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

INFORMAL COMMENTS OF THE CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLOGIES ON THE JULY 28, 2020 MODELING WORKSHOP #3

August 13, 2020

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For the: Center for Energy Efficiency and Renewable Technologies

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The Center for Energy Efficiency and Renewable Technologies (CEERT) respectfully submit these Informal Comments on the July 28, 2020 Modeling Workshop #3 (July 28th Workshop). These Informal Comments are submitted pursuant to instructions from the Energy Division.

CEERT'S THOUGHTS ON WORKSHOP RESULTS

The July 28th Workshop was, in a word, disappointing. After all of the time and money spent on developing a modeling platform, designing study scenarios, and collecting data from the relevant grid operators – Southern California Gas (SoCalGas), California Independent System Operator (CAISO) and Los Angeles Department of Water and Power (LADWP), relatively little useful information was presented in the Workshop. Hopefully, the next round of results to be presented in the fall will be a significant improvement, but serious deficiencies in the July 28th results do not bode well for a rapid conclusion to this phase of the proceeding that has already gone on far too long (over three and one-half years) without being responsive to "determining the feasibility of minimizing or eliminating the use of the Aliso Canyon natural gas storage facility."

The truly critical modeling required for an answer to the question – the power flow modeling, was presented as a single number stated as representing the minimum amount of gas fired generation in the Aliso supply area required for electric grid reliability. Any information other than that single number including which gas plants are critical for reliability when gas supply is under stress and why was not discussed. The power flow modeling results were simply stated to be proprietary and confidential and inserted as a constant into all of the other production cost and hydraulic modeling scenarios. Although CEERT understands the sensitivity of details of power flow modeling for, among other reasons, cyber security, we note that CAISO routinely publishes more detail from power flow modeling in the annual Local Capacity Requirement (LCR) Assessment process as well as special studies conducted to judge potential transmission upgrades to reduce LCR needs in the annual Transmission Planning process.[1] LADWP publishes similar results on its OASIS site as part of its own annual transmission planning process. In addition, LADWP has published much more information derived from power flow modeling of its Balancing Authority as part of studies designed to develop alternatives to in Basin gas fired Once Through Cooling (OTC) repowerings and its LA 100 long term planning process.

The most recent detailed public information on the subject was discussed in a transmission planning webinar on June 25th of this year.[2] These results detailed several proposed transmission upgrades to minimize the need for in Basin generation. The most recent complete scenario analysis on required in Basin generation conducted by

[1] See, e.g., ISO Board Approved 2019-2020 Transmission Plan, Section 4.9, pp. 264-268, March 25, 2020

[2] Los Angeles Department of Water and Power Attachment K Local Transmission Planning Meeting, June 25, 2020, at https://ladwp.webex.com/ladwp/i.php?MTID=mf8d4ab4c4812807fc84419aca7ed2f7

the National Renewable Energy Laboratory for LADWP was publicly discussed in rough draft form in a webinar on July 9th 2020.[3] In response to a question about the vintage of the power flow information for LADWP during this Workshop, the Energy Division said it was January of 2020, and when pressed for detail, the answer given was it is the same data that informed the current WECC Anchor Data Set. Although LADWP does not expect to seek City Council approval of in Basin investment alternatives to gas fired generation until 2021, it is clear that this CPUC analysis for Aliso Canyon is using outdated information for a substantial portion of electric generation needs in the Aliso Canyon supply area.

Even more fundamentally, power flow modeling cannot answer the question about minimum required *gas fired* generation. The model is indifferent to the source of the generation. All a power flow model does is, using Kirchoff's Laws, state that a certain minimum amount of real and reactive power must be injected at a particular transmission node for the modeled transmission system to be stable under a specified supply/demand scenario. It does not care if this energy is derived from combustion of natural gas from the Aliso Canyon supply area, or nuclear, or solar photovoltaic or battery storage or DC transmission through a modern "smart" inverter. Power flow modeling is most often used (as LADWP used it here) to investigate transmission upgrades to ensure system stability and improve resiliency to equipment failures such as loss of Aliso Canyon.

The production cost modeling results presented at the July 28th Workshop then took that "minimum amount of required gas generation," retired all of the remainder of

[3] Los Angeles Department of Water and Power, LA100 Advisory Group Meeting 12#1, July 9, 2020, at https://global.gotomeeting.com/join/553773509

the in Basin gas generation in the CAISO Balancing Authority, retired the CAISO Southern California OTC plants with extended operating permits, retired Diablo Canyon, and generated an 8760 hour/yr stochastic dispatch of the system under stress conditions as specified in CPUC Integrated Resource Planning/Resource Adequacy (IRP/RA) protocols. The system was found to fail applicable reliability standards, not because of the closure of Aliso Canyon (the model has no clue as to the existence or use of Aliso Canyon), but because too much generation had been retired, and the system (not simply the LA Basin load pocket) was under-resourced.

Thus, the comparison of operating costs between that under-resourced scenario and the fully resourced IRP scenario that was presented on July 28th is essentially meaningless. Any representation that there are electric reliability concerns associated with closure of Aliso Canyon may, in fact, be true, but have not been demonstrated by the modeling to date. So far, all we know is that an under resourced grid does not meet reliability standards and is more expensive to operate.

Most of the July 28th Workshop time spent on hydraulic modeling of the gas system consisted of an explanation of how the model works, what data is required to run the model and what format results were to be presented. This is completely understandable since hydraulic modeling of the gas system is not normally a significant part of Commission proceedings as compared to, say, production cost modeling that has been extensively used for at least 30 years to study the electric grid. Most of the model runs that were discussed in the Workshop showed that at least some investment was required to have a stable gas system under stress conditions without Aliso Canyon but including the previously determined minimum local generation for electric grid

reliability (again, this was assumed to be all gas with no incremental transmission reinforcements or alternative generation that did not draw on the Aliso Canyon supply area). There did appear to be some minor bottleneck removal at, for example, the northern Citygate that would improve the situation. Hopefully these relatively inexpensive solutions will be detailed in the next round of results.

Two caveats should be noted. First, it was confirmed that no calibration runs to validate model performance against known historical events had been performed and none were planned. To CEERT, this seems shortsighted if there is to be stakeholder trust in the modeling results. Second, it would be very strange if the SoCalGas operators who live and breathe this system over an entire career were not aware of pinch points where relief would improve system resilience – even if they had never been formally studied for cost effectiveness. There should be time built into the schedule for explicit testimony along these lines from the grid operators who should at least have the opportunity to review the hydraulic modeling results and suggest areas for further study.

CONCLUSIONS

Based on the presentation at the July 28th Workshop, much work remains to be done and heroic efforts over the next few months will be required to even begin to answer the question that this proceeding was designed to address – what investments are required to allow the closure of the Aliso Canyon natural gas storage facility without compromising either electric or gas system reliability and what are the ratepayer costs associated with this action.

Respectfully submitted,

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