

Application No.: 18-05-007
Exhibit No.: CAISO-
Witness: Sushant Barave

In the Matter of the Application of
SOUTHERN CALIFORNIA EDISON
COMPANY (U 338-E) for a Certificate of
Public Convenience and Necessity: Eldorado-
Lugo-Mohave Series Capacitor Project

Application 18-05-007

**REBUTTAL TESTIMONY OF SUSHANT BARAVE
ON BEHALF OF
THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION**

November 18, 2019

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

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1 **I. INTRODUCTION**

2 **Q1. Have you previously provided testimony in this proceeding?**

3 **A1.** Yes, I provided opening testimony supporting the need for the Eldorado-Lugo-Mohave
4 Series Capacitor Project (Proposed Project) on November 4, 2019. My educational and
5 professional background and job responsibilities are detailed in my opening testimony.
6

7 **Q2. What is the purpose of your rebuttal testimony?**

8 **A2.** The purpose of my rebuttal testimony is to respond to certain assertions made by the
9 California Public Advocates Office (PAO) and Wild Tree Foundation (WTF) in opening
10 testimony. Specifically, I address the following issues:

- 11 (1) PAO's underestimation of the resource adequacy eligible capacity that will be made
12 accessible by the Proposed Project;
13 (2) PAO's claims regarding uncertainty about resource adequacy benefits attributable to
14 the Proposed Project; and
15 (3) WTF's errors in assessing the need for the Proposed Project.
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1 **II. PAO UNDERESTIMATES THE SYSTEM RA CAPACITY THAT WILL BE**
2 **MADE ACCESSIBLE BY THE PROPOSED PROJECT.**

3 **Q1. PAO uses only the interconnection project data provided by SCE to estimate**
4 **additional RA capacity made accessible by the Proposed Project. Is this the**
5 **complete list of projects that would contribute towards system RA capacity made**
6 **accessible by the Proposed Project?**

7 **A1.** No. The complete list of active queued projects is provided in my opening testimony in
8 Table 4. The list includes thirty-three projects as opposed to twenty-one projects
9 considered by PAO.

10

11 **Q2. Does PAO reasonably account for the RA capacity contribution of renewable**
12 **projects that are paired with energy storage?**

13 **A2.** No. PAO states that the solar-paired storage interconnections in Table 1 of PAO's
14 opening testimony cannot be used to estimate the additional capacity that could qualify
15 for resource adequacy capacity. Thus, PAO assumes that the 4,996 MW of energy storage
16 paired with renewable resources in the CAISO interconnection queue listed in Table 1 of
17 PAO's testimony will contribute 0 MW toward meeting resource adequacy requirements.
18 This assumption is unreasonable because it ignores the capacity benefits of energy
19 storage. Deliverable energy storage on its own counts on a MW-for-MW basis as
20 resource adequacy capacity under existing counting methodologies. Therefore, it is
21 reasonable to assume that energy storage paired with a renewable resource will be added
22 to the qualifying capacity of the renewable resource on a MW-for-MW basis for resource
23 adequacy capacity counting purposes.¹

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¹ A 4-hour energy storage capacity can be reasonably added to the qualifying capacity of the renewable portion of the project up to the total MW amount of the interconnection request.

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1 **Q3. Do you agree with the interconnection capacity amounts by technology used by the**
2 **PAO in estimating the RA capacity made accessible by the Proposed Project?**

3 **A3.** No. Table 1 shows the data provided in PAO’s opening testimony and Table 2 shows the
4 data based on my calculations.
5

6 **Table 1: Deliverability of**
7 **interconnecting capacity provided in**
8 **Table 2 of PAO's prepared testimony**

Resource Type	Deliverability	Capacity (MW)
Solar	Full Capacity	4938
	Partial	3200
Wind	Full Capacity	0
	Partial	310
Storage	Full Capacity	44
	Partial	0

9 **Table 2: Deliverability of interconnecting**
10 **capacity provided in Table 2 of PAO's**
11 **prepared testimony**

Resource Type	Deliverability Status	Capacity (MW)
Solar	Full Capacity	5842
	Partial	3570
Wind	Full Capacity	150
	Partial	310
Stand-alone storage	Full Capacity	2.8
	Partial	0
Hybrid Storage	Full Capacity	2119
	Partial	1920

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17 **Q4. Please summarize your findings on the estimated system resource adequacy capacity**
18 **made accessible by the Proposed Project.**

19 **A4.** The CAISO estimates that a minimum of approximately 2,748MW and a maximum of
20 approximately 5,173 MW of resource adequacy capacity will be made accessible by the
21 Proposed Project. CAISO calculated these estimates by relying on (i) the minimum and
22 maximum monthly ELCC values provided in Table 3 of PAO’s proposed testimony, (ii)
23 the capacity amounts listed in Table 2, (iii) accounting for the capacity benefit of storage
24 resources paired with renewable resources in the CAISO interconnection queue, and (iv)
25 deliverability status (full capacity or partial capacity) of the projects listed in Table 4 of
26 my opening testimony. Table 4 of PAO’s opening testimony underestimates the RA
27 capacity by indicating that a monthly minimum of 67 MW and a maximum of 2,709 MW
28 will be made accessible by the Proposed Project.

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III. PAO INCORRECTLY CLAIMS ADDITIONAL UNCERTAINTY ABOUT THE NET QUALIFYING CAPACITY (NQC) BENEFITS THAT CAN BE ATTRIBUTED TO THE PROPOSED PROJECT.

Q5. PAO states that there is additional uncertainty about how much additional NQC can be attributed to the Proposed Project because of the other upgrades required by the generators. Do you agree with this statement?

A5. No. There are four other upgrades² that are not yet under construction that are required for the projects listed in Table 4 to achieve Full Capacity Deliverability Status (FCDS). These other projects are minor in scope and are moving forward as planned. The four other projects include two transformers, one series reactor, and one minor transmission line upgrade. These other upgrades will not provide FCDS without the Proposed Project. Therefore, the additional resource adequacy capacity assigned to these generation projects is attributable to the Proposed Project and there is minimal additional uncertainty due to other upgrades.

Q6. PAO argues that the interim deliverability status for 2020 assigned to Copper Mountain Solar 4 indicates that the capacity of Copper Mountain Solar 4 and any other generator listed in Table 1 of PAO’s opening testimony is not attributable to the Proposed Project. Do you agree with this argument?

A6. No. PAO states that it is unclear whether the net qualifying capacity (NQC) of Copper Mountain Solar 4, or that of any other generator listed in Table 1 of PAO’s testimony, is indeed additional NQC that can be attributed to the Proposed Project because Copper Mountain Solar 4 has an interim deliverability status in the 2020 NQC List.

However, Copper Mountain Solar 4 has been assigned interim deliverability status based on operational conditions expected to prevail in 2020. This study does not capture the

² Excludes circuit breaker upgrades and remedial action schemes.

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1 impact of future generation build-out selected in the Commission-developed Renewables
2 Portfolio Standard (RPS) portfolio required to achieve the state RPS target. Copper
3 Mountain Solar 4 and other projects listed in Table 4 of my opening testimony will not
4 achieve FCDS without the Proposed Project. Therefore, the additional NQC of these
5 projects is attributable to the Proposed Project.
6

7 **IV. WTF MAKES CRITICAL ERRORS REGARDING THE NEED FOR THE**
8 **PROJECT**

9 **Q7. WTF states that only two projects need the Proposed Project in order to achieve**
10 **FCDS. Do you agree?**

11 **A7.** No. WTF states that “Applicant’s entire argument that there is a need for this project to
12 meet the requirements of existing IAs that allegedly require the Project to achieve FCDS,
13 hinges on two projects.”³ WTF also states, “potential granting of FCDS to two out-of-
14 state projects, totaling less than 200 MW, without storage, interconnecting to other load
15 serving entities, not on the subject transmission lines, is insufficient to demonstrate need
16 for a project.”⁴ The two projects WTF mentions are only a small subset of projects that
17 require the Proposed Project to achieve FCDS. Table 4 of my opening testimony lists 33
18 active queued projects that require the Proposed Project to achieve FCDS.
19

20 **Q8. WTF claims that the Proposed Project was identified as needed based on outdated**
21 **portfolios and that no further mention of Integrated Resource Planning process is**
22 **made. Do you agree with this claim?**

23 **A8.** No. WTF states “the Application and testimony on this point are misleading because they
24 ignore the fact that this old portfolio has been superseded by the implementation of SB
25 350 in R.16-02-007, the Long Term Procurement Planning (“LTPP”) and Integrated
26 Resources Planning (“IRP”) proceeding.”⁵ My opening testimony provides the updated

³ Direct Testimony of Robert Freehling on Behalf of WTF, p. 6:14-16.

⁴ *Id.* at 7:11-14.

⁵ *Id.* at 9:9-11.

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1 analysis of the need for the Proposed Project using the Commission-developed IRP
2 portfolios transmitted for the purpose of the 2019-2020 transmission planning process,
3 which is currently underway. The updated assessment continues to demonstrate the need
4 for the Proposed Project.

5
6 **Q9. WTF uses the historical flows on the Eldorado-Lugo and Lugo–Mohave 500 kV
7 lines to claim that the Proposed Project is not needed. Is this appropriate?**

8 **A9.** No. Table 1 of WTF’s opening testimony shows historical flows on the Eldorado-Lugo
9 and Lugo-Mohave 500 kV lines. WTF states that the Proposed Project is not needed
10 because a large amount of capacity on the existing lines included in the scope of the
11 Proposed Project is not utilized based on the facility ratings. Showing unused capacity
12 based on the thermal ratings of transmission lines using historical flows under normal
13 conditions (with all facilities in-service) does not disprove the need for the Proposed
14 Project. Such analysis is faulty because: (i) historical flows do not reflect the impact of
15 future generation resources identified as part of the Commission-developed RPS
16 portfolios, and (ii) the historical flows do not reflect the impact of the next worst
17 contingency that needs to be assessed in accordance with NERC, WECC and CAISO
18 planning standards.

19
20 Therefore, the information provided in Table 1 of WTF’s opening testimony does not
21 demonstrate that the Proposed Project is not needed.

22
23 **V. CONCLUSION**

24 **Q17. Does this conclude your testimony?**

25 **A17.** Yes.