



Submit comment on Draft 2021-2022 Transmission Plan

2021-2022 Transmission planning process

1. Please provide your organization's overall comments on the Draft 2021-2022 Transmission Plan Feb 7, 2022 stakeholder call discussion: *

The Bay Area Municipal Transmission group (BAMx)¹ appreciates the opportunity to comment on the Draft 2021-2022 Transmission Plan (Draft Plan, hereafter), dated January 31, 2022. The comments and questions below also address the material presented at the CAISO Stakeholder meeting on Feb 7, 2022. BAMx acknowledges the significant effort of the CAISO staff to develop the Draft Plan. BAMx recognizes the tremendous amount of work the CAISO staff has completed in this planning cycle. BAMx also believes the CAISO staff must be allowed a corresponding amount of time to engage the stakeholders to explain the staff's work.

In these comments, BAMx raises some major concerns about the skyrocketing CAISO transmission access charges (TAC) and the CAISO's financial fiduciary responsibilities to Californians and grid users. BAMx comments should be construed as attempting to assist the State in its journey to achieve its climate goals and not as any opposition in taking the necessary steps. Further, BAMx recognizes that electric rates may continue to rise as a necessary outcome in achieving the State's climate goals. That said, it is imperative and incumbent on the CAISO to design and develop an appropriate and cost-effective electric grid to accomplish those goals.

In order to understand the TAC impact of the projects the CAISO management may recommend for approval as part of the current planning process, BAMx developed an HV TAC forecast for the period of 2023-2031. BAMx's forecast shows that the HV TAC would rise to more than \$22/MWh in 2031 relative to the existing level of \$16.6/MWh, a staggering 33% increase in less than ten years.

Out of the \$22/MWh of forecasted HV TAC in 2031, more than 38% of the increase is solely attributed to the nearly \$3 billion transmission projects the CAISO is considering for approval in the current TPP cycle. BAMx's HV TAC projections show the tremendous impacts these potential project approvals will have on the ever-increasing CAISO-wide HV TAC. As detailed in the remaining BAMx comments, the CAISO and stakeholders must complete thorough reviews and analyses to ensure the "right" projects are proceeding forward while eliminating excessive or unnecessary projects.

BAMx recognizes that the combination of the dramatically increasing pace of renewable generation and load forecast growth are driving an increase in transmission requirements under certain portfolio scenarios. However, the CAISO and the stakeholders must refrain from rushing to approve projects without allowing adequate time to complete the appropriate evaluation of each proposed project.

¹ BAMx consists of City of Palo Alto Utilities and City of Santa Clara, Silicon Valley Power.

In some cases, it appears the transmission alternatives have not yet been fully developed, screened, and analyzed. Alternatives are often discussed qualitatively but never quantitatively compared with the proposed alternative. For instance, the stakeholders do not have access to any “change” power flow cases for the policy-driven transmission analysis and documentation underlying the recommended projects’ needs.

Furthermore, the CAISO typically posts its responses to past stakeholder comments before issuing the Draft Plan. Previous TPPs included posted responses to comments on preliminary reliability assessment in mid-November. As of February 2022, the CAISO still has not posted its responses to stockholders’ comments dated October 10, 2021 and December 6, 2021. BAMx finds it extremely challenging to respond and comment on certain aspects of the Draft Plan without knowing the CAISO’s responses to prior concerns raised by BAMx and other stakeholders.

In a nutshell, some of the transmission projects that the CAISO has recommended for approval in this planning cycle need to be studied more extensively in the next cycle, or at the very least their approval needs to be delayed until later in this cycle after the Board approval of the Plan in March 2022.

2. Comment on chapter 1 Overview of the Transmission Planning Process: *

BAMx agrees with the CAISO that the role of battery storage is expected to continue to grow as a complement to the renewable generation and also as a key source of capacity to meeting both system capacity needs and local needs.² Ultimately, storage resources will be available to meet energy needs during most periods when renewable resources are not available to generate. BAMx agrees with the conclusion that only the incremental interconnection cost for the storage should be compared to transmission costs when the batteries are located in local constrained areas.

BAMx applauds the CAISO staff’s efforts in relying on the implementation of Remedial Action Schemes (RAS) and storage solutions in its Preliminary Policy Assessment. As shown in Table 1 compiled by BAMx below, the CAISO has effectively and rightfully utilized the existing/planned RAS dispatching portfolio battery storage in charging mode, and also includes new battery storage as mitigations wherever applicable to mitigate the contingency overloads.

² Draft Plan, p.31.

Table 1: Recommended Non-Wires Mitigations*

Constraint	Area	Recommended Mitigation
On-peak Windhub 500/230 kV transformer	SCE	Planned Windhub CRAS
On-Peak Red Bluff –Devers 500kV	SCE	West of Colorado River CRAS
Off-Peak Windhub 500/230 kV transformer	SCE	Planned WindhubRAS/ Baseline and portfolio battery
On-Peak Doublet Tap-Friars 138 kV	SDG&E	Planned RAS to trip Otay Mesa area gen
On-Peak San Marcos-Melrose Tap 69 kV	SDG&E	Existing/modified TL684 RAS to open Melrose Tap-San Marcos 69 kV
On-Peak Encina-San Luis Rey 230kV	SDG&E	Planned RAS to trip Encina
On-Peak San Luis Rey-San Onofre 230 kV	SDG&E	Planned RAS to trip Encina
On-Peak Round Mountain-Fern Road #1 and #2 500kV	PG&E	RAS to bypass the series capacitor on the remaining line
Off-Peak Kettlemen-Gates 70kV	PG&E	Turn on Portfolio Battery Storage
Off-Peak Kern-Tevis-Stockdale 115kV	PG&E	Turn on Portfolio Battery Storage
Off-Peak Gates 500/230kV Bank	PG&E	Turn on Portfolio Battery Storage

*Source: November 18th Presentation, “2021-2022 TPP Policy-driven Assessment,” pp. 30-55.

BAMx encourages the CAISO to transfer such valuable feedback to the California Public Utilities Commission (CPUC) and California Energy Commission (CEC) so that it is incorporated as part of the battery storage mapping exercise in the next Transmission Planning Process (TPP) cycle.

3. Comment on chapter 2 Reliability Assessment – Study Assumptions, Methodology and Results: *

Previously Approved PG&E Projects

BAMx applauds the CAISO’s efforts in confirming the need for the previously approved projects. For example, the Fresno Area Preliminary Reliability Assessment Results identified the continued need for the following four previously-approved projects.

1. Wilson 115kV Reinforcement Project;
2. Herndon-Bullard 115 kV Reconductor;
3. Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage); and
4. Wilson-Oro Loma Reconductoring.

Although this list excludes another project, namely Oro Loma 70kV Area Reinforcement Project, the Draft Plan includes it in the list of previously approved projects.³

BAMx urges the CAISO to review the continued need systematically and consistently for the previously-approved projects in all the planning areas including the three projects discussed below.

Oro Loma 70kV Reinforcement Project

The Oro Loma 70kV Reinforcement Project was approved in the 2011-2012 TPP. The original scope of the project included building a new 230/70kV substation near Mercy Springs Junction and converting a single-pole line into a double circuit tower line to create a new 70kV line from Mercy

³ Draft Plan, Table 8.1-1: Status of Previously Approved Projects Costing Less than \$50 M, p.374.

Springs to Canal.⁴ Based on the information presented by PG&E as part of the Stakeholder Transmission Asset Review Process (STAR) process, the scope of the project has been reduced to reconducting 2.4 miles of *Los Banos-Livingston Jct-Canal 70kV* line and reconducting of 10.8 miles of *Mercy Springs-Canal-Oro Loma* line.⁵

The latest identified reliability need for the project is a thermal overload on Mercy Springs-Canal 70kV for the loss of Los Banos-Livingston Jct-Canal 70kV and a thermal overload on Los Banos-Livingston-Canal 70kV circuit for the loss of Mercy Springs-Canal 70kV.⁶ However, this overload is not identified in any of the CAISO's preliminary reliability results for the 2021-2022 TPP including the sensitivity cases. Moreover, when BAMx removed the proposed project from the 2031 Summer Peak Base Case for the Central Valley area and applied the identified contingencies, the post contingency loadings on Los Banos-Livingston-Canal 70kV and Mercy Springs-Canal 70kV circuits were 87% and 103%, respectively. Since these circuits are not overloaded in the 1-year-out (2023) and 5-year-out (2026) cases and show only a marginal overload in the 10-year-out case, BAMx suggests the CAISO reevaluate the need for the project and whether preferred resources, such as battery storage, could be used as an alternative mitigation measure.

Midway-Temblor 115kV Line and Voltage Support

The Midway-Temblor 115kV Line and Voltage Support reinforcement project was approved in the 2012-2013 Transmission Planning Process (TPP). The scope of the project is to reductor approximately 15 miles of Midway-Temblor 115kV line and install 45MVAR of shunt capacitors at Temblor substation.

The latest identified need for the project is to mitigate a thermal overload on Midway-Temblor 115kV due to *N-1-1* outage of Gates-Midway 500kV line and Gates 500/230kV bank. The voltage support portion of the project also mitigates low voltages at Temblor due to an *N-1* outage of Midway-Temblor 115kV.⁷ However, the overloads identified by PG&E were not observed in the latest Preliminary Reliability Results for years 2023 and 2026 posted by the CAISO for the 2021-2022 Transmission Planning Process. BAMx believes that the new second 500/230kV transformer at the Gates substation⁸ that is currently operational potentially mitigates the identified *N-1-1* or P6 overload on the Midway-Temblor line. BAMx requests the CAISO to re-evaluate the continued need for the project. If the project is found to be needed, the CAISO should identify the contingencies and the related overloaded transmission facilities driving the continued need for the project.

Morgan Hill Area Reinforcement Project

The Morgan Hill Reinforcement project was originally approved in the 2013-2014 TPP cycle. Through project re-evaluation, the scope of the project has changed, and the latest approved project scope is to "Rebuild Metcalf-Green Valley 115kV into the Green Valley-Morgan Hill 115kV and convert Morgan Hill 115kV bus to a BAAH configuration".⁹

The latest identified needs for the project are driven by the thermal overloads on Metcalf-Llagas 115kV circuit which are mitigated by the line re-arrangement associated with the Morgan Hill Area Reinforcement project. The justification for rebuilding the Morgan Hill 115kV substation into a breaker-and-a-half configuration is unclear. If PG&E needs an additional breaker position for the newly built Green Valley-Morgan Hill 115kV circuit, the existing substation configuration should be

⁴ *Oro Loma 70kV Area Reinforcement* Project, Request Window Submission, Page 1.

⁵ PG&E Stakeholder Transmission Asset Review Process Stakeholder Meeting, August 3, 2021, – Page 54 of 58.

⁶ *Ibid.*

⁷ PG&E Stakeholder Transmission Asset Review Process Stakeholder Meeting, August 3, 2021, – Page 58 of 58.

⁸ CAISO 2020-2021 Transmission Plan, February 1, 2021, Table 8.1-2: Status of Previously-Approved Projects Costing \$50 M or More, shows that the Gates #2 500/230 kV Transformer Addition project has been completed.

⁹ PG&E Stakeholder Transmission Asset Review Process Stakeholder Meeting, August 3, 2021, – Page 53 of 58.

modified. BAMx requests the CAISO to reevaluate the need for rebuilding the Morgan Hill substation into a breaker-and-a-half configuration. If such a need is not identified, the scope of the project should be adjusted to exclude the rebuild of the Morgan Hill substation. BAMx requests the CAISO to reevaluate the need for rebuilding the Morgan Hill substation, a distribution substation, into a breaker-and-a-half configuration which is contrary to the enhanced-loop or the ring bus configuration as specified in PG&E's design standards.

CAISO-Recommended Reliability-driven Projects in the Draft Plan

San Jose Area HVDC Lines

BAMx appreciates CAISO's attention and seeking solutions to address significant long term issues in the SVP/San Jose area.¹⁰

Table Mountain 500/230 kV Transformer Bank #2 Project

The need for a second 500/230kV transformer at Table Mountain was identified in real-time operations due to high voltage issues at Table Mountain and Palermo 230kV areas when the existing Table Mountain 500/230kV transformer is taken out of service for maintenance conditions, which is usually conducted around the October/November timeframe.¹¹ With Rio Oso Static VAR Compensator (SVC) going into service, the high voltage issue shifts from P0 under maintenance to P1 under maintenance conditions¹². BAMx requests the CAISO to investigate whether the maintenance outages could be scheduled during other months outside of October and November and provide additional information on the duration and frequency of the maintenance outages of Table Mountain 500/230kV transformer before the project is approved.

Additionally, the CAISO has indicated there are remaining high voltage issues in the area that will likely require mitigation¹³. If additional mitigations are approved and constructed in future TPP cycles, some of these mitigation measures could potentially allow for additional opportunities to obtain maintenance outages on the existing Table Mountain 500/230kV transformer bank. BAMx urges the CAISO to review the need for the new Table Mountain Bank in consideration of other voltage mitigation projects that could materialize around the Table Mountain and Palermo 230kV areas.

Cortina 230/115/60 kV Bank #1 Replacement

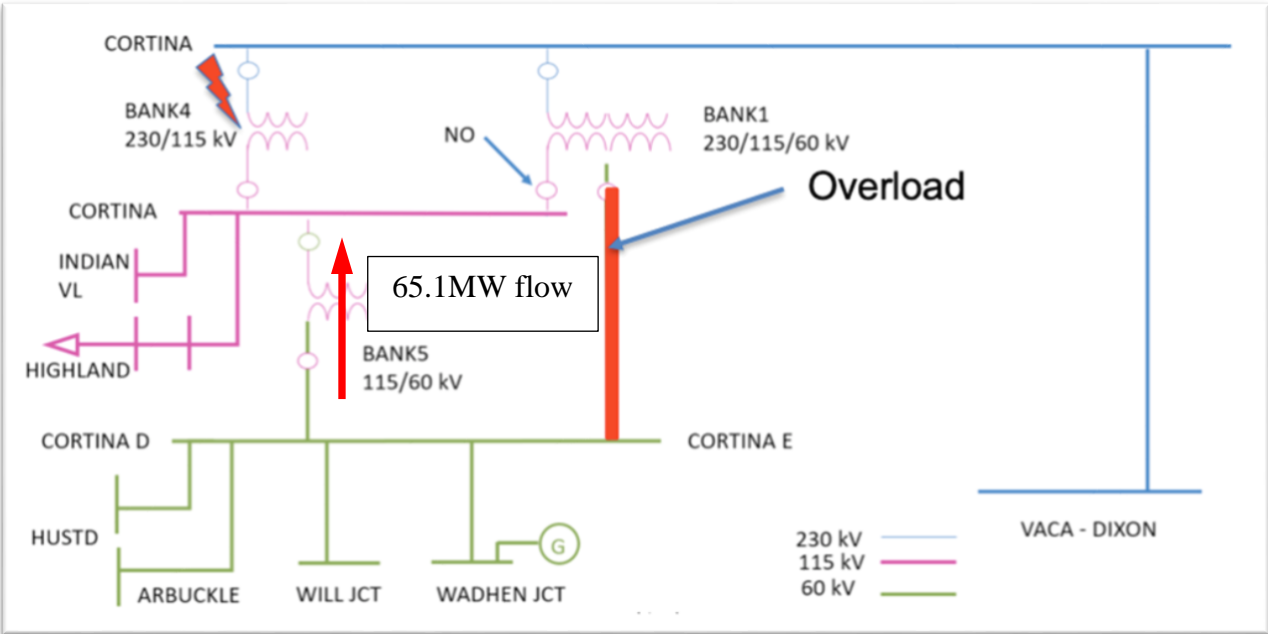
Cortina 230/115/60kV Bank #1 was identified to be overloaded for a P1 loss of Cortina 230/115kV Bank #4 and a P3 contingency for the loss of the same Cortina 230/115kV Bank #4 and Wadham Generator #1. The total load served radially by the Cortina 60kV substation is approximately 73.6MW. The emergency rating of Cortina 230/115/60kV transformer bank is 84MVA, and the bank can reliably support all the load even with the Wadham units off-line. The overloads identified by PG&E are due to impedance imbalance causing a flow of approximately 65.1MW from Cortina 60kV to Cortina 115kV substation through the 115kV/60kV transformer as identified on diagram below.

¹⁰ Reliability Assessment Recommendations –PG&E Area, Draft 2021-2022 Transmission Plan, 2021-2022 Transmission Planning Process Stakeholder Meeting, February 7, 2022, slides #3 & #4.

¹¹ Reliability Assessment Recommendations –PG&E Area, Draft 2021-2022 Transmission Plan, 2021-2022 Transmission Planning Process Stakeholder Meeting, February 7, 2022, slide #7.

¹² Appendix B, Draft 2021-2022 Transmission Plan Page B-86

¹³ Appendix B, Draft 2021-2022 Transmission Plan Page B-84



The identified overloads on Cortina 230/115/60kV #1 bank can be avoided by keeping either Cortina 230/115/60kV #1 bank or Cortina 115/60kV bank normally open. This configuration will avoid replacing Cortina 230/115/60kV #1 bank, and Cortina 60kV substation will still be reliably served since the transformer kept normally open could be utilized to restore Cortina load in case of failure of the primary transformer. Therefore, BAMx recommends against approving the *Cortina 230/115/60 kV Bank #1 Replacement Project* at this time.

4. Comment on chapter 3 Policy-Driven Need Assessment: *

During the February 7th stakeholder meeting, the CAISO presented seven (7) Policy-Driven Projects, for a total cost estimate of \$1.5 billion, and the Draft Plan recommends them for Board approval. In the interest of transparency and meaningful stakeholder feedback, BAMx strongly urges the CAISO to provide the following additional details for each of these policy projects.

- Load flow results supporting the need for the project(s);
- Change file modeling of the proposed project(s); and
- Contingency files corresponding to each project.

Without this information, the stakeholders will not be able to gauge the effectiveness of the proposed upgrades in mitigating the deliverability constraints or suggest any cost-effective alternatives to the proposed project(s). Moreover, most of these projects were not introduced or discussed in detail during the previous 2021-2022 TPP stakeholder meetings. It would be challenging to analyze such extensive network upgrades and provide meaningful comments during the current two week period. Approving these projects now would not allow enough time for stakeholders to conduct their independent analysis and provide feedback.

PG&E Area CAISO-Recommended Policy-Driven Projects in the Draft Plan

Collinsville 500/230 kV Substation Project

The CAISO's recommendation of the *Collinsville 500/230 kV Substation Project* is driven by multiple potential overloads on the 230 kV corridor between Contra Costa and Newark under normal, N-1, and N-2 contingency conditions in baseline and sensitivity scenarios in the on-peak deliverability assessment.¹⁴ The specific deliverability constraints that can potentially be addressed by the proposed Collinsville 500/230 kV Substation Project are¹⁵

1. Cayetano-North Dublin 230 kV line on-peak deliverability constraint;
2. Lone Tree-USWP-JRW-Cayetano 230 kV line on-peak deliverability constraint; and
3. Las Positas-Newark 230 kV line on-peak deliverability constraint.

However, reconductoring each of the above-mentioned 230kV lines could address the above-mentioned constraints and is expected to be an effective and adequate mitigation solution. The combined cost of the three reconductoring projects are in the range of \$145.2M – \$188.7M, which is less than one-third the cost of \$475M – \$675M associated with the New Collinsville 500 kV substation. BAMx recognizes that the Collinsville 500 kV substation could be a superior alternative to the 230kV reconductoring projects, which offers additional supply from the 500 kV system into the northern Greater Bay Area to increase reliability to the area and advance additional renewable generation in the northern area. However, BAMx is not convinced that it is the least cost way of achieving the State policy goals as envisioned per the CPUC-provided renewable resource portfolios studied in the current planning cycle. A synergy of the *Collinsville 500/230 kV Substation* with the transmission needed to accommodate offshore transmission development as studied in a single scenario under the *20-Year Transmission Outlook*¹⁶ should not, by itself, be used as a justification to approve the Collinsville project at this time. Therefore, BAMx urges that CAISO to delay the approval of the Collinsville 500/230 kV Substation Project as a policy-driven project until a rigorous reliability and economic analysis¹⁷ of the competing alternatives is performed.

Manning 500/230 kV Substation Project

The CAISO's recommendation of the *Manning 500/230 kV Substation Project* is driven by potential overloads on the Borden-Storey 230 kV lines under normal and N-1 contingency conditions in baseline and sensitivity scenarios in the on-peak deliverability assessment.¹⁸

However, reconductoring of the Borden-Storey #2 230kV line is expected to be an effective and adequate mitigation solution. The cost of the reconductoring is in the range of \$24.24M – \$31.5M, which is less than 7 percent of the cost of \$325M – \$485M associated with the New Manning 500/230 kV substation. BAMx recognizes that the New Manning 500/230 kV substation could be a superior alternative to the 230kV reconductoring project, which provides benefit in allowing for the advancement of renewable generation within the Westlands/San Joaquin area. However, additional

¹⁴ Policy Assessment Recommendations –PG&E Area, Draft 2021-2022 Transmission Plan, 2021-2022 Transmission Planning Process Stakeholder Meeting, February 7, 2022, slide #5.

¹⁵ Draft Plan, pp.192-195.

¹⁶ Draft 20-Year Transmission Outlook, 2021-2022 Transmission Planning Process Stakeholder Meeting February 7, 2022, slide #1.

¹⁷ BAMx appreciates the economic analysis performed by the CAISO, which shows that the production benefits for CAISO ratepayers of the Collinsville Upgrade is \$10 million per year in the Base portfolio (Draft Plan, p. 302), and encourages CAISO to perform such economic analyses for the base and sensitivity portfolios in the next planning cycle.

¹⁸ Policy Assessment Recommendations –PG&E Area, Draft 2021-2022 Transmission Plan, 2021-2022 Transmission Planning Process Stakeholder Meeting, February 7, 2022, slide #6.

analysis should be performed to demonstrate that it is the least cost way of achieving the State policy goals as envisioned per the CPUC-provided renewable resource portfolios studied in the current planning cycle. A synergy of the *Manning 500/230 kV Substation* with the transmission needed to accommodate transmission development as studied in a single scenario under the *20-Year Transmission Outlook*¹⁹ cannot in itself be used as a justification to approve the proposed project at this time. Therefore, BAMx urges that CAISO to delay the approval of the Manning 500/230 kV Substation Project as a policy-driven project until a rigorous reliability and economic analysis²⁰ of the competing alternatives is performed.

Southern California CAISO-Recommended Reliability-driven Projects in the Draft Plan

GLW/VEA Area Upgrades Project

During the 2021-2022 TPP request window submission process, the GridLiance West (GLW) LLC submitted the GLW Upgrade project. The project scope includes rebuilding Desert View – Northwest 230kV, Pahrump – Gamebird 230kV, Gamebird – Trout Canyon 230kV and Trout Canyon – Sloan Canyon 230kV to double circuit lines; adding a second Innovation –Desert View 230 kV line; adding a 500/230 kV transformer at Sloan Canyon and looping in the Harry Allen – Eldorado 500kV line; an upgrade to WAPA’s Amargosa 230/138 kV transformer and a tentatively planned NV Energy (NVE) upgrade on the Mercury SW – Northwest 138 kV tie line. The estimated cost of this project is \$213M with an in-service date of 2025. The CAISO has recommended an expanded version of the GLW project to include rebuilding the Innovation –Pahrump 230 kV line and installing a 138kV phase shifter at Innovation on the planned tie-line to NVE, which increases the project costs to \$278M.

The overloads driving the GLW Project are identified only in the 2031 Off-Peak scenario, as shown in the GLW/VEA area off-peak deliverability constraint summary table included below.²¹ The need for the GLW project is only identified in the Base portfolio. In contrast, the combination of existing Innovation RAS and Sloan Canyon RAS, and 100MW of battery storage are adequate under the two sensitivity portfolios.

¹⁹ Draft 20-Year Transmission Outlook, 2021-2022 Transmission Planning Process Stakeholder Meeting February 7, 2022, slide #12.

²⁰ BAMx appreciates the economic analysis performed by the CAISO, which shows that the production benefits for CAISO ratepayers of the Manning substation is \$15 million per year in the Base portfolio (Draft Plan, p. 301), and encourages CAISO to perform such economic analyses for the base and sensitivity portfolios in the next planning cycle.

²¹ Draft Plan, p.274

Affected transmission zones		Southern Nevada (ISO)			
		Base		S1	S2
		A	B		
Renewable portfolio MW behind the constraint		2,024	2,024	624	624
Energy storage (ES) portfolio MW behind the constraint		248	248	136	136
Renewable curtailment without mitigation (MW)		1,482	1,482	130	130
Mitigation Options:	Portfolio ES (in charging mode) (MW)	Not sufficient		36	
	RAS	N/A		Innovation RAS Sloan Canyon RAS	
	Additional battery storage (MW)	Not feasible		100	
	Transmission upgrades	GLW Upgrade		N/A	
Recommended Mitigation		GLW Upgrade (\$278 M)		RAS	

Per the CAISO’s FERC-approved tariff, a Category 1 policy-driven transmission solution has to be identified to be needed “in the baseline scenario and at least a significant percentage of the stress scenarios.”²² Since the GLW project is not identified to be needed under any of the two sensitivity portfolios, it clearly does not satisfy the criteria for Category 1 transmission, and therefore should not be approved as such. The CAISO could approve the project as Category 1 on the basis of the need under the baseline portfolio only if “the CAISO finds that sufficient analytic justification exists to designate them as Category 1 transmission solutions.”²³ However, CAISO has not provided such additional justification.

The GLW project meets the criterion for Category 2 as it is identified to be needed under the baseline portfolio. Therefore, BAMx requests approving the GLW project only as a Category 2 project to be studied further in the future planning cycles, and not be recommended as Category 1 policy-driven to the CAISO Board at this time.

5. Comment on chapter 4 Economic Planning Study: *

Out-of-State Wind Study

All portfolios provided by the CPUC called for at least 1,062 MW of Out-Of-State (OOS) wind to be brought into California. Thus, the CAISO compared the effectiveness of the different transmission and resource options against each other as opposed to a “no out-of-state” case.²⁴ The New Mexico OOS wind resources were selected as the reference case against which other alternatives were compared, as they provided the least amount of direct interaction with transmission facilities impacted by other different alternatives, and possible transmission upgrades in New Mexico and Arizona, such as the SunZia Transmission Project (SunZia), may be moving forward on a subscriber basis. BAMx finds this aspect of the CAISO’s OOS wind study reasonable.

²² CAISO Fifth Replacement FERC Electric Tariff, Effective as of January 1, 2022, 24.4.6.6 Policy-Driven Transmission Solutions.

²³ *Ibid.*

²⁴ Draft Plan, p.7.

The economics of the OOS transmission should be based upon the Seller's ability to access existing transmission or purchase transmission from developers of that transmission. To perform a systematic comparison of the transmission cost impact of the OOS transmission, the following transmission cost allocation principles should be applied. The fundamental principle for cost allocation is that it should be allocated in a way that is commensurate with benefits. In particular, the LSEs within the Local Regulatory Authorities (LRAs) approving resource procurement that are benefiting from the OOS resources should pay for that transmission delivering those resources to the CAISO border. BAMx believes that having the supplier build in its cost of delivering its product to the CAISO will also improve its ability to optimally deliver its product to the WECC-wide grid. This mechanism ensures that buyers of the remote generation will have the transmission costs outside of the CAISO captured in the power purchase agreement (PPA) pricing. This will also help accomplish the first principle of FERC Order 1000, that is, costs are allocated in a way that is roughly commensurate with benefits. Broadly, LSEs voluntarily procuring resources using transmission should pay for the cost of delivery. One such example is SunZia accessing the New Mexico wind, which is not seeking CAISO Transmission Access Charge (TAC) cost recovery to deliver its product to the CAISO boundary point.²⁵ In other words, the costs of new transmission outside CAISO are captured in the PPA pricing with LSE off-takers who are procuring New Mexico wind energy and will not be borne by all the CAISO-wide TAC payers.

BAMx supports the CAISO analysis that distinguishes between those OOS transmission projects seeking CAISO TAC-based recovery versus those that do not seek to recover their costs through the CAISO TAC. The Draft Plan states that the TransWest Express (TWE) project is being developed on a subscriber basis, without the need for CAISO transmission plan approval, to provide transmission service to resources seeking access to California markets.²⁶ However, this statement is only partially true. Out of the three segments of the TWE project, only half of two of the segments would use a subscriber model. In other words, out of nearly \$2.18 billion, nearly \$1.71 billion would ultimately be recovered from the CAISO ratepayers.²⁷ BAMx suggests that the CAISO should clarify in all references to TWE in the Draft Plan that TWE would only "partially" use a subscriber model.

The Draft Plan includes the benefit to cost ratio (BCR) of the three candidate transmission upgrades, viz. SWIP-North, Cross Tie, and TWE, with different out-of-state wind scenarios and different phase shifter setups.²⁸ In particular, the Draft Plan Table 4.10-4 shows that the BCRs for all three projects are well below 1.0. In other words, the candidate projects are not found to be economically viable. In addition to this base assessment, CAISO also calculated an alternative benefit to cost ratio for each project and alternative configuration assuming an added benefit of avoiding half of the cost of the SunZia project - as a proxy for the cost of delivering New Mexico wind generation to Pinal Central.²⁹ In the benefit to cost ratio calculations, the present value of the annualized revenue requirement for a 1,500 MW share of the SunZia project was considered as the avoided cost. Although the CAISO base method to calculate the BCRs of the candidate OOS projects is reasonable and intuitive, the alternative method does not seem to have a logical substantiation. The logic of providing avoided cost credit of half of the SunZia capital cost to the candidate OOS transmission projects without netting its benefits is fundamentally flawed. After all, SunZia is not seeking any CAISO ratepayer recovery for any portion of its 3,000MW capacity. Therefore, it is inaccurate to attribute any portion of its cost avoidance to the remaining candidate OOs transmission projects. The CAISO's alternative

²⁵ See Southwestern Power Group and Pattern Energy Group Joint Reply Comments on Administrative Law Judge's Ruling on Portfolios for the 2021-2022 Transmission Planning Process, November 20, 2020, p.1. Southwestern Power Group (SWPG) is developing SunZia Transmission Project, a 520-mile independent transmission project to deliver New Mexico wind to Pinal Central (Palo Verde area) to serve Arizona and California markets.

²⁶ Draft Plan, p.7.

²⁷ Draft Plan p. 306.

²⁸ Draft Plan p. 313-314.

²⁹ This represents a 1,500 MW share of the 3,000 MW, \$2.6 billion SunZia project, or \$1.3 billion capital cost.

BCR calculations incorrectly overestimate the economic value of the candidate OOS projects, as shown in the last column of Table 4.10-4 in the Draft Plan, which is misleading. Therefore, BAMx urges the CAISO to exclude any discussion and BCR findings associated with alternative configuration assuming an added benefit of avoiding half of the cost of the SunZia project in the final transmission plan.

Economic Assessment

GLW/VEA Area Upgrades Project

BAMx appreciates CAISO's detailed production cost modeling (PCM) simulation economic assessment results presented in this planning cycle, which demonstrated that the GLW Upgrade has a 1.81 benefit to cost ratio. However, this analysis was performed only for the baseline portfolios and not the sensitivity portfolios. An analysis based upon a single baseline scenario as modeled in the CAISO's PCM is inconsistent with CAISO's Transmission Economic Assessment Methodology (TEAM) principles to account for risk and uncertainty.³⁰ Therefore, the GLW Upgrade project should not be recommended for approval as an economic-driven project in this planning cycle.

6. Comment on chapter 5 Interregional Transmission Coordination: *

No comments at this time.

7. Comment on chapter 6 Other Studies and Results: *

No comments at this time.

8. Comment on chapter 7 Special Reliability Studies and Results: *

No comments at this time.

9. Comment on chapter 8 Transmission Project List: *

The Draft Plan does not include an estimate of future High Voltage Transmission Access Charge (HV TAC) rates at this time. We understand that the CAISO is currently in the process of updating the "starting point" for the HV TAC estimating tool to January 1, 2022.³¹ Given the need for urgency to show the TAC impact of the projects the CAISO has recommended for approval as part of the current planning cycle, BAMx developed an HV TAC forecast for the period of 2023-2031 as shown in the figure below. In this analysis, BAMx used the last version of the CAISO's TAC Estimating model developed for the 2020-2021 TPP, and updated the model to include the CAISO January 01, 2022, TAC Rates (updated as of February 8, 2022). The newly added capital expenditures associated with the transmission projects and their schedule was based on the transmission projects found to be needed in the 2021-2022 TPP as per the Draft Plan.³² That is, those included in

- Table 8.2-1: New Reliability Projects Found to be needed;
- Table 8.2-2: New Policy-driven Transmission Projects Found to be needed; and
- Table 8.2-3: New Economic-driven Transmission Projects Found to be needed

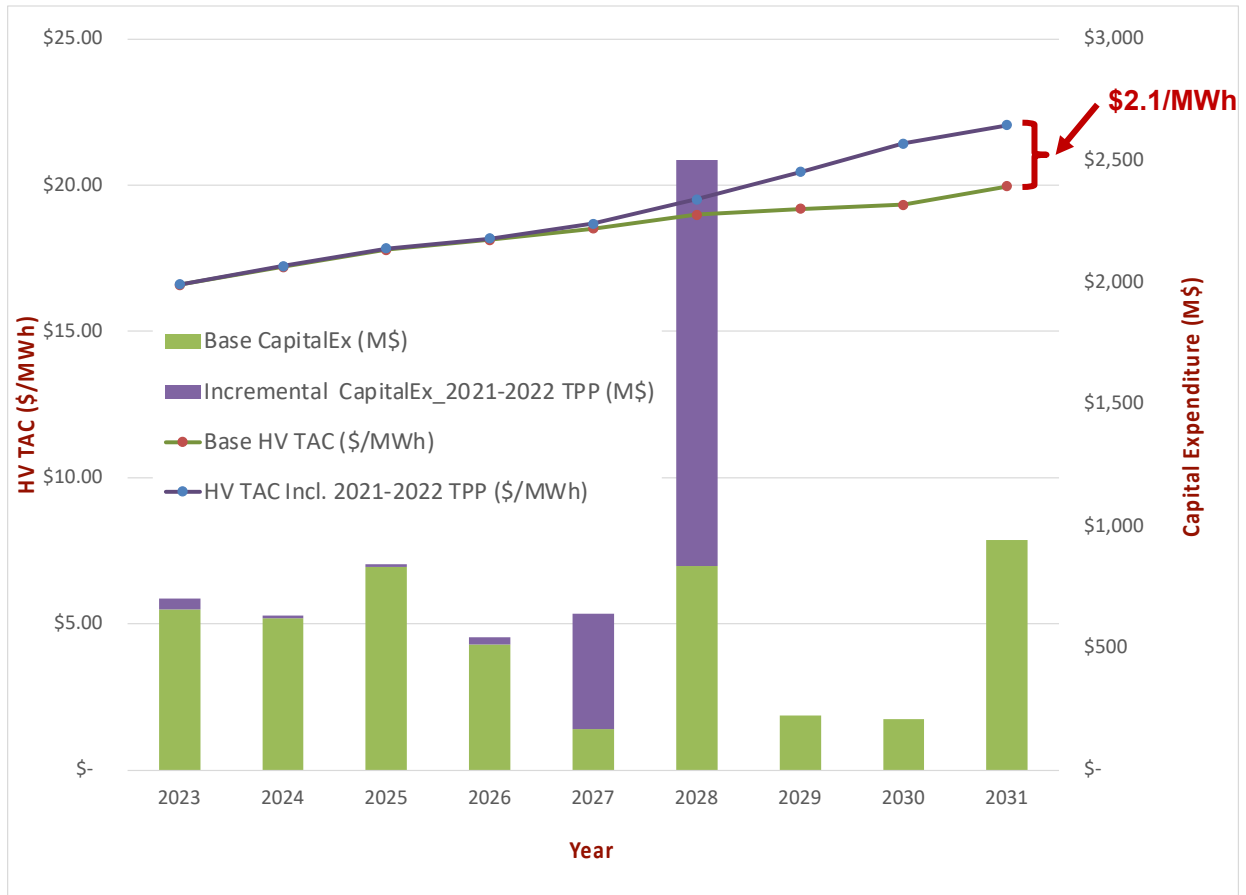
³⁰ The CAISO TEAM 2017, available at

https://www.caiso.com/Documents/TransmissionEconomicAssessmentMethodology-Nov2_2017.pdf

³¹ Draft Plan, p.382.

³² Draft Plan, pp.377-378.

Transmission Capital Expenditures and HV TAC Projections: 2023-2031



As shown in the figure above, the HV TAC is expected to be more than \$22/MWh in 2031 relative to the existing \$16.60/MWh, a 33% increase in less than a 10-year timeframe. Out of the \$22/MWh HV TAC in 2031, more than \$2/MWh is solely attributed to the nearly \$3 billion transmission projects³³ the CAISO has recommended for approval in the current TPP cycle. These HV TAC projections show the tremendous impact these approvals will have on the ever-increasing CAISO-wide HV TAC and further justify the need to avoid approving excessive transmission projects without further review and analysis.

³³ Compared to the average over the last five years of \$217 million.