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SCE Comments on draft 2019 IEPR

Additional submitted attachment is included below.



Catherine Hackney
Director, Regulatory Affairs

November 27, 2019

California Energy Commission
Docket Office, MS-4
Re: Docket No. 19-IEPR-01
1516 Ninth Street
Sacramento, CA 95814-5512
docket@energy.ca.gov

Re: Southern California Edison Company's Comments on the California Energy Commission
Docket No. 19-IEPR-01: Draft 2019 Integrated Energy Policy Report

Dear Commissioners:

On November 8, 2019, the California Energy Commission (CEC) released a draft of the 2019 Integrated Energy Policy Report (IEPR). Southern California Edison (SCE) appreciates the opportunity to offer comments on the draft 2019 IEPR. Our comments begin with high-level input, followed by sets of comments organized by report chapter.

California has set ambitious economywide decarbonization targets, as well as goals for cleaning individual sectors (e.g., electricity, transportation, and buildings). Interdependencies among these sectors means decarbonization activities within a single sector have implications for the other sectors' decarbonization pathways. For example, cleaning the electricity sector will look much different if demand significantly increases as the transportation and buildings sectors electrify to reach their own decarbonization goals. However, California currently has a set of disparate sector-specific decarbonization strategies for electricity, transportation, and buildings. Therefore, the state needs a comprehensive, economywide view of the path to meeting the full suite of decarbonization goals to enable consistent policy and planning efforts within each sector.

CEC should work with the state agencies and other stakeholders to develop an economywide decarbonization strategy that provides a blueprint for reaching California's ambitious decarbonization goals for 2030 and 2045. This strategy should set specific targets for each sector and make recommendations for state agency activities to enable this future, including research, investment plans, incentives, and rulemakings. Such a view could then ensure state agency efforts within each sector are consistent with California's decarbonization goals and adequately incorporate cross-sectoral dynamics.

CEC's IEPR will be a crucial linchpin in this economywide decarbonization strategy. As an annual energy policy and planning effort, IEPR will play an important role in advancing the state's vision and ensuring alignment of state agency efforts with this vision. For example, IEPR's California Energy Demand Forecast provides key inputs into medium- and long-term

utility planning activities at the California Public Utilities Commission (CPUC), including development of Distribution Resources Plans (DRPs) and Integrated Resources Plans (IRPs). With an economywide decarbonization strategy in place, IEPR's California Energy Demand Forecast should be consistent with other sector's decarbonization efforts to ensure these utility planning efforts are supporting that vision.

SCE's Pathway 2045¹ was released earlier this month and can serve as a resource for this economywide decarbonization strategy. Pathway 2045 lays out a vision for reaching California's ambitious decarbonization goals and concludes that 2045 goals can be achieved most economically through emissions reduction from using 100% clean electricity, electrifying 75% of transportation and 70% of buildings, and using low-carbon fuels for technologies that are not yet viable for electrification. While Pathway 2045 describes a long-term vision for meeting California's decarbonization goals, realizing this vision requires immediate action.

SCE's remaining comments on the draft 2019 IEPR are organized by report chapter. They reflect the vision laid out in Pathway 2045 while also providing key points of clarification and insight on utility programs and relevant industry trends.

I. Chapter 1: Electricity Sector

- SCE has three comments regarding the first recommendation in Chapter 1, which calls for interagency coordination to develop a plan that identifies the appropriate mix of resources and technologies to ensure reliability in the near- to mid-term as the state pursues the Senate Bill 100 goal of a zero-carbon grid by 2045.
 - This plan should include setting coordinated sector-specific greenhouse gas emission targets that reach California's economywide decarbonization goals for 2030 and 2045 to ensure the proposed plan appropriately considers decarbonization efforts in other sectors (e.g., transportation electrification and building electrification).
 - The plan should also account for generator retirements, identify critical and strategically located gas generators needed for reliability where deferring retirements may be appropriate, and ensure that new and emerging technologies are employed to fill the role of these generators.
 - Recognizing the services provided by natural gas generators will continue to be needed for grid reliability, SCE's Pathway 2045 analysis estimates that a small number of gas generators will still be necessary in the future. The California Independent System Operator (CAISO), in coordination with market participants and other policy makers, will need to consider how to evolve the market to ensure facilities are appropriately compensated in the market in a future where these are not required to run very often. This will allow for the retirement of natural gas generation and provide a reliable and resilient grid in the long-term.

¹ Southern California Edison Company (2019). *Pathway 2045 – Update to the Clean Power and Electrification Pathway*. Retrieved from <https://www.edison.com/home/our-perspective/pathway-2045.html>.

II. Chapter 2: Building Decarbonization and Energy Efficiency

- SCE's Clean Energy Optimization Pilot (CEOP) incorporates many of the innovative program design recommendations made in Chapter 2 and can provide lessons learned to inform the next generation of building decarbonization and energy efficiency programs.
 - CEOP began in July 2019 to test the effectiveness of a performance-based program designed to incent greenhouse gas emission reductions through on-site energy-related measures. Incentivized activities include energy efficiency, building electrification, behavioral changes, improved efficiency of existing co-generation, on-site renewables, smart load growth, clean transportation, energy storage, and demand response. CEOP also provides an innovative and simplified approach to program implementation that is designed to improve customer experience with incentive programs. Greenhouse gas emission reductions are calculated based on meter data, and performance payments earned by the pilot participants will be distributed on a pay-for-performance basis. The pilot is funded at \$20.4 million over four years using funds from SCE's cap and trade allowances.
- SCE supports the Chapter 2 recommendation to expand on-bill repayment programs to promote deeper energy efficiency and building decarbonization upgrades and savings.
 - Recently, SCE received Commission approval to increase the loan caps for our on-bill financing program, which provides non-residential customers access to interest-free financing for energy efficiency upgrades.
 - SCE recognizes a market gap to address the financing needs of disadvantaged communities and will continue to work with stakeholders to develop new financing offerings that will address the needs of customer segments underserved by current financing options, such as the low- and moderate-income residential market.
- SCE also supports the Chapter 2 recommendation to develop geographically aggregated datasets of energy consumption to more effectively target energy efficiency and building decarbonization efforts.
 - Pursuant to CPUC Decision (D.) 18-05-041, SCE and the other investor-owned utilities are in the process of scoping a competitive solicitation for the development and implementation of the California Analysis Tool for Locational Energy Assessment (CATALENA). The scope of this effort is to expand the current regional effort known as the Los Angeles Energy Atlas, and encourage use amongst local government agencies.
- Page 44 includes a section on the challenges of rapid electrification of heating loads in buildings. It is important to note that recent analysis by Energy and Environmental Economics, Inc. shows that electrification of space and water heating in buildings

improves the bulk power grid factor due to the higher efficiency of heat pumps resulting in higher winter heating loads, but lower summer cooling loads.²

- Page 51 includes a section on building energy efficiency standards and decarbonization in the multifamily residential sector. It is unclear if this section is describing challenges associated with per-unit equipment for space heating or for water heating. If referring to space heating, it is important to note that heat pumps rarely draw indoor air, except in the case of single-duct portable units. If referring to water heating, it is important to note that multifamily housing often uses centralized systems rather than per-unit systems.
- The section on page 56 that describes SCE's efforts in building decarbonization should be updated to reflect SCE's recently-released Pathway 2045 white paper.³
 - Pathway 2045 calls for 7.5 million EVs and electrification of 33% of buildings by 2030. It also calls for 26 million EVs and electrification of 70% of buildings by 2045.
- The section on page 56 that describes SCE's efforts in building decarbonization should also be expanded to include the following programs:
 - Clean Energy Optimization Pilot (CEOP): See description above.
 - Energy Savings Assistance (ESA) Program: In its 2021-2026 Income Qualified Program Application, filed in November 2019 with the CPUC, SCE proposed over \$130 million for two building electrification pilots and the inclusion of space and water heat pumps. The two pilots referenced include a Single-Family Whole Home Building Electrification Retrofit Pilot, and a New Construction Building Electrification Pilot geared toward assisting developers overcome the barriers of building all-electric affordable housing developments. If approved, the pilots will launch in 2022, bringing environmental equity to vulnerable low-income populations by providing them with space and water heat pumps and other clean energy technologies.
- The above programs should also be included in Table 3 on page 57.
- Table 3 on page 57 references SCE's programs supporting distributed renewable generation, including Disadvantaged Communities – Single-Family Affordable Solar Homes (DAC-SASH), Community Solar Green Tariff (CS-GT), and Green Tariff Shared Renewables (GTSR). If such programs are considered building decarbonization programs, Table 3 should include references to SCE's other programs supporting distributed renewable generation, including Disadvantaged

² Energy and Environmental Economics, Inc. (2019). *Residential Building Electrification in California*. Retrieved from https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf.

³ Southern California Edison Company (2019). *Pathway 2045 – Update to the Clean Power and Electrification Pathway*. Retrieved from <https://www.edison.com/home/our-perspective/pathway-2045.html>.

Communities – Green Tariff (DAC-GT), Solar on Multifamily Affordable Housing (SOMAH), and Multifamily Affordable Solar Homes (MASH).

- The description of SCE’s Home Energy Efficiency Rebates (HEER) Program in Table 3 on page 57 should include a discussion of recent updates that have been made to the program.
 - Rules adopted by the CPUC in D.19-08-009 more easily allow for fuel substitution measures to be eligible for inclusion in energy efficiency programs. As a result, SCE will offer incentives in 2020 for both space and water heat pump equipment. This will allow contractors to procure heat pumps at a discounted rate and pass the savings on to customers to replace combustion-based water heaters and space heating and cooling equipment.

III. Chapter 3: Clean Transportation

- Chapter 3 should include a recommendation to ensure adequate and reliable funding to incentivize electric vehicle (EV) adoption until markets are self-sustaining.
 - As discussed on page 75, while we may only be two model years away from lifecycle cost parity between EVs and traditional internal combustion engine vehicles, purchase cost parity is not expected until at least the mid-2020s. Until upfront costs decrease to enable the market to be self-sustaining, accelerating EV adoption to meet California’s decarbonization goals requires adequate and reliable funding for incentives, complemented with other measures that support consumer adoption and market development.
 - The state has made substantial investments in EV adoption incentives, including through the Clean Vehicle Rebate Program, the Low Carbon Fuel Standard, and the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project. Funding from these programs, along with federal tax credits, provide vital support to spur the market for EV adoption, but still more is needed. The California Air Resources Board (CARB), for example, estimates a need for at least \$5.6 billion of additional incentive funding over the next ten years for the programs it administers to realize the state’s 2030 deployment goal of 5 million zero-emission vehicles,⁴ which still may not be enough to meet California’s economywide decarbonization goals.
 - The state currently commits funds to EV incentive programs on an annual basis, creating uncertainty about whether and how much funding will be available, with many stakeholders seeking to increase, decrease, or shift funding in each budget cycle. A reliable stream of EV funding that sends a consistent market signal is required to allow manufacturers, dealers, and consumers to plan. This is especially true for medium- and heavy-duty stakeholders who make long-term investment decisions that require assurance that the funding programs they depend on will remain available.

⁴ California Air Resources Board. (2019). *Proposed Fiscal Year 2019-20 Funding Plan for Clean Transportation Incentives*. Retrieved from <https://ww2.arb.ca.gov/our-work/programs/low-carbon-transportation-investments-and-air-quality-improvement-program/low-1>.

- Chapter 3 should include a recommendation to proactively deploy public charging infrastructure at scale and in the right locations.
 - Many studies have identified lack of charging infrastructure and other facets of range anxiety as top barriers to EV adoption. An SCE survey found that 69 percent of respondents identified away-from-home charging uncertainty as an important barrier; 66 percent of respondents identified difficulty installing home charging as an important barrier; and 84 percent of respondents identified limited mileage range per charge as an important barrier. Similar results were found in other studies.^{5,6}
 - The scale and location of customer charging needs has the potential to significantly impact grid needs, so charging infrastructure should be proactively deployed in locations that encourage charging during off-peak hours to minimize costly grid upgrades and to take advantage of daytime solar power generation.
 - Utilities will need to make significant grid upgrades to enable the level of transportation electrification necessary to meet California’s decarbonization goals. Getting approval for these upgrades may be difficult without a comprehensive and consistent interagency view of statewide infrastructure needs for accelerated EV adoption. Such a view must adequately incorporate existing and prospective CARB regulations, state EV deployment goals, and economy-wide decarbonization goals if utilities are to prepare the electricity system for the extensive transportation electrification necessary to meet these goals.
 - Interagency alignment is especially key. This includes alignment among efforts such as IEPR’s California Energy Demand Forecast, the CEC’s Electric Vehicle Charging Infrastructure Assessment (Assembly Bill 2127), CPUC’s Development of Rates and Infrastructure for Vehicle Electrification (DRIVE) rulemaking, CARB’s Climate Change Scoping Plan (Assembly Bill 32), and CARB’s full suite of zero-emission vehicle regulations.

- Chapter 3 should include a recommendation to address the unique challenges associated with deploying electric vehicle charging stations at multi-unit dwellings. SCE can provide lessons-learned from its experience with multi-unit dwellings in its Charge Ready Pilot Program.
 - In small multi-unit dwellings, space limitations make the cost-effectiveness challenging because fixed costs are spread among a relatively small number of charging stations. In large multi-unit dwellings, owners want to spread charging stations evenly throughout the complex, but certain parking areas may require more significant upgrades because they are not close enough to a

⁵ Center for Sustainable Energy. (2017). *The Clean Vehicle Rebate Project: Summary Documentation of the Electric Vehicle Consumer Survey, 2013-2015 Edition*. Retrieved from <https://cleanvehiclerebate.org/sites/default/files/attachments/CVRPCConsumerSurvey2013-15Reference.pdf>.

⁶ Zeinab Rezvani, Johan Jansson, and Jan Bodin. (2015). *Advances in Consumer Electric Vehicle Adoption Research: A Review and Research Agenda*. Retrieved from <https://www.sciencedirect.com/science/article/pii/S1361920914001515>.

sufficient power source. Finally, many multi-unit dwellings are older and grandfathered into various building requirements, but making modifications to construct electric vehicle charging stations can trigger requirements to make additional unrelated upgrades to parking lots and structures.

- SCE is addressing low adoption of charging stations in multi-unit dwellings through innovative options such as new construction rebates, street-side charging, and turn-key, utility-owned chargers.
- The Los Angeles Air Force Base vehicle-to-grid (V2G) demonstration⁷ can provide key lessons learned for the first recommendation in Chapter 3, which calls for CEC to continue addressing technical barriers to V2G interconnection.
- CEC’s vehicle-grid integration (VGI) efforts described in the second Chapter 3 recommendation should be coordinated with ongoing efforts by the CPUC, including the VGI Working Group initiated by the DRIVE rulemaking.⁸ The VGI Working Group is expected to complete its work by the middle of 2020.
 - These efforts should also ensure consistency with the state’s definition of VGI, which was codified in Senate Bill 676.⁹
- Table 5 on page 66 should make it clear that some of the transportation electrification programs listed are pending CPUC approval, therefore program budget, size, and scope are subject to change. For example, SCE’s application for Charge Ready 2 (referenced in Table 5 as Charge Ready and Market Education Program) has not yet been approved. The rest of SCE’s transportation electrification programs listed in Table 5 have been approved.
- Table 5 on page 66 reports an incorrect amount for SCE’s Charge Ready Schools Program. It should read \$9.89 million.
- Table 5 on page 66 reports an incorrect amount for SCE’s Charge Ready Pilot Program. It should read \$44 million.

IV. Chapter 4: Advancing Energy Equity

- Beginning on page 88, Chapter 4 lists actions by California’s state agencies to address barriers to clean energy and clean transportation for low-income residents and those living in disadvantaged communities. This list should include references to the Solar on Multifamily Affordable Housing (SOMAH) Program and the San Joaquin Valley Disadvantaged Communities Pilot Projects. Both programs are described in Appendix

⁷ California Energy Commission. (2018). *Los Angeles Air Force Base Vehicle-to-Grid Demonstration*. Retrieved from <https://ww2.energy.ca.gov/2018publications/CEC-500-2018-025/CEC-500-2018-025.pdf>.

⁸ For more information on CPUC’s VGI Working Group, visit <https://www.cpuc.ca.gov/vgi/>.

⁹ Senate Bill 676 defines VGI as “any method of altering time, charging level, or location at which grid-connected electric vehicles charge or discharge, in a manner that optimizes plug-in electric vehicle interaction with the electrical grid and provides net benefits to ratepayers.”

E, but should be included in Chapter 4 to reflect their importance in helping the state advance energy equity.

V. Chapter 5: Climate Change Adaptation

- The fourth recommendation in Chapter 5 should emphasize the importance of spatially and temporally granular climate projections to inform utility investment in climate resilient solutions, which is discussed in the section beginning on page 120.
 - SCE recommends the CEC, CPUC, and CAISO host a joint-agency workshop to discuss climate assumptions to understand how those assumptions are incorporated into IEPR's California Energy Demand Forecast.
- On page 117, Figure 20 and surrounding text describe a study that identifies areas in SCE's territory where deployment of distributed energy resources could mitigate system congestion. However, the study presumes that distributed energy resources can mitigate the increases in distribution substation load more cost effectively than traditional utility upgrades, which may be premature. SCE considers such options in its annual distribution resources planning. In addition, the referenced study does not account for the ability of SCE to shift loads through various grid configurations.
- On page 127, before discussing the microgrids funded through the Electric Program Investment Charge (EPIC) Program, SCE recommends including a discussion of ongoing work among stakeholders across the state to craft a policy- and decision-making framework to facilitate deployment of microgrids and other resiliency solutions.
 - In September 2019, the CPUC opened Rulemaking 19-09-009 to implement Senate Bill 1339 and facilitate deployment of microgrids to serve utility distribution customers. While behind-the-meter single-customer microgrids have a long history in California, multi-meter community microgrids are a newer concept that offer exciting potential use cases but significant complexities in how they interact with the larger grid, especially in light of natural disasters and related public safety power shutoffs. Though currently expensive, and often prohibitively so, microgrids can be one tool that California utilities and their customers can deploy to achieve greater resiliency. As the costs of microgrid components, such as distributed energy resources and microgrid controllers, continue to decrease in the coming years, California needs to build a durable framework for microgrids to thrive in the long term.
 - In addition to deploying microgrids, pursuing grid designs that enhance flexibility, sectionalization, redundancy, and interoperability of distributed energy resources can provide scalable resiliency solutions. California should explore the full suite of solutions to equip planners with a robust toolbox of resiliency measures that can be tailored to the resiliency needs of different communities based on existing grid architecture and inherent climate change and weather risks.

VI. Chapter 7: Electricity and Natural Gas Demand Forecast

- The final recommendation in Chapter 7 calls for collection of data on cannabis cultivation in California and estimation of load impacts to be included in the California Energy Demand Forecast. Such an effort should not be limited to cannabis cultivation, but rather should be expanded to include all indoor agriculture.

VII. Chapter 10: Senate Bill 350 Integrated Resource Plans

- Chapter 10 should include a recommendation that the CPUC develop both a Reference System Plan and a Preferred System Plan that incorporates economywide decarbonization goals for 2030 and 2050 to ensure long-term planning efforts within the electricity sector appropriately consider decarbonization efforts in other sectors (e.g., transportation electrification and building electrification).
- It is important to clarify when descriptions of the IRP process are referring to the 2017-2018 IRP cycle because such information may not hold true in future IRP cycles. For example, Table 21 and Figure 47 on page 222 should indicate clearly that they refer to the Preferred System Plan from the 2017-2018 IRP cycle. In addition, the following three statements should be amended to indicate that they apply to the 2017-2018 IRP cycle:
 - “However, LSEs can deviate from the Reference System Plan’s (RSP’s) resource mix when developing their respective IRP as long as their IRP complies with the planning standards outlined in the filing requirements accompanying the RSP.” (Page 218)
 - “The CPUC adopted a statewide GHG target of 32,000 MT CO₂e for 2030 for the reference system plan based on targets established by CARB, in consultation with the CEC and CPUC (discussed in the “POU IRPs—Common Themes and Trends” section of this chapter).” (Page 219)
 - “LSEs were also allowed to develop alternative or preferred portfolios that used different assumptions. LSEs were required to describe the impacts on air pollution and disadvantaged communities, costs and rates, and local needs, and to describe future actions and lessons learned.” (Page 220)

VIII. Conclusion

SCE thanks the CEC for consideration of the above comments and looks forward to its continued partnership with stakeholders in the development of the 2019 IEPR. Please do not hesitate to contact me at (916) 441-3979 with any questions or concerns you may have. I am available to discuss these matters further at your convenience.

Very truly yours,

/s/

Catherine Hackney