

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE
STATE OF CALIFORNIA**

In the Matter of the Application of SOUTHERN
CALIFORNIA EDISON COMPANY (U 338-E)
for a Certificate of Public Convenience and
Necessity for the Alberhill System Project.

A.09-09-022

**SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) AMENDED MOTION
TO SUPPLEMENT THE RECORD IN COMPLIANCE WITH EMAIL RULING
DIRECTING AMENDMENT OR SHOWING CAUSE**

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Dated: **February 1, 2021**

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I.

INTRODUCTION

On August 31, 2018, the California Public Utilities Commission (CPUC) issued Decision (D.) 18-08-026 (“the Decision”) on SCE’s Application for a Certificate of Public Convenience and Necessity (“CPCN Application”) to construct the Alberhill System Project (“ASP”). The Decision neither issued nor denied the CPCN for the ASP. Rather, ordering paragraph (“OP”) 4 of the Decision directed SCE to “supplement the ASP record with additional analyses of alternatives which may satisfy the needs of the Valley South System.”

In response, SCE performed additional analyses to supplement the administrative record with quantitative and qualitative metrics to evaluate the ability of the ASP and each alternative under consideration to meet the needs of the Valley South System. On May 11, 2020, SCE filed an Amended Application and Proponent’s Environmental Assessment (“PEA”), as well as a Motion to Supplement the Record In Compliance With Email Ruling Directing Amendment Or Showing Cause (“Motion”) with the additional analyses.

After filing its Motion, SCE discovered certain errors that affected the cost/benefit analysis. SCE subsequently launched an additional in-depth review of all the analyses mandated by the Decision. The reviews were performed by personnel from SCE, Quanta Technologies, and MPR Associates, Inc., who had not been previously involved in the project and therefore could perform independent assessments. The peer review team recommended certain clarifications and improvements, and identified some additional, but inconsequential errors.

In this Amended Motion, SCE is providing the updated analyses and correcting information previously submitted into the record on May 11, 2020. As discussed further in detail below, the changes primarily affect the calculation of system benefits for the ASP and other alternatives, as well as the assignment of monetary values to these benefits. SCE notes that though the relative ranking of the alternatives in terms of benefit to cost ratio changed, the four alternatives that meet project objectives and ranked high previously (SDG&E, Mira Loma, SDG&E with centralized Battery Energy Storage Systems (“BESS”) in Valley South, and ASP) continue to be the higher ranked alternatives based on the results of the updated analyses. Given the implementation challenges with the SDG&E alternative and that the Mira Loma alternative does not meet long term needs, SCE continues to recommend the ASP as it is the only alternative that can meet the capacity, reliability, and resiliency needs for the Valley South System and as such, its timely approval is necessary in order to minimize future impacts to the electrical needs of SCE’s customers.

II.

DISCUSSION

A. Cost-Benefit Analysis Overview

The Decision ordered SCE to perform a “Cost/benefit analysis of several alternatives for enhancing reliability and providing additional capacity, including evaluation of energy storage, distributed energy resources, demand response or smart grid solutions.”

A cost/benefit analysis is an approach used for evaluating alternatives by determining the costs of the investment (in monetary terms) as well the value of the benefits that are expected from the investment (also in monetary terms). A cost/benefit analysis generally considers a ratio of the

monetized benefits (in dollars) over the costs of the investment (also in dollars) and a higher benefit-to-cost ratio is typically preferred. However, in certain instances, such as a regulated utility (with an obligation to serve) and for reliability-based projects, the magnitude values of benefit/cost ratios are less significant in determining a preferred alternative particularly when the benefit/cost ratios are closely grouped.

Within the regulated electric utility industry, cost/benefit analyses are generally only required to be performed for what is termed “economic-based” projects. Economic-based projects are not required for reliability purposes, but if the economic evaluation results in a benefit/cost ratio of greater than 1.0, the project provides a benefit to the utility’s customers. In economic-based projects, customers benefit from the expense because the value of the benefits of the project exceeds the cost of the project.

Reliability-based projects, such as the ASP, generally do not include a cost/benefit analysis, as these projects need to be undertaken regardless of costs to meet customer needs, and SCE considers costs along with other environmental and operational considerations in selecting an alternative. However, pursuant to the Decision, a cost/benefit analysis was performed in this instance to do the following:

- quantify the system capacity, reliability, and resiliency improvements to the Valley South System resulting from ASP and the Project Alternatives;
- assign a monetary value to these calculated benefits (monetization of benefits); and
- develop cost estimates for each of the Alternatives.

The alternatives were then compared on the basis of: 1) benefits that would be attained in implementing each alternative; 2) the ratio of the benefits to the costs for each alternative (overall cost/benefit analysis); and, because the benefits varied greatly among the alternatives; 3) whether the higher benefits of certain alternatives are cost-effective considering their incremental higher costs (an “incremental cost/benefit analysis”).¹

¹ See Exhibit G-2 (attached to SCE’s original Motion), and revised Exhibit I-1 (attached hereto).

B. Description of Errors

SCE identified three main errors in its previous cost/benefit analysis. First, SCE identified errors in calculated probabilities of coincidental power line outages and specific electrical system loading conditions that would result in unserved customer load. As a result, the initial analysis substantially overstated the monetization of the Flex-1 alternative performance metric. The Flex-1 metric addresses load at risk of being unserved when N-2 line outages occur. In its initial analysis, SCE considered N-1-1 contingency events in addition to N-2 contingency events. N-1-1 events occur when two separate lines experience an outage subsequent to each other, but for which the outages overlap and have independent causes. N-2 events are those where two lines experience an outage concurrently from the same cause. An occurrence of two lines experiencing an overlapping outage at the same time (N-1-1 or N-2) is relatively low; however, between the two, an N-2 event is more probable (due to the two outages occurring from a common, singular cause, such as two lines present on a single pole) as compared to an N-1-1, which requires overlapping outages with independent causes. The updated probabilities for N-2 and N-1-1 outages were significantly lower than what was estimated previously, the latter being de minimis. Because the impact of including N-1-1 outages in SCE's cost/benefit analysis was determined to be negligible, SCE's revised analysis only considers N-2 contingency events in its Flex-1 metric.

Second, SCE identified errors in the application of its Value of Service study in assigning a monetary value to unserved customer load. The initial analysis monetized benefits based on the number of metered customers unserved in each class (e.g., residential, commercial/industrial, etc.), instead of the amount of energy unserved within each class. SCE's approximately five million metered customers across its entire service area are comprised of roughly 90% residential and 10% combined commercial/industrial and small/medium business users. However, when evaluating the amount of energy SCE delivers to these customer classes, only approximately 33% is consumed by residential customers, whereas non-residential customers (commercial/industrial and small/medium business) consume approximately 67%.

As the Value of Service study provides a monetary value of electrical service per megawatt-hour (“MWh”) for each customer class, the amended analyses now appropriately measure the impacts of unserved load by considering the fraction of the total average load assigned to each customer class per hour in the Value of Service Study and not by the number of customers in each class. The original analysis also assumed that for extended outages (due to load shedding resulting from capacity shortages or due to service interruptions during contingency events), the impacts would be experienced by a discrete number of customers for the entire length of time required to remedy the event. This is contrary to SCE’s practice of “rolling outages” among multiple sets of customers, with each set experiencing approximately a one-hour outage (as compared to the entire duration).

The original analysis also incorrectly combined the commercial/industrial and small/medium business customer cost of outages into a single outage cost value for the combined group of non-residential customers. This resulted in an overstatement of the outage costs per unit of time for the customers that are in the small/medium business class.

Overall, these errors in applying the Value of Service study resulted in a net understatement of the monetary value of unserved load for all project alternatives. The errors have been corrected in the attached revised analyses.

The third correction to the analysis is to the Flex 2-1 and Flex 2-2 metrics that address the impact of a “high-impact, low-probability” (“HILP”) event, in this case a catastrophic failure of a substation transformer, that would affect the ability to deliver power to the Valley South System from Valley Substation for a period of two weeks (the minimum expected time to repair damaged facilities and restore the system to its pre-contingency state). In the original analysis, the initiating HILP event was presumed to occur at a time corresponding to peak summer load conditions which would be when the greatest impacts would occur. However, since an HILP event can occur at any time during a year (e.g., summer peak or winter off-peak), the analysis has been modified to no longer constrain the event timing to the summer peak. This change reduced the monetized value of these benefits. Additionally, the Flex 2-2 metric was modified to more accurately describe the event

scenario in which only a single transformer would be left to serve the Valley South System. This change did not affect the value of the metric.

Other revisions were also made to clarify terminology, refine the cost estimates for alternatives, and to include some additional market participation revenue for the alternatives that include BESS. Each of these changes originated from input resulting from the detailed independent peer review, but the net result of these specific changes did not have a significant impact on the analysis results.

C. Impact of Errors on Recommended Alternatives

After revising the supplemental alternative analyses, the impact was a net reduction in the maximum monetized benefits that the alternatives could achieve. Despite the reductions, the monetized benefits of each alternative remained in excess of their respective costs. Corrections to the analyses also affected the cost estimates for all alternatives, with impacts within a range of +/- 15%. While the benefit/cost ratios changed, the ASP remains SCE's preferred alternative. Of the 13 alternatives considered, the three alternatives that ranked higher than ASP in benefit/cost ratio (Menifee, Valley South to Valley North, and Valley South to Valley North with Distributed BESS in Valley South), do not meet project objectives. While included in this analysis for the purpose of comparison, these alternatives do not satisfy the project objective of having effective system tie-lines. Of the six alternatives that meet project objectives, the SDG&E, SDG&E with BESS at Valley South, Mira Loma and the ASP rank high. The ASP ranked higher than the others with a benefit/cost ratio of 9.0, while the SDG&E alternatives have substantial risks in development, licensing and execution. The Mira Loma alternative shares some of these risks, yet only offers a short-term solution, rendering the ASP the only viable and reasonable solution.²

The errors described above affected the overall calculation of system benefits for all alternatives, as well as the assignment of monetary values to those benefits. As a result, the following documents were revised: 1) Revised Planning Study (previously attached to SCE's

² The corrections discussed in this Motion do not affect the conclusion in SCE's Amended PEA Application that ASP is the environmentally preferred alternative.

Motion as Exhibit C-1); 2) The forecasted impact of ASP on service reliability performance (previously attached as Exhibit F); 3) Cost-Benefit Analysis (previously attached as Exhibit G-1); and 4) Detailed justification of the recommended solution as the best solution (previously attached as Exhibit I).

III.

CONCLUSION

For the foregoing reasons, SCE is refileing the corrected documents. All revisions are indicated with underlined text for text that has been added and with strikethrough for text that has been deleted. Unless otherwise noted, all remaining portions of the Motion remain unchanged and are incorporated by reference herein.

SCE hereby submits this Amended Motion to Supplement the Record with the following:

- **Item C-2** – Revised Planning Study submitted on May 6, 2020 (Clean and Redline versions attached hereto as Exhibit “C-2”);
- **Item F-1** – The forecasted impact of ASP on service reliability performance (Clean and Redline versions attached hereto as Exhibit “F-1”);
- **Item G-2** – Cost/benefit analysis of additional alternatives to ASP (Clean and Redline versions attached hereto as Exhibit “G-2”)
- **Item I-1** – Detailed justification of the recommended solution as the best solution, including an explanation of how the proposed project ranks in the SCE capital investment portfolio of infrastructure upgrades (Clean and Redline versions attached hereto as Exhibit “I-1”).

Respectfully submitted,

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Dated: February 1, 2021