BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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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.	Investigation 17-02-002 (Filed February 9, 2017)

OPENING COMMENTS OF CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLOGIES ON ADMINISTRATIVE LAW JUDGE'S RULING REGADING MARCH 30, 2021 PHASE 3 WORKSHOP AND REQUEST FOR COMMENTS

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For: CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLOGIES

April 20, 2021

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Center for Energy Efficiency and Renewable Technologies (CEERT) respectfully submits these Opening Comments on the Administrative Law Judge's (ALJ's) Ruling Regarding March 30, 2021, Phase 3 Workshop and Request for Comments (ALJ's Ruling), issued on March 20, 2021, in Investigation (I.) 17-02-002 (Aliso Canyon). On March 12, 2021, the ALJ granted requested relief to extend the filing date for these comments by one week until April 20, 2021. These Opening Comments are timely filed and served pursuant to the Commission's Rules of Practice and Procedure and the ALJ's Rulings.

I.
INTRODUCTION

Governor Newsom wrote Commission President Batjer a letter in November 2019,[1] requesting that the Commission hire a 3rd party independent consultant to conduct the Phase 3 Alternatives Analysis in this proceeding. As a result, the Commission hired FTI Consulting Inc. and Gas Supply Consulting, Inc., the "Consultants." These Consultants introduced their proposed Scope and modeling platforms at a Phase 3 Workshop held on November 17, 2020. On March 5,

[1] Governor Gavin Newsom letter to Marybel Batjer of CPUC, filed in California Energy Commission Docket No. 19-IEPR-09 on November 20, 2019.

2021, Senator Senator Henry Stern wrote President Batjer another letter expressing the concern that:

> "Although the PUC held a workshop for the consultant to present their chosen model and assumptions, and intervenors were permitted to comment, there has been no response as to how the intervenor comments were considered or how they impacted the modeling assumptions and results. The PUC's "[Draft] Final Report" is expected later this spring without further public input, but this lack of transparency and what appears to be a failure to ensure the alternative resource analysis examines the full potential of options necessary to close the storage facility will call the independence of the third party consultant and the validity of the final report into question."[2]

Subsequently, notice of the March 30 additional Phase 3 workshop was issued where both the promise and the peril of the Consultants' efforts were on public display and these Opening Comments were requested. As explained below, the promise was apparent in the Consultants' '"Workstream 1 results" and the peril was apparent in the "Workstream 2 overview."

II.
WORKSTREAM 1 RESULTS

The stated purpose of Workstream #1 is to:

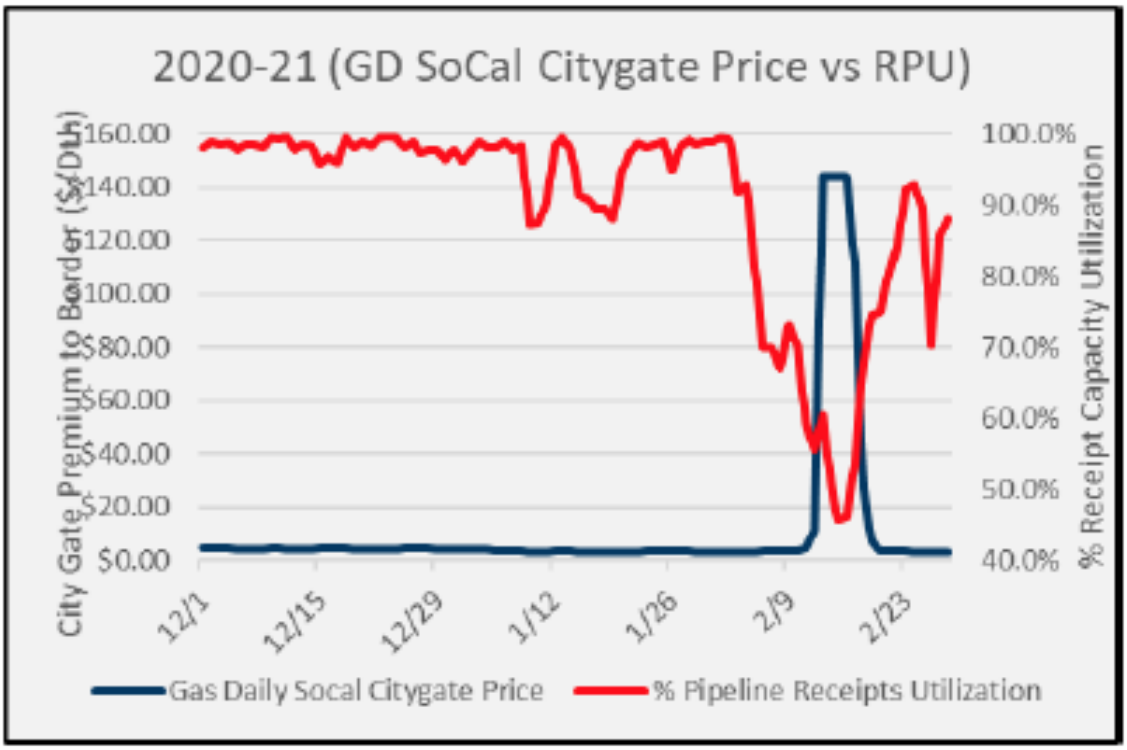
> "Simulate the operation of the electric and gas systems on an hourly basis under peak day conditions to determine how reliant they are on Aliso Canyon. Based on those results, specify multiple packages of investments that would allow for the facility to retire without impacting reliability. Workstream #1 was completed in early 2021."[3]

Based on the March 30 presentation by Consultants, there were two principal findings from Workstream #1. First, the conclusion was drawn that the Southern California Gas (SoCalGas) system could be balanced on a peak day under normal operations without Aliso Canyon. However, during contingencies such as the dramatic February 2021 Texas polar vortex event that

[2] Letter to PUC President Marybel Batjer from Senator Henry Stern, sent March 5, 2021, at p. 2.
[3] March 30 presentation, Slide# 4.

significantly impacted flowing gas receipts as shown in Figure 1, Aliso Canyon withdrawals were required to maintain system balance.

Figure 1[4]



This slide showed that during the February 2021 Texas polar vortex event, flowing gas into Southern California was interrupted (the dip in receipt point utilization), LA City Gate gas prices spiked (the blue line), and Aliso Canyon withdrawals were required to balance the system. Second, the Consultants then concluded that, considering the entire record to date, that the "resource gap" required for reliable operation without Aliso Canyon could be represented by Table 1.

[4] March 30 Presentation Slide #32.

Table 1
Gap in System Capabilities without Aliso Canyon

	Peak Hour	Daily	Generation
	MMcf	MMcf/d	MW
2027	32.6	434	4,768
2035	24.2	318	2,866

This table is explained as follows:

> "If Aliso is retired and no other changes are made, a generation shortfall occurs during the highly constrained conditions we modeled. That shortfall defines the "gap" in system capability that must be closed in order to retire Aliso. The gap can be closed with investments that provide enough gas to replace the deliverability required to serve all EG (electric generation), invesments that provide enough non-gas generation to offset EG that otherwise could not be served, or a combination."[5]

CEERT understands the significance of these findings, but we believe that documentation must be provided before they can be formally entered into the record and used as the basis for Workstream #2. First, a more fulsome analysis of the historic record than simply the latest and greatest example shown in Figure 1 must be presented. Consultants should provide a chart with the full ten year record of the variables shown in Figure 1. Starting about the time of the San Bruno explosion, through the 2011 East Coast polar vortex event, the Aliso Canyon well blowout in 2015, the Line 235 explosion in 2017, and ending with the 2021 Texas polar vortex event, the frequency, severity and variety of contingency events that required Aliso Canyon withdrawals must be documented to support this critical finding. During the March 30 presentation, Commission staff noted that the immediate reaction to the Aliso Canyon well failure was to order maximum withdrawals to lower reservoir pressure and mitigate the size of the well failure leak. This event would show on the ten year record as well. Each such event that significantly impacted City Gate prices and receipt point utilization over the ten year period should be briefly

[5] March 30 Presentation, Slide #6.

explained. In addition, two other variables need to be added to the graphic: 1.) Actual Aliso Canyon injections/withdrawals, and 2.) Impact on electricity prices using the California Independent System Operator (CAISO) South of Path (SP) 15 spot price as a proxy for economic impact on electric rates in the LA Basin. CEERT notes that the actual impact of burner tip natural gas price volatility and/or curtailments on electric rates would be masked by other cost factors, hedging strategies, and smoothing effects of the Energy Resource Recovery Account (ERRA) that passes gas costs into electric rates. An important option for public acceptance of the results would be to also document a ten year running record of Southern California Edison (SCE) and Los Angeles Department of Water and Power (LADWP) system average consumer rates; however, these added variables would not directly impact the Phase 3 Workstream #2 analysis.

Then, Consultants need to explain how Table 1 was generated from the historic record including Phase 2 of this proceeding. Finally, the "asterisk" Consultants added to Table 1, "these totals are subject to change (increase) pending today's discussion based on revisions to modeling inputs,"[6] needs to be explained and the caveat removed. During the presentation, Norman Pederson asked this question directly and did not receive a satisfactory answer. Nothing in "today's discussion" came up that would impact the "resource gap" in Table 1. At the end of the March 30 presentation, Consultants provided a brief explanation of how they arrived at the conclusion that the system could be balanced in normal operation without Aliso Canyon, and asked for stakeholder input, but there was no time for substantive discussion. CEERT looks forward to any party comments on this subject and any comments in Reply one week from now. The Workstream 1 conclusions and Table 1 values here are too critical to the further alternatives analysis to allow this ambiguity to hang over Phase 3.

[6] *Id.*

III.
WORKSTREAM 2 OVERVIEW

With the added documentation above, the clarity and specificity of the Workstream #1 Results demonstrated the promise of the hiring of 3rd party Consultants for Phase 3. Unfortunately, the Workstream #2 Overview that followed on March 30 demonstrated the peril. Whether from lack of imagination or lack of both technical and political local knowledge, the Workstream # 2 alternatives as presented on March 30 are entirely unsatisfactory and simply demonstrate the reasonableness of Senator Stern's concern. CEERT understands the reasoning behind the four classifications of alternatives encompassing further scenario modeling and the reservation of a fifth scenario to be determined folowing completion of the four siloed alternative classifications. However, we strongly disagree with the proposed scope of Consultants' Workstream #2 analysis. Before reaching that conclusion and suggesting an alternative, CEERT comments on the Scope of each classification as presented on March 30.

Gas Transmission

Consultant's proposed scope for this investment category is stated as follows: "Make investments to restore the SCG (Southern California Gas) Northern Zone plus additional increase to the Southern Zone, if necessary. Review interconnection and upstream capacities."[7] CEERT agrees with this task, if for no other reason than to provide a "business as usual avoided cost" to compare with other alternatives. However, to state that this is the only "Gas Transmission" investment worthy of study displays a lack of imagination on the part of Consultants. Given the finding from Workstream #1 that the primary need for Aliso Canyon is to provide contingency relief for upstream events and/or seasonal storage, other alternatives for gas transmission investments appear obvious. Two other impacted systems share the "downstream space" with

[7] March 30 presentation, Slide #7.

SoCalGas – Pacific Gas and Electric (PG&E)[8] and Costa Azul. Both of these other systems have "surplus" storage, and formation of a "reserve sharing pool" among the three systems seems to offer significant benefits for all three systems. Consultants should study the physics of this resource pooling including the significant increase in N/S transfer capability that occurs during E to W disruptions to receipt point utilization that cause the contingency. Any commercial and regulatory considerations with such an arrangement could be studied by the Commission if the physics and overall economics appear favorable.

Gas Demand Reduction

Consultants sole Scope for this class of investment is limited to: "Expansion of gas side activities plus new investments [in Energy Efficiency programs] assumes significant regulatory support from CPUC…based on analysis of current programs plus public planning studies."[9] This scope dramatically underestimates the potential for gas demand reduction that will result from legislatively mandated programs for decarbonization of California's economy – principally Senate Bill (SB) 100. Demand reduction from fuel switching to electricity in bulding space conditioning and water heating was dismissed by Consultants with the one sentence pronouncement that this will only result in "robbing Peter to pay Paul" since the resulting electricity demand increase will come from increased EG gas demand. First, there is no evidence that the incremental electric load would be served by increased in Basin gas consumption. Second, Consultants cannot ignore the fact that state policy ensures very significant reductions in overall EG gas demand and a dramatically lower carbon footprint for electricity production. Third, this pronouncement ignores the basic physics of the most significant fuel switching technology. Replacement of gas water heaters and furnaces whose Coefficient of Performance

[8] PG&E is in the process of retiring significant storage assets because it has determined that benefits to its ratepayers do not justify the expense required to retrofit them to meet the post-Aliso safety protocols.
[9] Op cit., March 30 presentation, Slide #7.

(COP) is, today, significantly less than 0.9 with electric heat pumps whose COP is significantly above 3.2 and rising as new products are introduced means the energy saved by the conversion approaches a factor of four or more. Furthermore, this gas demasnd reduction is concentrated where it will do the most good – on winter peak days.

In addition, Consultants totally ignore the significant reduction in industrial gas demand baked into current State energy policy. The California Gas Report[10] shows that industrial gas demand in SoCalGas service territory is approximately double the "resource gap" shown in Table 1 and that the largest classification of that demand is for two uses – enhanced oil recovery (EOR) and steam methane reforming of natural gas to produce hydrogen for gasoline production. The average age of California's oil fields approaches seventy years and alternatives to natural gas to boil water to generate steam for EOR using solar energy were successfully piloted in California almost forty years ago. This technology is in common commercial operation in the Middle East. To assume that EOR gas demand is flat through the planning period is myopic at best.

Similarly, transportation electrification will cause a dramatic reduction in gasoline demand in the LA Basin, and technology exists to manufacture hydrogen for gasoline refining through electrolysis of "surplus" solar and wind generated electricity. Commercial scale production of so called "green hydrogen" is underway in Germany for precisely this refinery application, and LADWP is engaged in significant research, development, and demonstration (RD&D) on green hydrogen production at its Utah site that is in the process of being converted from coal fired electricty generation. This segment could supply early demand reductions if the Commission chose to reinstitute historic curtailment priorities of industrial demand as "first out"

[10] 2020 California Gas Report, pp. 103 and 106.

under peak demand conditions when supplies were scarce but gasoline demand was at seasonal lows.

The Scope of available gas demand reductions that, in and of themselves, totally eliminate the "resource gap" have been ignored by Conslutants. This is the wrong venue and these are the wrong consultants to comprehensively study the policy and economics of this issue. Consultants role should be to only map results from existing studies to the Table 1 "resource gap."

Integrated Resource Plan (IRP) Mix

Consultant's sole Scope for this class of investment is limited to: "Incremental demand response, storage, and renewables added in the same ratio as shown in the current IRP."[11] By the "current IRP" Consultants appear to be referring to the CPUC Reference System Plan (RSP) adopted in the previous IRP cycle.[12] However, this plan is in the process of being superceded by a more aggressive RSP. More importantly, the CPUC RSP does not capture reductions in gas demand in the LA Basin from other existing IRPs from non-CPUC jurisdictional utilities in the region. The Los Angeles Water and Power Strategic Long Term Resource Plan ("SLTRP") and the other Southern California municipal utility IRPs on file with the California Energy Commission collectively call for an 80 to 90% reduction in EG demand from LA Basin public utilities by 2030 – more than accounting for the "resource gap" in Table 1. Even more important are the SLTRP updates in progress at, at least, LADWP, and Glendale Water and Power to retire more than the total EG Generation gap listed in Table 1. All of these facilities currently take service from SoCalGas within the Aliso footprint. Typical of the status of these unfolding plans is the LA City Council Resolution pending a final vote scheduled for May 6:

[11] *Id.*
[12] Decision (D.) 20-03-02, 2019-2020 Electric Resource Portfolios to Inform Integrated Resource Plans and Transmission Planning, Issued April 6, 2020 in CPUC Rulemaking (R.) 16-02-007.

> "In the coming months, LADWP will prepare a Strategic Long Term Resource Plan (SLTRP), which is the first opportunity to create a schedule and begin planning and approving investments needed to reach the 100% clean energy goal. As the Department prepares its proposals for Council approvals, the SLTRP should feature "no regrets" investment strategies, including
>
> - Substantial investments in new transmission capacity
> - Substantial investments in new storage capacity
> - A ramp up of distributed energy generation programs, particularly rooftop solar
> - Expanded energy efficiency programs
> - Rate structures that promote electrification of buildings, transportation, and facilitate demand reduction
>
> … I THEREFORE MOVE that the Council INSTRUCT the Department of Water and Power to prepare a Strategic Long Term Resource Plan that achieves 100% carbon-free energy by 2035. …"[13]

In a similar if not quite as dramatic vein, the California Energy Commission recently published the Final SB 100 Joint Agency Report[14] that documents statewide investments to accomplish the goals of SB 100. The investments contemplated in the LA Basin would more than fill the Table 1 resource gap.

Consultants have igrored planned gas generation retirements in existing in Basin IRPs that exceed the resource gap in Table 1. This is the wrong venue and these are the wrong consultants to perform a comprehensive policy and economic analysis of the utility IRPs. Consultant's role should be limiterd to mapping results of existing LA Basin IRPs and significant updates to those IRPs in progress to the Table 1 "resource gap."

Electric Transmission

Consultant's sole scope for this class of investment is limited to: "[closing] the MW gap by adding new electric transmission capability into CA. Scaled up projects that are currently under development includes 2035 [in service date (ISD)] only since long build times may

[13] LA City Council Motion by Council Members Kerkorian and O'Farrell,filed March 31, 2021. Mr. Kerkorian was one of the principal sponsors of SB 100 during his term in the State Assembly.
[14] *2021 SB 100 Joint Agency Report: Charting a path to a 100% Clean Energy Future*, filed in California Energy Commission Docket No. 19-SB-100 on March 15, 2021.

challenge a 2027 ISD."[15] First, the proposed transmission investments listed for study by Consultants (Ten West and Silverado) or their functional equivalents[16] are currently under construction with ISDs of 2023 and 2026 respectively. More importantly, these transmission expansions or any other AC transmission investment outside the LA Basin[17] have a very small impact on EG requirements inside the LA Basin. These requirements are driven by so called "Local Capacity Requirements" (LCR) to allow movement of energy around the LA Basin and provide contingent generation capacity during selected critical transmission outages on the network feeding the greater LA Basin. Currently approved and under construction LCR-type transmission investments in the LA Basin include the Mesa Loop In project to move the strong Southern California Edison (SCE) 500 kv network further west and south,and the Sylmar/Pardee Line Rerate project to increase transfer capacity into the West LA Basin and Big Creek/Ventura load pockets. Both of these projects have an ISD of 2023 and reduce LCR requirements from in Basin gas generation by approximately 1000 MW each.[18] While the CAISO routinely scours its portion of the greater LA Basin grid for transmission upgrade projects that may be economical based on the currently small price premium between Local and System Resource Adequacy, it would not bring forward projects that would facilitate the retirement of Aliso Canyon unless instructed to do so by official notification of pending retirement of that facility or the gas fired

[15] Op cit. March 30 presentation, Slide #7.
[16] "Silverado" has been replaced by "Greenlink W" running from roughly Reno (Yerrington) to Las Vegas. Greenlink W was approved for construction by the Public Utilities Commission of Nevada on March 22, 2021, with an in service date of 2026. Any remaining surplus Nevada renewable generation would be exported to CA utilizing the "ELM Series Cap" project along the I-15 corridor that is under construction with an ISD of 2023. Ten West from AZ is scheduled to receive its CPCN for the eight miles in CA from the CPUC in a matter of months, the ninety plus miles in AZ are fully permitted with an in service date of 2024.
[17] DC transmission that terminates in the LA Basin appears electrically as in Basin "generation" that does directly mitigate LCR requirements.
[18] See, e.g., R.190-11-009, 2021-04-02_Draft_2022_LocalCapacityTechnicalStudyReport, April 2, 2021, at pp. 150-151.

generation that currently provides the required LCR. Finally, LADWP has begun permitting of ten transmission investments in its portion of the LA Basin to facilitate the retirement of its in Basin gas generation mentioned in the previous IRP section. Details are on LADWP's Open Access Transmission Tariff website.[19]

Consultants would need to totally rethink this investment class before beginning any Workstream # 2 modeling exercise. CEERT strongly believes that only new potential LCR reducing reinforcements within the LA Basin, or new DC links that terminate in the LA Basin such as the proposed DC link for offshore wind or the proposed LADWP Vic/Century DC line deserve study in relation to potential closure of Aliso Canyon. This is the wrong venue and these are the wrong consultants to perform a comprehensive policy or economic analysis of these proposed projects. Consultant's role should be limited to mapping of results from the conceptual engineering studies of these projects to the Table 1 "resource gap.".

IV.
PLAYA del REY

Although the Scope of this proceeding is currently limited to closure of Aliso Canyon, the Commission would be remiss to not expand the scope of Phase 3 to also include the change in system capabilities or reduced system demand required to close both Aliso Canyon and a much smaller gas storage field in the LA Basin – Playa del Rey. As documented in a recent story in the Los Angeles Times,[20] at the behest of citizen groups living near Playa del Rey who are also active participants in this Proceeding, the Los Angeles City Council has unanimously passed a resolution calling for closure of this gas storage facility as well. The Playa del Rey storage field is located along the Coast between the Los Angeles International Airport and the City of Santa Monica. Given that the average age of wells in Playa del Rey is roughly twenty years older than

[19] See, e.g., https://ladwp.webex.com/ladwp/j.php?MTID=me414a8bb56442098247fb745a9299213
[20] https://www.latimes.com/business/story/2021-04-07/aliso-canyon-natural-gas-playa-del-rey

the wells at Aliso Canyon and the population density around Playa del Rey is significantly higher than Aliso Canyon, the risk associated with continued operation of Playa del Rey is arguably higher than the comparable risk with operations at Aliso Canyon.

V.
CONSULTANTS ROLE IN PHASE 3 WORKSTREAM #2

Consultant defines its role in Workstream #2 as conducting a "benefits analysis." They state the scope as: "Conduct long-run economic analysis to determine which of the investment options is most beneficial and/or least expensive from the ratepayers' perspective."[21] With the limited exception of the "Gas Transmission" alternatives portfolio, CEERT strongly disagrees. CEERT is not aware of any other significant benefit associated with the Gas Transmission alternatives portfolio than closure of Aliso Canyon. Calculation of the cost of this portfolio provides a useful proxy for the avoided cost of other alternatives.

None of the other "investment portfolios" will be undertaken with the express objective of retiring Aliso Canyon but to achieve much broader State energy policy goals. The fact that achievement of those goals will result in sufficient reduction in EG demand and gas demand in general in the LA Basin to allow the retirement of Aliso Canyon (and Playa del Rey) without compromising reliability is only a minor ancillary benefit. It makes no sense for Consultants to attempt to replicate, for example, the LA 100 Study that took the National Renewable Energy Laboratory three years, several million dollars and access to a super computer to complete. It is well beyond the logical scope of Phase 3 or this OIR in general to model a comprehensive set of strategies for, say, fuel switching from natural gas to electricity in buildings[22] or propose

[21] March 30 presentation Slide #4.
[22] CEERT notes the CEC's April 15, 2021, Notice of Commissioner Workshop on Building Decarbonization Assessment to be held April 30, 2021.

construction of a major electric transmission upgrade. On the other hand, it makes even less sense to simply ignore these very relevant actions that impact the need for Aliso Canyon.

Consultant should not employ it's PLEXOS modeling tool to perform a "benefits analysis," but as an accounting tool to, for example, allocate statewide study results to the LA Basin Aliso Canyon footprint, or calculate an implied heat rate in BTU/kwh to allow conversion of electricity production to gas consumpion or electricity consumption to avoided gas consumption. The entire scope of Phase 3 Workstream #2 needs to be rethought and brought back for public comment before any modeling is conducted

VI.
CONCLUSION

CEERT appreciates the opportunity to submit these Opening Comments. CEERT applauds the clarity and conciseness of Consultant's Workstream # 1 results but believes that significant additional documentation is required before these results can be entered into the record in this proceeding and serve as the basis for any modeling of alternatives in Workstream #2. On the other hand, the scope of Workstream #2 requires a complete overhaul and public presentation of a revised scope of work before any alternatives modeling commences. CEERT, at this time, believes it is appropriate that Consultants study the Gas Transmission alternatives listed above in Phase 3. However, Consultants Phase 3 scope for the three other classes of alternatives: gas demand reduction through electrification, decarbonization of the electric grid, and significant new DC transmission into the LA Basin be limited to comparing the results of achieving the State's goals in these three areas with the resource gap required to allow the closure of Aliso Canyon as shown in Table 1. In addition, the Phase 3 Scope should be expanded to revisit Workstream #1 and include the range of investments required to also close the small gas storage facility at Playa del Rey. The Commission should issue a revised Scoping

Memo including these changes and a revised Phase 3 schedule before any Workstream #2 modeling begins. CEERT understands that these changes will require yet another extension of the schedule for this proceeding. However, even a few months extension to finally "get it right" in this going on four-year proceeding is well worth the effort and is the only politically viable outcome.

Respectfully submitted,

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