

Application No.: 24-07-018
Exhibit No.: _____
Witness: Binaya Shrestha
ALJ: Robert Haga
Commissioner: Matthew Baker

Application of LS Power Grid
California, LLC (U-247-E) for a
Certificate of Public Convenience and
Necessity Authorizing Construction of
the Collinsville 500/230 kV Substation
Project.

Application 24-07-018
(Filed July 30, 2024)

**SUR-SURREBUTTAL TESTIMONY OF BINAYA SHRESTHA
ON BEHALF OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR
CORPORATION**

June 29, 2026

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1 **I. INTRODUCTION**

2 **Q1. What is your name and by whom are you employed?**

3 **A1.** My name is Binaya Shrestha. I am employed by the California Independent System
4 Operator Corporation (CAISO), 250 Outcropping Way, Folsom, California as Manager,
5 Regional Transmission – North.

6
7 **Q2. Please describe your educational and professional background.**

8 **A2.** I am a licensed Professional Electrical Engineer in the State of California. I hold a
9 Master's degree in Electrical Engineering from Wichita State University, Kansas, and a
10 Bachelor's degree in Electrical Engineering from Tribhuwan University, Nepal.

11
12 **Q3. What are your job responsibilities?**

13 **A3.** I manage a group of engineers responsible for planning the CAISO controlled
14 transmission system in northern California to ensure efficient and cost-effective
15 compliance with requirements established by the North American Electric Reliability
16 Corporation (NERC), Western Electricity Coordinating Council (WECC), and CAISO
17 Transmission Planning Standards.

18
19 **Q4. What is the purpose of your sur-surrebuttal testimony?**

20 **A4.** The purpose of my testimony is to address critiques and arguments set forth in the sur-
21 rebuttal testimony of California Forever, LP (California Forever)'s witness Deborah
22 Galimba in connection the planning, justification, and public need for the Collinsville
23 500/230 kV Substation Project as identified and approved in the CAISO's transmission
24 planning process.

25
26 **II. CAISO'S TRANSMISSION PLANNING PROCESS AND THE NEED FOR THE
27 PROJECT**

28 **Q5. What observations, if any, do you have regarding how California Forever
29 characterizes the CAISO's transmission planning process?**

30 **A5.** Attempting to overturn findings of need and solutions to address those needs, California
31 Forever seeks to peel back and selectively pick and choose inputs supporting
32 determinations made in the CAISO's transmission planning process. The CAISO's

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1 comprehensive transmission planning process considers a portfolio of needs annually
2 through a comprehensive assessment of the system as a whole to identify the most
3 effective and cost-efficient solutions to meet a variety of needs. The process relies on
4 prior identified needs and solutions. The need for new transmission can be driven by
5 reliability, economic, or public policy considerations, as set forth in the CAISO tariff.
6 The transmission planning process adjusts findings and solutions as inputs change.
7 California Forever instead inappropriately seeks to isolate inputs and assumptions and
8 remove them one by one to revisit the need determinations for the Collinsville 500/230
9 kV Substation Project. I disagree with this approach and California Forever's
10 conclusions.

11
12 The CAISO first determined in the 2021-2022 transmission planning process that the
13 Collinsville 500/230 kV Substation Project was needed to address overloads on
14 transmission facilities in Northern California, support load serving needs in the Greater
15 Bay Area, and support integration of offshore wind as reflected in the resource portfolios
16 provided by the California Public Utilities Commission (CPUC). All these needs for the
17 project remain today and continue to support issuance of a certificate of public and
18 convenience and necessity (CPCN) for the project.

19
20 **Q6. What reaction, if any, do you have to California Forever's assessment that the**
21 **Collinsville 500/230 kV Substation Project is no longer needed to mitigate thermal**
22 **overloads in Northern California?**

23 **A6.** The CAISO identified the Collinsville 500/230 kV Substation Project as necessary to
24 address multiple thermal overloads on the 230 kV corridor between Contra Costa and
25 Newark substations driven by the CPUC's portfolio of planned resources. These thermal
26 overloads, which I explained in my rebuttal testimony, can damage equipment due to
27 overheating.

28
29 California Forever argues other transmission solutions have been identified and
30 implemented to address these thermal overload concerns. California Forever's witness
31 argues the CAISO has subsequently determined in the 2025-2026 Transmission Plan that

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1 thermal overload concerns on the 230 kV corridor between Contra Costa and Newark
2 substations are no longer an issue in near-term and long-term scenarios. However,
3 California Forever ignores that, in the mid-term (5 years and beyond), the CAISO in fact
4 modeled the Collinsville 500/230 kV Substation Project as a solution to address three
5 distinct issues, assessed together, which I explained in my rebuttal testimony. Without
6 the Collinsville substation, the CAISO’s reliability assessments show overloads occurring
7 in the mid-term planning scenario and then worsening in the long-term scenario. Again,
8 the CAISO’s comprehensive transmission process is an interactive assessment that relies
9 on and builds upon previously identified needs and solutions and adjusts them as inputs
10 change. In other words, due to the CAISO’s prior approval of the Collinsville 500/230 kV
11 Substation Project in the 2021-2022 comprehensive transmission plan, its continued
12 existence was assumed in subsequent CAISO reliability assessments. Without the
13 Collinsville 500/230 kV Substation Project, the reliability problems the CAISO identified
14 would remain even following the approval of the additional transmission solutions
15 California Forever references. Stated differently, these additional projects do not
16 eliminate the need for the Collinsville 500/230 kV Substation Project.

17
18 **Q7. What observations, if any, do you have about the alternative mitigate measures**
19 **California Forever references to address identified thermal overloads in Northern**
20 **California?**

21 **A7.** First, California Forever argues that North Dublin–Cayetano 230 kV Line
22 Reconductoring Project will address overload risks across the East Bay corridor. The
23 CAISO modeled this project in the study cases as part of the 2025-2026 transmission
24 planning process, and it does help address overloads on the North Dublin-Cayetano
25 section of the Contra Costa and Newark 230 kV corridor. However, the CAISO’s
26 reliability assessment results still show that this line section will experience overloads in
27 the 15-year planning horizon (2040), and without the Collinsville 500/230 kV Substation
28 Project, those overloads would increase and could commence much earlier than 2040.
29
30 Second, California Forever argues that the CAISO’s decision to defer a project consisting
31 of power flow control devices - Lone Tree–Cayetano–Newark Corridor Series

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1 Compensation – evidences that overloads on the Contra Costa and Newark 230 kV
2 corridor are no longer a concern and cannot justify the need for the Collinsville 500/230
3 kV Substation Project. This is not the case. The CAISO did not model the Lone Tree–
4 Cayetano–Newark Corridor Series Compensation project in the 2025-2026 transmission
5 planning process study cases because of unresolved questions on how these power flow
6 devices would operate as well as uncertainty regarding vendor costs. If this project
7 advances, it will help alleviate overloads on the Contra Costa and Newark 230 kV
8 corridor. However, power flow control devices are not a long-term solution given
9 expected load growth and the need for sufficient capacity on parallel paths that power
10 flow control devices would shift the power flow onto. Based on the extent of loading on
11 various line sections in the Contra Costa and Newark 230 kV corridor, it is unlikely this
12 project will be sufficient to address overloads even in the mid-term given load forecasts
13 and the extent of the overloads. There are overloads in the long-term that the Lone Tree–
14 Cayetano–Newark Corridor Series Compensation project does not sufficiently address.
15 Without Collinsville Substation, these overloads will be even worse. For this reason, the
16 Collinsville 500/230 kV Substation Project remains important to address overloads on the
17 Contra Costa and Newark 230 kV corridor.

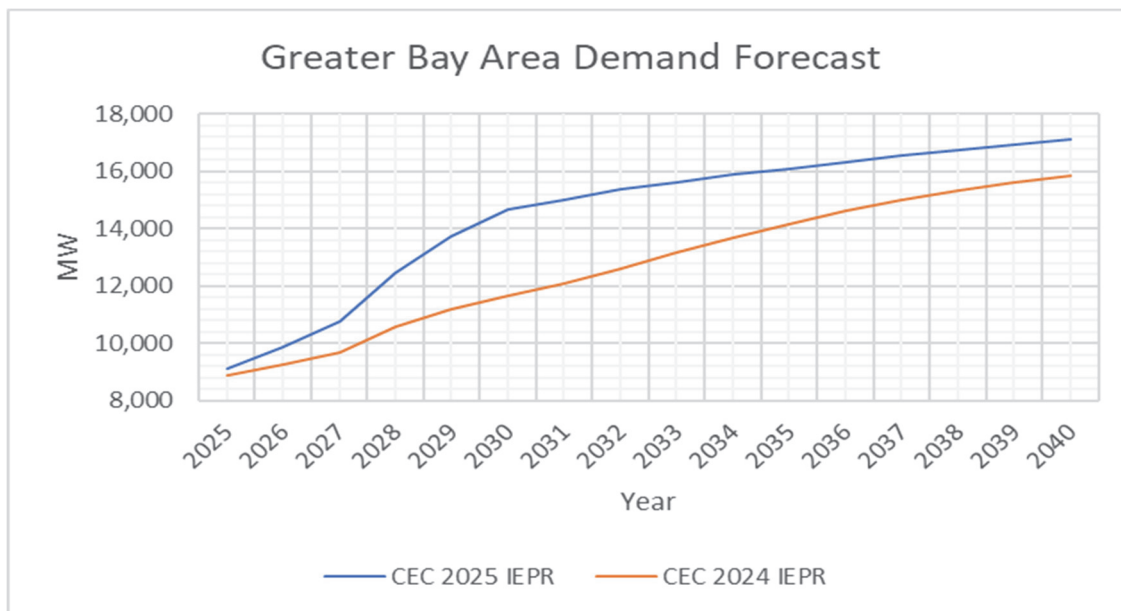
18
19 Third, California Forever argues battery energy storage can alleviate the overloads on the
20 Contra Costa and Newark 230 kV corridor and replace the need for the Collinsville
21 500/230 kV Substation Project. The CPUC includes battery energy storage resources as
22 part of its resource portfolios and the CAISO accounts for their impact on transmission
23 operations in the studies performed as part of the transmission planning process. Of the
24 two storage projects referenced by California Forever, Diablo storage project is
25 operational, and the CAISO has modeled this project in its studies. The Potentia-Viridi
26 storage project is not operational but is included in the CPUC’s resource portfolio. The
27 CAISO has also modeled this project in its studies. Neither of these projects nor other
28 battery energy storage resources included in the CPUC’s resource portfolios have
29 eliminated the reliability need for the Collinsville 500/230 kV Substation Project, which
30 remains part of the overall solution to meet the overloads on the Contra Costa and
31 Newark 230 kV corridor observed in mid-term and long-term planning studies.

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1
2 **Q8. What observations, if any, do you have on arguments advanced by California**
3 **Forever regarding load growth uncertainty?**

4 **A8.** Load growth continues in the Greater Bay Area, which continues to present a reliability
5 need the Collinsville 500/230 kV Substation Project helps address. The Collinsville
6 500/230 kV Substation Project helps reduce local capacity requirements and ensures the
7 transmission system can serve Greater Bay Area loads. In surrebuttal testimony,
8 California Forever’s witness asserts load growth in the Greater Bay Area remains
9 uncontracted and unverified. Among the inputs into the CAISO’s comprehensive
10 transmission planning process are demand forecasts developed by the California Energy
11 Commission (CEC). The CAISO incorporates these load forecasts into its
12 comprehensive process, which reflects increased load growth for Greater Bay Area over
13 the next 15 years. Figure 1 reflects the latest demand forecast from the CEC for the
14 Greater Bay Area through 2040, which has increased over the CEC’s prior forecasts.

15
16 **Figure 1 – CEC Demand Forecast from 2025 and 2024 Integrated Energy Policy Report**
17 **for the Greater Bay Area**
18



19
20
21 The addition of the Collinsville 500/230 kV Substation Project will provide an additional
22 supply path into the northern Greater Bay Area to meet this increased demand.

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1 **Q9. What observations, if any, do you have concerning California Forever’s assertion**
2 **that the CAISO’s transmission planning process should no longer anticipate**
3 **offshore wind as a justification for the Collinsville substation?**

4 **A9.** California Forever asserts wind development off the California coast, particularly
5 Humboldt County, is improbable. As I explained in my rebuttal testimony, the CAISO
6 transmission planning process is a structured and iterative framework designed to assess
7 future system needs and to develop transmission solutions that ensure system reliability,
8 support public policy objectives, and enhance economic efficiency. The process begins
9 with the establishment of study assumptions and scenarios, informed by load forecasts,
10 anticipated generation portfolios, and applicable state policy requirements. Although the
11 CAISO is aware that wind resources off the coast of Humboldt County may face
12 development challenges, the resource portfolios most recently received by the CAISO
13 from the CPUC continue to reflect offshore wind resources off the coast of Northern
14 California in the 15 year-ahead resource portfolios. The CPUC provided the CAISO with
15 these resource portfolios on February 26, 2026. This input continues to inform the
16 CAISO’s comprehensive transmission planning process assessment of needs and
17 solutions. Consistent with its planning framework and transmission tariff, the CAISO
18 will utilize this input assumption in the base case scenario as part of its 2026-2027
19 transmission plan. Again, integration of offshore wind is only one of the drivers for the
20 Collinsville 500/230 kV Substation Project. There are two other extremely important
21 drivers for the project as discussed above and in my prior testimony.

22
23 **Q10. Do you have a reaction California Forever’s recommendation that the CAISO put**
24 **the Collinsville project “on hold” pending completion of additional studies or that**
25 **the CPUC “remand” this matter to the CAISO for additional study?**

26 **A10.** Yes. California Forever argues the CAISO should restudy and reconsider alternative
27 solutions and demonstrate, through a comparative analysis, that the proposed location,
28 sizing, and configuration for the Collinsville 500/230 kV Substation Project represents
29 the best practicable solution based on current conditions. The CAISO has found the
30 Collinsville 500/230 kV Substation Project continues to be needed for reliability. There is
31 no basis to place the project on hold or request the CAISO undertake additional studies. I

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1 note that each planning cycle the CAISO’s comprehensive transmission planning process
2 examines needs on a holistic basis and assesses the best and cost-effective solutions for
3 those needs. In that process, the CAISO considers projects identified in previous
4 transmission plans against overall needs of the system. Based on that overall assessment,
5 the CAISO can re-scope projects, if necessary, based on changed circumstances and input
6 assumptions. There is no basis to require the CAISO to place the Collinsville 500/230 kV
7 Substation Project on hold or to re-study it on a targeted basis.

8
9 **III. CONCLUSION**

10 **Q11. Please summarize your recommendations.**

11 **A11.** The Collinsville 500/230 kV Substation Project is required to alleviate thermal overloads
12 in the Northern California region and to provide an additional supply path from the 500
13 kV system in California into the northern Greater Bay Area. The Collinsville 500/230 kV
14 Substation Project will also support offshore wind identified in the CPUC’s resource
15 portfolios. For these reasons, the CPUC should issue a CPCN for the Collinsville
16 500/230 kV Substation Project in this proceeding.

17
18 **Q12. Does this conclude your sur-surrebuttal testimony?**

19 **A12.** Yes.