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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Investigation pursuant to Senate Bill 380 to determine the feasibility of minimizing or eliminating the use of the Aliso Canyon natural gas storage facility located in the County of Los Angeles while still maintaining energy and electric reliability for the region.	I.17-02-002

OPENING COMMENTS OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) ON EMAIL RULING REGARDING MARCH 30, 2021 PHASE 3 WORKSHOP AND REQUEST FOR COMMENTS

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Pursuant to the *Administrative Law Judge's Email Ruling Regarding March 30, 2021 Phase 3 Workshop and Request for Comments dated March 29, 2021 (Ruling),* Southern California Edison Company ("SCE") hereby submits this Opening Comments.

I.
INTRODUCTION

In addition to the answering the questions the Commission presented, as an overarching matter, SCE identifies some areas of concern with the Workshop presentation prepared by the project team. At times, the presentation oversimplifies or neglects important and complex issues, relies upon uninformative national statistics and data without taking into account the unique features of California's grid or energy and environmental policies, and makes unreasonable assumptions seemingly to achieve a desired outcome. The following are a few examples by slide number:

- **Slide 21** not only relies on an inapposite national study for the project team's incorrect conclusion that Building Electrification (BE) will not reduce dependence upon gas in California, but also ignores the current resource mix in California, which is far less dependent upon gas than the rest of the nation, as well as California law, which requires that renewable and zero-carbon energy resources supply 100 % of electric retail sales to customers by 2045.[1] Because that law is not a factor in the project team's analysis, its BE conclusion is not only incorrect, but also fails to recognize that many customers will depart gas service, leaving others behind to carry the cost of gas service. The project team's proposal to use a Net Present Value (NPV) analysis for a Gas Transmission Portfolio will not account for this likely cost shift between departing and remaining gas customers. For example, if 50% of the load electrifies and departs gas system service, the remaining customers will absorb the cost of fixed assets, paying double the amount they did before 50% of customers departed.
- **Slide 32's** conclusions do not reflect a sophisticated analysis of the actual conditions that existed during the February 2021 events. Specifically, the statement that "downward spike in winter RPU did not occur during low temperature / high demand period in California" is misleading because although extreme weather conditions did not exist in California, they did exist elsewhere in the country. Those conditions elsewhere did cause prices to increase in California. However, the bigger issue is that if southern California experienced a peak day, its gas supply would similarly be constrained just as Texas experienced earlier this year, as demand increased dramatically in certain places because of the freezing temperatures. Those same extreme weather conditions reduced production. Extreme cold weather in California would increase demand at a time with reduced supply causing prices to spike in

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[1] *See* Senate Bill (SB) 100.

California. Similarly, the observation regarding takeaway capacity -- "RPU is not related to availability of takeaway capacity into the SoCalGas system" -- is not meaningful if gas is not available to fill the pipelines.

- **Slide 34's** analysis of a different RPU for Phases 2 and 3 does not make sense because existing pipelines could not operate at a lower RPU than expansions.[2] That is the case because expansions, by definition, are additive, meaning that because the expansion adds capacity, the existing capacity must be at 100% before the new capacity would be used. For the last increment of new capacity to reach 95%, the existing capacity would need to be at least at 95%. From the third bullet on Slide 34, it appears that the purpose of this change in RPU is to distort the cost effectiveness modeling because gas transmission additions are more effective if the model assume the additions are 95% effective at increasing gas supply if the RPU is 85% or lower.
- **Slide 40** contradicts the project team's assumption that it is reasonable to model gas storage at a minimum of 90% full during a peak day. The slide assumes full storage levels of 47,960 MMcf. Assuming that gas storage is at 90% full would mean that less than 10% (less than 4,796 MMcf) will be withdrawn before a peak day. The analysis did not describe the possible window for a peak day, but SCE assumes that a peak day could occur in December or January and recent evidence suggests that cold weather could occur in or even after February. The average year analysis shows that in December that 5,038 would be withdrawn so gas storage would be below 90% full in a normal year. The results for a cold year are much worse 13,098 would be withdrawn from storage leaving gas storage levels at under 73% on January 1. The data presented by the project team shows that even in a normal year that the 90% storage assumption is insufficient.

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[2] *See* Slide 34.

- **Slide 42's** analysis does not share which fields the project team would use for storage and as such does not appear to consider the distinct characteristics of specific fields, which are important. For example, Playa Del Rey can deliver large quantities of gas for a few days, but the field is small and re-injection is very slow. With gas storage, a mass balance analysis may not be a good assumption because gas injection is limited to the constraints of the physical infrastructure.
- **Slide 43** relies on an incorrect assumption because the first sentence says, *The Phase 2 analysis included an assumption for 90% storage inventory, resulting in 1,329 MMcf/d in withdrawal capacity at the non-Aliso storage facilities*, yet the maximum withdrawal in January, February, and March for both the Normal Weather and Cold Temp/ Dry Hydro is below this amount.

Given these infirmities, SCE recommends that the Commission adopt SCE's below recommendations.

II.

INVESTMENT PORTFOLIOS

A. Gas Demand Reduction

1. How can we scale existing EE programs to the required levels to meet the peak-day gap? Is it appropriate to scale programs pro rata or should we attempt to differentiate based on cost-effectiveness of specific program elements? Other than the utilities annual filings, what data should be considered?

SCE recommends the project team and the Commission consider scaling up fuel substitution as well as traditional electricity Energy Efficiency (EE) in addition to the natural gas EE it is already considered in the project team's analysis. Fuel substitution programs and measures, such as heat pumps and heat pump water heaters result in a decrease in natural gas use

as they are more efficient than existing equipment.[3] Traditional Electricity EE which is cost-effective and which is demonstrated to be incremental to existing and expected new local and statewide programs will result in decreases in natural gas use. As stated in the CEC 2019 Tracking Progress Energy Efficiency Report, "Lower electricity consumption results in reduced GHG and criteria pollutant emissions, primarily from lower generation in hydrocarbon-burning power plants, such as natural gas power plants.[4] In particular, focus should be placed on both electricity and natural gas measures that can reduce energy usage during the peak-day gap periods.

2. Do you agree with the conclusion that building electrification should not be part of the portfolio? If not, how can electrification help facilitate Aliso's retirement?

No. SCE strongly disagrees with the project team's conclusion that building electrification (BE) should not be a part of the portfolio; the study is incomplete without proper assessment of BE and fuel substitution. Notably, the project team's analysis relies on the NREL's "Electrification Futures Study" (the Study) to argue that BE analysis is unnecessary because (1) reduction in gas demand offsets natural gas generation and (2) "the impact of electrification on total energy sector natural gas consumption is muted because reductions in end-use natural gas consumption are typically offset by increases in natural gas used for power generation.[5]

SCE contends that the project team's reliance on the Study to inform its specific opinions regarding California's electric grid is misplaced and that neither of the conclusions the project team reaches are correct. First, the Study deals with national statistics that have virtually no short or long term bearing on the facts and issues that are specific and unique to California and that are relevant to the Commission's decision this proceeding. California's current fuel mix is

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[3] https://www.aceee.org/sites/default/files/publications/researchreports/a1602.pdf
[4] https://www.energy.ca.gov/sites/default/files/2019-12/energy_efficiency_ada.pdf
[5] NREL, "Electrification Futures Study", January 2021. More can be found at: https://www.nrel.gov/docs/fy21osti/72330.pdf

markedly different from the national figures. In addition to the fact that the presentation does not acknowledge that California has the nation's most ambitious and aggressive carbon reduction goals and that California's grid is already 32% renewable (or 55% carbon free)[6], the Study and the project team also ignore that California's environmental and energy statutes require that renewable and zero-carbon energy resources supply 100 % of electric retail sales to customers by 2045.[7] Compliance with the law does directly contradicts the offset and replacement conclusions presented by the project team.

An American Council for an Energy-Efficient Economy study of the comparative energy use of residential gas furnaces and heat pumps shows that electric heat pumps are more efficient in California.[8] The fact that BE equipment uses less natural gas than traditional natural gas appliances further demonstrations that BE should be included in the portfolio. BE can reduce gas demand directly and any increase in gas used by electric generation would be slight in 2026 and would be less in the future as the proportion of gas-fired generation in the electric mix reduces.

Likewise, in the California Independent System Operator's (CAISO) balancing authority, most of the non-renewable electricity is provided by natural gas. For this reason, California-specific BE studies reach a conclusion opposite of that of the project team's presentation. For instance, E3's "Residential Building Electrification in California Study" shows a net GHG reduction means a net natural gas reduction.[9]

Second, the Study does not merely analyze BE. Its analysis includes another variable – electrification of transportation. The project team therefore cannot rely upon the Study for the

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6 *See*, https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation

7 *See* SB 100.

8 https://www.aceee.org/sites/default/files/publications/researchreports/a1602.pdf

9 https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf

conclusion that BE results in negligible overall electrification. The Study simply cannot be read to stand for that proposition.

Given these facts, it is inappropriate to conclude that the Study provides any foundation for the project team's presentation's conclusion that *in California* BE merely replaces natural gas generation and shifts fossil fuel use from one source to another.

3. What influence will AB 3232 have on EE achievement that is not captured in our current approach?

AB 3232 could inform the state on how to meet emissions targets. This could set the model for adoption rates to capture natural gas reductions more accurately because of EE programs and codes and standards.

4. What regulatory or legislative support would be required to achieve EE savings sufficient to close the peak-day gap we identified in Workstream 1, for either 2027, 2035, or both?

Prioritizing cost-effective, all-electric new construction has high GHG reductions benefits. The statewide 2019 Low-Rise Residential New Construction Cost-effectiveness Study indicates that code compliant all-electric homes result in significantly lower GHG emissions and lower lifetime costs than mixed fuel homes. Moving to residential all-electric buildings will help close the peak day gap identified by the Project Team, makes sense for consumers financially, and most importantly supports the State's climate and decarbonization objectives.

As noted in question 1, SCE recommends the project team and the Commission to consider scaling up electricity EE to close the gap identified in the project team's analysis. SCE encourages the Commission to set aside additional funding for traditional EE and fuel substitution specific measures, provide additional funding for marketing - particularly for fuel substitution (could use statewide ME&O activities) - and provide additional funding for fuel substitution workforce education & training. Separately, SCE recommends the Commission consider adjustments to the avoided cost calculator to add benefits from decommissioning the

Aliso Canyon Natural Gas Storage facility to make fuel substitution and traditional EE more cost-effective and to also allow fuel substitution test for new construction.

Lastly, SCE recommends the state create electrification standards, such as requiring electric only for new construction or major remodel in Southern California. In addition to such legislation, one way to encourage all-electric buildings is to provide builders with more options and compliance credits for electrification.

B. IRP Mix Portfolio

SCE notes that there is a likely a need for a more sophisticated study to examine the IRP portfolio mix's impact to offset gas deliverability due to the retirement of Aliso Canyon. SCE's cursory review of the analysis suggests that there are other possible outcomes that could be expected or explored. For instance, it is reasonable to assume that supply of generation that was previously associated with power plants receiving natural gas from Aliso Canyon could be transferred to other units operating in the state. In this case, there would be no new resources needed due to Aliso Canyon's retirement. A more sophisticated model would show the other possibilities of how the California system would respond to loss of these units from a system perspective. This could include re-dispatching to a different geographic mix of resources. SCE contends that this topic should be evaluated on a system level basis, not on the local level.

SCE also notes that the resources identified for replacement of Aliso Canyon natural gas fed power plants is incomplete. There are many other candidate resource types in the state that should be included in any study. If any replacement resource were needed, an optimization of these resource types would be needed to provide value for reliability and cost effectiveness. Finally, and most importantly to this portfolio, it is not evident to SCE that the basis for this evaluation is tied to the IRP.

C. Gas Modeling and Gas Transmission Portfolio

1. **Should the 85% RPU assumption be retained for the portfolios other than gas transmission for consistency with Phase 2 analyses? If not, what assumption should be made instead? Please provide a basis for recommended alternatives.**

Yes.

2. **Is the 95% RPU assumption for the gas transmission analysis reasonable? If not, what assumption should be made instead? Please provide a basis for recommended alternatives.**

The 95% RPU assumption for the gas transmission analysis is not reasonable. SCE recommends 85% be used for the entire system during normal conditions and lower RPU should be used for peak load analysis. SCE advises that the Project Team research past peak day events to determine a reasonable estimate. Slide 32 shows that during the Texas crisis, California's RPU dropped below 50%. SCE believes that 50% RPU should be a starting point for peak day analysis unless a higher percentage can be justified by the data. SCE also notes that using historical scheduled volumes during times of gas system stress may overstate the amount of gas that is physically delivered to California. Interstate pipelines are not always able to deliver the scheduled quantities to SoCalGas in instances where the gas is taken upstream of the SoCalGas receipt point. PG&E Gas Rule No. 14, paragraph C.1.d[10] contains a special provision for this eventuality because reduced gas supplies during peak day conditions is a real possibility.

- **Is it reasonable to have an RPU assumption for this portfolio that is different from the one used to analyze other portfolios? Why or why not?**

Maybe, but only if the older facilities have a higher RPU assumption than expansion facilities. Expansion facilities add capacity, but this added capacity can only be used once the existing capacity is fully utilized. In other words, if there was not enough gas to fill the older pipes, adding new pipes would not result in any incremental gas supply.

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[10] https://www.pge.com/tariffs/assets/pdf/tariffbook/GAS_RULES_14.pdf

3. **Should the 90% storage inventory assumption be retained for consistency with Phase 2 analyses? If not, what assumption should be made instead? Please provide a basis for recommended alternatives.**

No. In addition to the information provided in the "Introduction", storage availability should be based on the realistic gas storage levels that could occur during a peak day. SCE has not performed a study to determine a specific date range for possible peak demand days, but SCE believes the date range would include December and January, at a minimum. 90% is not appropriate because the analysis on Slide 43 of the project team's presentation shows that gas storage levels would be below 90% by January 1 in both the Normal Weather and Cold Temp/Dry Hydro cases for the 2027/2028 winter. SCE believes the February 1 storage level for the Cold Temp/Dry Hydro from the model would be the highest gas storage percentage that should be used for planning purposes.

- **Does the balancing analysis provide a basis to adjust the inventory assumption? In other words, should the 2027/28 and 2035/36 assumptions be set based on the balancing analysis?**

Possibly. As discussed in the "Introduction", the characteristics of the specific storage fields is important. The analysis should be based on the physical capabilities of the facilities. SCE understands that the balancing analysis makes simplifying assumptions that may not consider these physical limitations. Specifically, SCE believes that the Playa Del Rey gas storage field can produce large quantities of gas for several days, but, if Playa Del Rey is used for withdrawal, gas injection is very constrained, so refilling the field could take a long time. SCE supports the balancing analysis if that analysis has constraints that reflect the true physical limitations of the gas storage facilities.

D. <u>Electric Transmission Portfolio</u>

1. **Is there a preference between Concept 1 (Ten West) and Concept 2 (Silverado)? Please explain rationale.**

If SCE is to choose between Concept 1 and Concept 2, Concept 1 would be the preference because Concept 1 can be easier to integrate into the transmission system. Concept 1 is easier to integrate into the transmission system because (1) existing infrastructure in the area includes many parallel high voltage lines coming from Arizona to California, which can help accommodate the incremental power to be imported, (2) if additional infrastructure is identified through more detailed studies, the upgrades would be significantly less compared to Concept 2, and (3) it is easier to construct. It is mostly desert landscape which lowers the cost of the actual transmission lines.

Conversely, Concept 2 can be more difficult to integrate into the transmission system because existing infrastructure needs to be built out more compared to Concept 1. There are existing lower voltage transmission lines in the area; however, these lines are not enough to accommodate the power that was identified to meet the shortfall. In addition, there are multiple outlets that can be utilized to get the power out, but all the outlets require significant transmission upgrades downstream of the additional lines to get the generation to an existing substation. Upgrades are needed as well from the existing generation to the load centers. Last, it is harder to construct because it is mostly mountainous terrain, which would result in significant cost increases compared to Concept 1.

2. **How can the project team develop a reasonable estimate of how the addition of lines, whose notional capacity is known, will affect the following: Transmission flow limits between the regional balancing authorities? The maximum import capacity into CAISO from the rest of WECC.**

From a conceptual perspective, the project team can develop a reasonable estimate of how additional lines will affect transmission power flow limits and import capacity by counting how many existing transmission lines that are paralleling the additional line(s) and determining the voltage class, as well as, who owns the lines. The higher the voltage, the more power it can accommodate. The more parallel lines belonging to the same entity on the receiving side would make it easier to schedule accordingly to avoid transmission flow limits.

As for having a reasonable estimate of the impact to the maximum import capacity into the CAISO from the rest of WECC, the starting point for the project team would be to survey all available WECC path rating studies coming into the CAISO boundary, and then use that data as roadmap of sorts to find the limitations. If additional lines can help alleviate that specific limitation, then it has the potential to increase the maximum import capacity. SCE caveats that more detailed studies will need to be performed to validate the increase in capacity.

3. **Are there better approaches to developing the Transmission portfolio ones we have presented today? Please recommend specific alternatives.**

SCE provides two potential recommendations based on varying interpretations of the project team's question. First, if the question is asking from what other locations power can be imported, SCE responds that Northern California, from Pacific Gas & Electric's (PG&E) territory, may be an import path. The high voltage transmission lines in this area have the capability to import more power into the CAISO. However, if the question is asking what approach will create a reasonable Transmission portfolio, then the answer for question 2 is sufficient from a screening level. In other words, many parallel high voltage transmission lines in the area in a sound approach. "Strength" of the system – including a highly networked system and a significant amount of existing generation – with the same entity on the receiving end, and constructability should be the foundational attributes.

III.

CONCLUSION

For the foregoing reasons, SCE respectfully requests that the Commission adopt SCE's recommendations.

Respectfully submitted,

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