



Powering The Center of What's Possible

March 15, 2022

Chair Ashutosh Bhagwat
Vice-Chair Mary Leslie
Governor Severin Borenstein
Governor Angelina Galiteva
Governor Jan Schori

California Independent System Operator
250 Outcropping Way
Folsom, California

Silicon Valley Power Strongly Supports CAISO 2021-2022 Transmission Plan's Solutions to Address SVP's Reliability Issues

Dear Chairman Bhagwat and Governors,

The City of Santa Clara *dba* Silicon Valley Power (SVP) applauds the CAISO staff and management for the work done under the 2021-2022 Transmission Plan.

SVP appreciates the opportunity to comment on the CAISO 2021-2022 Transmission Plan. As I presented to you previously, the City of Santa Clara is a data center hub for the State and Country, and these projects support our global economy. We appreciate the efforts of both the CAISO and PG&E in approving transmission projects to serve the rapidly growing SVP load. We applaud the CAISO staff's extraordinary efforts throughout this planning, resulting in the CAISO recommending both short and long-term solutions to address the SVP's and the State's growth opportunities.

Your staff has delivered on what they had promised at the CAISO Board of Governors meeting almost a year ago when you approved last year's Transmission Plan. SVP endorses the approval of the two HVDC lines in the area, that is, the 500 MW HVDC line from Newark 230 kV to near the Los Estero 230 kV substation and connected to the SVP's NRS 230 kV substation with 230 kV AC lines or cables, and the 500 MW HVDC line from Metcalf 500 kV to San Jose B 115 kV substation.

The CAISO has also recognized other improvements to the capability of the transmission system to serve load reliably will be needed before the HVDC projects can be constructed and Santa Clara fully supports those recommendations. The CAISO transmission Plan includes additional near-term projects to address near-term reliability issues for the SVP system. Therefore, I have asked SVP staff to work with the CAISO and PG&E staff to evaluate and propose further projects to meet the CAISO planning criteria. I am hopeful that we will continue to get the CAISO's support in these efforts.



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Further details on the background and analyses on this topic can be found in SVP's comments on the CAISO Draft 2021-2022 Transmission Plan (see Attachment A) and the Draft 2022-2023 Transmission Study Plan (see Attachment B).

In summary, SVP strongly supports the recommendation to approve both the short-term and long-term mitigation projects in the SVP and San Jose area in the current planning cycle. And we recommend the CAISO work with PG&E and SVP to develop additional near-term projects to provide reliable electric service to the rapidly growing South Bay Area load before the long-term addition can be built.

Again, we thank CAISO Board and Management for their support in addressing SVP's urgent transmission capacity increase needs which support the State's leadership in the Global Economy and acknowledge the significant efforts of the CAISO staff to develop and recommend proposed additions that should increase reliability in the Santa Clara and San Jose Area.

Sincerely,

Manuel Pineda
Chief Electric Utility Officer at Silicon Valley Power

Cc

- Mr. Elliot Mainzer, President and Chief Executive Officer, CAISO
- Mr. Mark Rothleder, Senior Vice President and Chief Operating Officer, CAISO
- Mr. Neil Millar, Vice President, Transmission Planning and Infrastructure Development, CAISO
- Mr. Jeff Billinton, Director, Transmission Infrastructure Planning
- Mr. Binaya Shrestha, Manager Regional Transmission – North, PG&E
- Mr. Marco Rios, Manager of Transmission, Substation, and Storage Asset Planning, PG&E
- Mr. Martin Smith, Senior Transmission Contract Manager, PG&E
- Mr. Kevin Kolnowski, Electric Chief Operating Officer, SVP
- Mr. Alan Kurotori, Assistant Director Customer Development & Program Management, SVP
- Mr. Albert Saenz, Principal Electric Utility Engineer, SVP



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Attachment A: Silicon Valley Power Comments on the CAISO Draft 2021-2022 Transmission Plan



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February 22, 2022

Silicon Valley Power Comments on the CAISO Draft 2021-2022 Transmission Plan

Submitted to: regionaltransmission@caiso.com

The City of Santa Clara dba Silicon Valley Power (SVP) appreciates the opportunity to comment on the CAISO Draft 2021-2022 Transmission Plan (Draft Plan, hereafter). SVP appreciates the CAISO staff's tremendous efforts throughout this planning, resulting in the CAISO recommending both short- and long-term solutions to address the SVP's reliability issues. We appreciate the efforts of both the CAISO and PG&E to solve the reliability of service to the rapidly growing SVP load, chiefly due to tremendous interest in hyper-scale data centers to be located in the City of Santa Clara. In these comments, SVP seeks to clarify the CAISO-proposed transmission solutions while expressing concerns about the need to address SVP's reliability issues until the long-term solution is implemented.

As the Draft Plan states, "(T)his year's load forecast included significant load increase of about 500 MW (~75 percent) in the Silicon Valley Power (SVP) area. As a result, multiple near-term and much more long-term overloads were identified in the San Jose 115 kV system. The near-term issues include overloads driven by P2, P6 and P7 category contingencies. However, the mid and long-term issues include overloads driven by P1 contingencies as well along with multiple overloads driven by other category contingencies."¹ SVP endorses the Draft Plan's overall rationale for recommending approval of the two HVDC lines in the area, that is, one 500 MW HVDC line from Newark 230 kV to SVP's NRS 230 kV substation and another 500 MW HVDC line from Metcalf 500 kV to San Jose B 115 kV substation.²

SVP understands that the HVDC from Newark is envisioned to terminate at a DC terminal at the Los Esteros substation. Then, there would be a dedicated 230kV AC circuit from Los Esteros to SVP's NRS substation. On the contrary, the Draft Plan provides the impression that under the HVDC Newark 230kV to NRS 230 project, the HVDC line will terminate at the DC terminal at NRS. SVP requests the CAISO to include a corrected description of the HVDC project in the Final Transmission Plan presented to the CAISO Board, showing the HVDC line from Newark 230kV to Los Esteros in conjunction with a 230kV AC line from Los Esteros to the NRS 230kV bus. In addition, two additional 230/115kV transformers have been planned (rated 600MVA) at the NRS substation; thus, SVP recommends that the proposed 230kV AC transmission line from Los Esteros to NRS substations use

¹ Draft Plan, p.103.

² *Ibid.*



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a conductor with ratings of 600MVA. To match this rating, SVP requests that the HVDC line capacity be expanded from the currently envisioned 500 MW to 600 MW in the Final Transmission Plan.

The Draft Plan also states that “in the interim, to address the near-term critical, category P1 contingency driven, issues, the CAISO is also recommending approval of adding series compensation devices on the Los Esteros-Nortech 115 kV line.”³ The Draft Plan adds that “Current studies show that adding about 2 ohms reactor on the Los Esteros-Nortech 115 kV line would be optimal solution along with running the Silicon Valley Power (SVP) phase-shifting transformer at its limit and energy storage addition in the SVP system.” SVP agrees with the CAISO that the 2-ohm series reactor, by itself, would not be adequate to address the near-term category P1 issues for the SVP system. Moreover, there are additional NERC and CAISO planning criteria, such as P6 and P7, which will be violated in the interim until the HVDC project is constructed.

We agree with the CAISO that energy storage by itself cannot be considered a mitigation solution. San Jose system has far less charging capacity compared to the size of energy storage needed to address all reliability issues identified in the area.⁴ However, some additional mitigations, such as an amount of energy storage that is consistent with the charging capabilities of the area, would be effective mitigation in the interim to reduce the overloads, if not eliminate them. There is past precedence of the CAISO identifying energy storage as mitigation to address reliability needs. In the 2020-2021 TPP, CAISO identified two battery storage projects to replace two major previously approved transmission projects by considering only the incremental interconnection cost for battery storage.⁵ SVP believes that battery storage within the SVP footprint and other appropriate mitigations would effectively reduce the need for load curtailment under contingencies conditions. In addition to the series compensation project, we urge the CAISO to evaluate further additional mitigations needed to meet the CAISO planning criteria as part of the short-term solution in the next planning cycle.

In summary, SVP strongly supports the CAISO’s recommendation to approve both the short-term and long-term mitigation projects in the current planning cycle, but recommends the CAISO develop additional mitigations until the long-term solution is built. Again, SVP appreciates the opportunity to comment on the Draft Plan and acknowledges the significant efforts of the CAISO staff to

³ Draft Plan, p.105.

⁴ Draft Plan, p.104.

⁵ CPUC Decision Adopting 2021 Preferred System Plan, Rulemaking 20-05-003, December 22, 2021, pp. 153-1541.

(1) A 95 MW 4-hour storage resource on the Kern-Lamont 115 kilovolt (kV) system eliminated the need for the Wheeler Ridge Junction Project; and (2) A 50 MW 4-hour storage resource at the Mesa 115 kV substation eliminated the need for the North of Mesa Project.



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develop proposed mitigations to address CAISO planning criteria violations which should reduce the probability of load curtailment by SVP.



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**Attachment B: Silicon Valley Power Comments on the CAISO Draft study plan-
2022-2023 Transmission planning process**



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Submit comment on Draft study plan

2022-2023 Transmission planning process

1. Comment on chapter 1 Introduction: *

The City of Santa Clara dba Silicon Valley Power (SVP) appreciates the opportunity to comment on the California Independent System Operator (CAISO) Draft 2022-2023 Transmission Planning Process (TPP) Unified Planning Assumption and Study Plan (Study Plan, hereafter), dated February 18, 2022. SVP acknowledges the significant efforts of the CAISO staff in developing the Study Plan.

2. Comment on chapter 2 Reliability Assessment: *

SVP supports the Study Plan's assumption that all transmission projects that the CAISO has approved, including those in the 2021-2022 Transmission Plan, will be modeled in the reliability study.⁶

SVP appreciates the CAISO staff's tremendous efforts throughout the 2021-2022 transmission planning cycle, resulting in the CAISO recommending both short- and long-term solutions to address the SVP's reliability issues. In particular, SVP supports the CAISO management recommended approval of the two HVDC lines in the area, that is, one 500 MW HVDC line from Newark 230 kV to near the Los Estero 230 kV substation and connected to the SVP's NRS 230 kV substation with 230 kV AC lines or cables, and another 500 MW HVDC line from Metcalf 500 kV to San Jose B 115 kV substation.

The CAISO has recognized other improvements to the capability of the transmission system to serve load reliably will be needed before the HVDC projects are able to be constructed. The CAISO is also recommending approval of adding series compensation devices be added on one of the 115 kV lines serving the SVP load. SVP supports this short-term mitigation.⁷ The CAISO 2021-2022 Transmission Plan correctly recognizes that this solution, by itself, would not be adequate to address the near-term reliability issues for the SVP system. Similarly, energy storage by itself probably cannot provide sufficient capacity to serve the load reliably. However, some additional mitigations, such as an amount of energy storage that is consistent with the charging capabilities of the area, would be

⁶ Study Plan, p.13

⁷ CAISO 2021-2022 Draft Transmission Plan, p.105.



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effective mitigation in the interim to reduce the overloads, if not eliminate them. Therefore, we urge the CAISO to evaluate further additional mitigations to meet the CAISO planning criteria as part of the short-term solution in the 2022-2023 planning cycle.

The Study Plan envisions a sensitivity scenario for the PG&E area, called “Summer Peak with high CEC forecasted load.”⁸ This scenario seems to assume “Load increased by turning off AAEE.” It is possible that SVP’s load will be even higher than the one reflected in the 2021 IEPR adopted by the CEC on January 26, 2022, chiefly due to further interest in hyper-scale data centers to be located in the City of Santa Clara. It is pertinent that the proposed mitigations be assessed to address CAISO planning criteria violations which should reduce the probability of load curtailment by SVP under these higher than expected load conditions. Therefore, SVP requests that CAISO also study a sensitivity scenario entailing a higher level of SVP in the 2022-2023 planning cycle. SVP will be glad to meet with the CAISO staff to explain the latest information regarding this expected data center load the CAISO staff may need to develop this sensitivity scenario.

3. Comment on chapter 3 Policy-Driven RPS Transmission Plan Analysis: *

No Comments at this time.

4. Comment on chapter 4 Economic Planning Study: *

No Comments at this time.

5. Comment on chapter 5 Interregional Transmission Coordination: *

No Comments at this time.

6. Comment on chapter 6 Other Studies: *

No Comments at this time.

7. Please provide any additional comments: *

No Comments at this time.

⁸ Study Plan, Table 2.11-4: Sensitivity Scenario Definitions and Renewable Generation Dispatch, p.39.