,653	**No**
6071007903	1,569	12	1,581	**No**
6071007904	2,195	40	2,235	**No**
6071008001	1,743	36	1,779	**Yes**
6071008002	1,400	414	1,814	**Yes**
6071008100	505	442	947	**Yes**
6071008200	1,741	131	1,872	**No**
6071008301	1,757	56	1,813	**No**
6071008302	1,262	11	1,273	**No**
6071008401	6,542	1,087	7,629	**No**
6071008402	1,919	35	1,954	**No**
6071008403	2,037	67	2,104	**No**
6071008404	256	98	354	**No**
6071008500	3,261	92	3,353	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6071008601	1,575	119	1,694	**No**
6071008602	1,018	97	1,115	**No**
6071008703	6,158	992	7,150	**No**
6071008704	1,858	125	1,983	**No**
6071008705	1,130	177	1,307	**No**
6071008706	3,707	181	3,888	**No**
6071008708	1,467	35	1,502	**No**
6071008709	845	66	911	**No**
6071008710	546	106	652	**No**
6071008800	2,089	218	2,307	**No**
6071008901	1,094	125	1,219	**No**
6071009107	2,440	98	2,538	**No**
6071009108	2,024	40	2,064	**No**
6071009109	4,167	434	4,601	**No**
6071009110	5,405	107	5,512	**No**
6071009112	2,799	28	2,827	**No**
6071009114	3,232	32	3,264	**No**
6071009116	745	199	944	**Yes**
6071009117	4,804	874	5,678	**Yes**
6071009118	12,482	1,290	13,772	**No**
6071009119	1,172	30	1,202	**No**
6071009201	2,791	243	3,034	**No**
6071009202	7,799	1,298	9,097	**No**
6071009300	411	97	508	**Yes**
6071009400	721	356	1,077	**Yes**
6071009500	1,911	313	2,224	**Yes**
6071009707	3,612	194	3,806	**No**
6071009708	3,994	767	4,761	**No**
6071009709	1,813	62	1,875	**No**
6071009710	1,596	117	1,713	**No**
6071009711	3,187	98	3,285	**No**
6071009712	1,320	225	1,545	**No**
6071009713	2,335	87	2,422	**No**
6071009714	1,291	91	1,382	**No**
6071009715	2,810	126	2,936	**No**
6071009716	1,149	170	1,319	**No**
6071009717	1,373	60	1,433	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6071009800	1,103	196	1,299	**Yes**
6071009904	1,527	347	1,874	**Yes**
6071009905	2,438	96	2,534	**Yes**
6071009906	1,554	23	1,577	**No**
6071009908	1,538	22	1,560	**No**
6071009910	1,472	74	1,546	**No**
6071009911	1,914	27	1,941	**No**
6071009912	1,294	135	1,429	**Yes**
6071009913	4,982	1,521	6,503	**Yes**
6071010004	880	30	910	**No**
6071010009	1,399	107	1,506	**No**
6071010010	1,763	124	1,887	**No**
6071010011	1,099	121	1,220	**Yes**
6071010012	1,566	169	1,735	**No**
6071010013	2,541	213	2,754	**No**
6071010014	1,080	82	1,162	**No**
6071010015	1,573	72	1,645	**No**
6071010016	1,460	76	1,536	**No**
6071010017	4,618	273	4,891	**No**
6071010018	2,215	69	2,284	**No**
6071010019	1,427	158	1,585	**No**
6071010020	1,084	186	1,270	**No**
6071010021	2,189	38	2,227	**No**
6071010022	1,532	25	1,557	**No**
6071010023	1,925	12	1,937	**No**
6071010024	6,876	2,088	8,964	**No**
6071010025	1,761	133	1,894	**Yes**
6071010026	3,021	240	3,261	**No**
6071010300	1,502	1,124	2,626	**Yes**
6071010402	16	6	22	**No**
6071010409	3,782	386	4,168	**No**
6071010410	1,393	38	1,431	**No**
6071010411	4,399	1,011	5,410	**No**
6071010412	2,929	151	3,080	**No**
6071010413	2,333	220	2,553	**No**
6071010415	2,258	74	2,332	**No**
6071010416	1,718	80	1,798	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6071010417	1,453	118	1,571	**No**
6071010419	2,168	94	2,262	**No**
6071010420	2,562	284	2,846	**No**
6071010421	1,176	291	1,467	**No**
6071010422	530	106	636	**No**
6071010423	2,036	97	2,133	**No**
6071010424	1,331	124	1,455	**No**
6071010700	1	-	1	**No**
6071010802	2,752	148	2,900	**Yes**
6071010803	2,358	51	2,409	**No**
6071010804	2,162	241	2,403	**No**
6071010901	3,879	137	4,016	**No**
6071010902	4,760	469	5,229	**No**
6071011001	1,859	89	1,948	**No**
6071011002	7,205	820	8,025	**No**
6071011101	6,593	913	7,506	**No**
6071011102	2,594	243	2,837	**No**
6071011300	154	38	192	**No**
6071011404	5	-	5	**No**
6071011500	2,131	311	2,442	**No**
6071011600	6,881	1,450	8,331	**No**
6071011700	455	150	605	**Yes**
6071011800	2,173	250	2,423	**No**
6071011900	882	227	1,109	**Yes**
6071012001	1,589	128	1,717	**No**
6071012002	1,252	105	1,357	**Yes**
6071012101	1,627	225	1,852	**No**
6071012103	1,441	154	1,595	**No**
6071012104	4,975	1,231	6,206	**No**
6071012200	1,763	57	1,820	**No**
6071012300	-	4	4	**No**
6071012400	684	587	1,271	**Yes**
6071012500	3	5	8	**Yes**
6071012700	6,963	4,102	11,065	**Yes**
6071025000	-	345	345	**No**
6071025100	1,538	313	1,851	**No**
6071940100	-	1	1	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6071980100	4	81	85	**Yes**
6071980200	-	23	23	**No**
6073019001	4	3	7	**No**
6073019002	-	-	-	**No**
6073019101	-	-	-	**No**
6073020903	-	-	-	**No**
6073021000	-	-	-	**No**
6083000101	972	87	1,059	**No**
6083000102	884	164	1,048	**No**
6083000103	3,118	304	3,422	**No**
6083000200	936	343	1,279	**No**
6083000301	318	165	483	**No**
6083000302	507	262	769	**No**
6083000400	1,195	197	1,392	**No**
6083000501	1,338	69	1,407	**No**
6083000502	2,007	151	2,158	**No**
6083000600	4,652	468	5,120	**No**
6083000700	1,892	142	2,034	**No**
6083000801	720	285	1,005	**No**
6083000804	1,012	539	1,551	**No**
6083000900	411	1,223	1,634	**No**
6083001000	7,950	1,629	9,579	**No**
6083001101	1,017	75	1,092	**No**
6083001102	491	105	596	**No**
6083001203	684	88	772	**No**
6083001206	363	214	577	**No**
6083001208	1,143	77	1,220	**No**
6083001304	3,808	256	4,064	**No**
6083001306	936	73	1,009	**No**
6083001402	1,432	212	1,644	**No**
6083001500	1,894	645	2,539	**No**
6083001601	1,383	124	1,507	**No**
6083001604	784	375	1,159	**No**
6083001704	255	260	515	**No**
6083001706	4,638	889	5,527	**No**
6083001800	3,514	533	4,047	**No**
6083001906	174	20	194	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6083002606	-	-	-	**No**
6083002906	1,405	57	1,462	**No**
6083002907	1,330	143	1,473	**No**
6083002909	1,568	26	1,594	**No**
6083002913	2,385	287	2,672	**No**
6083002914	771	176	947	**No**
6083002915	147	10	157	**No**
6083002922	517	166	683	**No**
6083002924	60	215	275	**No**
6083002926	76	82	158	**No**
6083002928	252	79	331	**No**
6083002930	1,150	310	1,460	**No**
6083002932	9,378	1,601	10,979	**No**
6083003001	314	540	854	**Yes**
6083003004	1,428	57	1,485	**No**
6083003005	1,076	128	1,204	**No**
6083003007	1,313	110	1,423	**No**
6083003102	97	60	157	**No**
6083980000	3	135	138	**No**
6107000100	3,631	2,921	6,552	**No**
6107000301	-	-	-	**Yes**
6107000302	5	3	8	**Yes**
6107000600	59	26	85	**Yes**
6107000701	633	110	743	**No**
6107000702	1,381	129	1,510	**No**
6107000800	3,622	1,326	4,948	**Yes**
6107000900	4,376	2,630	7,006	**Yes**
6107001003	9,152	559	9,711	**Yes**
6107001004	2,147	120	2,267	**Yes**
6107001005	899	148	1,047	**No**
6107001006	1,913	254	2,167	**No**
6107001100	1,372	226	1,598	**Yes**
6107001200	327	664	991	**Yes**
6107001301	2,815	189	3,004	**No**
6107001302	2,287	676	2,963	**Yes**
6107001400	1,592	251	1,843	**No**
6107001501	1,435	183	1,618	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6107001502	1,824	213	2,037	**Yes**
6107001601	1,527	349	1,876	**Yes**
6107001602	1,505	121	1,626	**Yes**
6107001701	1,727	221	1,948	**Yes**
6107001703	3,003	197	3,200	**No**
6107001704	2,960	122	3,082	**No**
6107001800	1,612	177	1,789	**No**
6107001901	1,156	76	1,232	**No**
6107001902	1,465	146	1,611	**No**
6107002002	1,519	127	1,646	**No**
6107002003	1,989	300	2,289	**No**
6107002004	1,484	103	1,587	**No**
6107002006	4,995	3,393	8,388	**No**
6107002007	2,543	329	2,872	**No**
6107002008	645	122	767	**No**
6107002009	1,389	78	1,467	**No**
6107002100	687	204	891	**Yes**
6107002202	1,273	168	1,441	**Yes**
6107002203	1,550	14	1,564	**No**
6107002204	1,463	49	1,512	**No**
6107002302	1,519	202	1,721	**No**
6107002303	2,106	227	2,333	**No**
6107002304	664	296	960	**Yes**
6107002400	5,540	582	6,122	**Yes**
6107002500	2,392	1,867	4,259	**Yes**
6107002601	974	112	1,086	**Yes**
6107002602	1,378	74	1,452	**Yes**
6107002700	10,273	3,999	14,272	**No**
6107002800	395	236	631	**Yes**
6107002901	738	453	1,191	**Yes**
6107002903	1,600	84	1,684	**No**
6107002904	1,445	61	1,506	**No**
6107003001	1,159	65	1,224	**Yes**
6107003002	897	60	957	**Yes**
6107003100	3,376	3,704	7,080	**Yes**
6107003200	1,297	1,161	2,458	**Yes**
6107003300	2,159	1,129	3,288	**Yes**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6107003400	1,534	337	1,871	**Yes**
6107003501	889	43	932	**No**
6107003502	3,158	173	3,331	**No**
6107003601	1,902	53	1,955	**No**
6107003602	1,816	147	1,963	**Yes**
6107003700	1,559	220	1,779	**Yes**
6107003801	672	148	820	**Yes**
6107003802	848	503	1,351	**Yes**
6107003901	1,550	112	1,662	**Yes**
6107003902	1,362	132	1,494	**Yes**
6107004000	2	7	9	**No**
6107004101	1,777	274	2,051	**Yes**
6107004102	539	63	602	**Yes**
6107004200	1,599	1,150	2,749	**Yes**
6107004300	1,001	367	1,368	**Yes**
6107004400	1,717	700	2,417	**Yes**
6107004500	1,914	1,214	3,128	**Yes**
6109003100	-	-	-	**No**
6109004200	-	-	-	**No**
6111000100	1,680	747	2,427	**No**
6111000200	763	275	1,038	**No**
6111000302	2,913	853	3,766	**No**
6111000303	1,404	205	1,609	**No**
6111000304	1,070	182	1,252	**No**
6111000400	4,513	1,062	5,575	**No**
6111000500	326	209	535	**No**
6111000600	943	504	1,447	**No**
6111000701	824	188	1,012	**No**
6111000702	903	18	921	**No**
6111000800	2,042	279	2,321	**No**
6111000901	796	106	902	**No**
6111000902	704	218	922	**No**
6111000903	1,862	367	2,229	**No**
6111001001	883	129	1,012	**No**
6111001002	2,039	169	2,208	**No**
6111001101	1,369	62	1,431	**No**
6111001102	1,275	111	1,386	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6111001201	3,302	486	3,788	**No**
6111001202	2,409	47	2,456	**No**
6111001204	637	100	737	**No**
6111001206	530	81	611	**No**
6111001301	1,841	175	2,016	**No**
6111001302	507	102	609	**No**
6111001401	1,303	34	1,337	**No**
6111001402	1,670	71	1,741	**No**
6111001502	1,991	466	2,457	**No**
6111001503	806	108	914	**No**
6111001506	1,594	40	1,634	**No**
6111001507	1,129	163	1,292	**No**
6111001601	160	40	200	**No**
6111001602	713	24	737	**No**
6111001700	1,307	50	1,357	**No**
6111001800	5,959	3,196	9,155	**No**
6111001900	1,642	249	1,891	**No**
6111002000	1,062	76	1,138	**No**
6111002102	522	164	686	**No**
6111002200	1,896	174	2,070	**No**
6111002300	1,530	292	1,822	**Yes**
6111002400	443	392	835	**Yes**
6111002500	2,028	174	2,202	**No**
6111002600	1,268	198	1,466	**No**
6111002700	1,163	118	1,281	**No**
6111002800	2,152	822	2,974	**No**
6111002901	1,742	79	1,821	**No**
6111002905	1,399	169	1,568	**Yes**
6111003010	669	87	756	**No**
6111003011	758	121	879	**No**
6111003012	4,731	979	5,710	**No**
6111003013	850	44	894	**No**
6111003100	3,311	165	3,476	**No**
6111003201	5,207	1,704	6,911	**Yes**
6111003300	1,502	228	1,730	**No**
6111003605	2,257	129	2,386	**No**
6111003608	826	54	880	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6111003609	5,086	471	5,557	**No**
6111003612	2,045	138	2,183	**No**
6111003700	1,079	45	1,124	**No**
6111003801	797	135	932	**No**
6111003802	351	97	448	**No**
6111003900	1,193	269	1,462	**Yes**
6111004000	1,201	87	1,288	**No**
6111004101	1,026	122	1,148	**No**
6111004200	1,292	29	1,321	**No**
6111004304	2,614	436	3,050	**No**
6111004305	11	48	59	**No**
6111004400	3,651	549	4,200	**Yes**
6111004503	762	83	845	**No**
6111004504	895	50	945	**No**
6111004505	354	43	397	**No**
6111004506	414	129	543	**No**
6111004600	-	-	-	**No**
6111004704	114	138	252	**Yes**
6111004710	869	53	922	**No**
6111004711	610	38	648	**No**
6111004715	4,309	926	5,235	**Yes**
6111004716	701	49	750	**No**
6111004717	591	18	609	**No**
6111004901	1,402	113	1,515	**No**
6111004902	644	483	1,127	**Yes**
6111005002	361	176	537	**No**
6111005003	1,408	169	1,577	**Yes**
6111005004	1,765	454	2,219	**No**
6111005100	1,074	687	1,761	**No**
6111005202	860	138	998	**No**
6111005203	1,923	40	1,963	**No**
6111005204	1,260	13	1,273	**No**
6111005205	6,438	2,120	8,558	**No**
6111005303	2,953	300	3,253	**No**
6111005304	2,971	161	3,132	**No**
6111005305	2,056	166	2,222	**No**
6111005306	1,732	17	1,749	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6111005401	1,262	38	1,300	**No**
6111005403	590	61	651	**No**
6111005404	1,230	16	1,246	**No**
6111005502	759	310	1,069	**No**
6111005503	867	17	884	**No**
6111005504	1,356	42	1,398	**No**
6111005600	4,628	2,250	6,878	**No**
6111005700	271	53	324	**No**
6111005801	1,770	38	1,808	**No**
6111005802	2,982	92	3,074	**No**
6111005901	3,631	1,356	4,987	**No**
6111005906	1,852	191	2,043	**No**
6111005907	1,668	91	1,759	**No**
6111005908	986	71	1,057	**No**
6111005909	1,070	135	1,205	**No**
6111005910	629	23	652	**No**
6111005911	1,361	76	1,437	**No**
6111006000	1,493	164	1,657	**No**
6111006100	1,839	556	2,395	**No**
6111006200	1,071	24	1,095	**No**
6111006301	2,127	52	2,179	**No**
6111006302	702	44	746	**No**
6111006400	2,494	56	2,550	**No**
6111006500	1,020	44	1,064	**No**
6111006600	4,113	837	4,950	**No**
6111006700	960	25	985	**No**
6111006800	1,123	127	1,250	**No**
6111006900	761	142	903	**No**
6111007000	592	246	838	**No**
6111007100	789	553	1,342	**No**
6111007201	1,200	36	1,236	**No**
6111007202	1,630	213	1,843	**No**
6111007300	2,286	1,357	3,643	**No**
6111007402	5,032	1,905	6,937	**No**
6111007403	1,851	98	1,949	**No**
6111007405	3,029	309	3,338	**No**
6111007406	630	31	661	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	Residential Customers	Non-Residential Customers	Total Customers	DAC (Y/N)
6111007505	955	31	986	**No**
6111007506	2,452	46	2,498	**No**
6111007507	2,160	64	2,224	**No**
6111007508	1,482	47	1,529	**No**
6111007509	993	77	1,070	**No**
6111007510	2,123	52	2,175	**No**
6111007511	801	23	824	**No**
6111007512	1,799	74	1,873	**No**
6111007513	521	40	561	**No**
6111007514	1,164	158	1,322	**No**
6111007606	684	56	740	**No**
6111007607	2,054	70	2,124	**No**
6111007609	799	47	846	**No**
6111007610	1,680	15	1,695	**No**
6111007611	678	203	881	**No**
6111007612	832	83	915	**No**
6111007613	1,451	174	1,625	**No**
6111007614	3,880	1,458	5,338	**No**
6111007700	1,344	361	1,705	**No**
6111007800	6,559	2,484	9,043	**No**
6111007901	1,005	56	1,061	**No**
6111007903	1,509	21	1,530	**No**
6111007904	1,701	48	1,749	**No**
6111008001	872	23	895	**No**
6111008002	1,206	194	1,400	**No**
6111008004	1,437	37	1,474	**No**
6111008005	755	3	758	**No**
6111008101	935	127	1,062	**No**
6111008201	1,191	293	1,484	**No**
6111008202	1,138	64	1,202	**No**
6111008302	1,510	114	1,624	**No**
6111008303	741	75	816	**No**
6111008304	1,238	82	1,320	**No**
6111008305	1,223	18	1,241	**No**
6111008306	623	101	724	**No**
6111008401	1,254	113	1,367	**No**
6111008402	5,893	1,257	7,150	**No**

SCE Customer Data Calculated as Unique Contracts By Census Tract				
Census Tract	**Residential Customers**	**Non-Residential Customers**	**Total Customers**	**DAC (Y/N)**
6111008500	2,521	170	2,691	**No**
6111008600	850	302	1,152	**No**
6111008700	1,147	324	1,471	**No**
6111008800	1,355	31	1,386	**No**
6111008900	692	36	728	**No**
6111009100	567	684	1,251	**Yes**
Not Specified	15,220	4,043	19,263	**N/A**

Appendix B.1

Resource Data Template – SCE's 25 MMT Preferred Conforming Bundled Portfolio

[Public]

Appendix B.1 will be filed via mixed media with the Commission's Docket Office

and can be accessed at:

https://edisonintl.sharepoint.com/:f:/t/Public/regpublic/Ej3CVKSc0HJEn8epuO6SqdcBBDrq1nD3FYcaih_LZrs1FA

Appendix B.2

Resource Data Template – SCE’s 30 MMT Preferred Conforming Bundled Portfolio

[Public]

Appendix B.2 will be filed via mixed media with the Commission’s Docket Office and can be accessed at:

https://edisonintl.sharepoint.com/:f:/t/Public/regpublic/Ej3CVKSc0HJEn8epuO6SqdcBBDrq1nD3FYcaih_LZrs1FA

Appendix C.1

Clean System Power Calculator – SCE's 25 MMT Preferred Conforming Bundled Portfolio

[Public]

Appendix C.1 will be filed via mixed media with the Commission's Docket Office and can be accessed at:

https://edisonintl.sharepoint.com/:f:/t/Public/regpublic/Ej3CVKSc0HJEn8epuO6SqdcBBDrq1nD3FYcaih_LZrs1FA

Appendix C.2

Clean System Power Calculator – SCE's 30 MMT Preferred Conforming Bundled Portfolio

[Public]

Appendix C.2 will be filed via mixed media with the Commission's Docket Office and can be accessed at:

https://edisonintl.sharepoint.com/:f:/t/Public/regpublic/Ej3CVKSc0HJEn8epuO6SqdcBBDrq1nD3FYcaih_LZrs1FA