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April 29, 2025

Chair Severin Borenstein
Vice Chair Joe Eto
Governor Angelina Galiteva
Governor Mary Leslie
Governor Jan Schori

California Independent System Operator
250 Outcropping Way
Folsom, CA 95630

RE: Warnerville-Newark Transmission Expansion Project's (WaNTEP) Approval in 2024-2025 TPP

Dear Chair Borenstein and Governors,

Over the last three transmission planning cycles, the CAISO has approved a significant amount of transmission upgrades, both in scope and cost, to meet the State's greenhouse gas reduction goals and rapid load growth. California is facing major challenges in building the transmission infrastructure that it needs, including rising costs, feasibility, and viability. Some challenges are driven by the need for new Right-of-Way (RoW) acquisition and environmental review resulting in permitting delays, increased construction costs, and reduced reliability while needed projects wait to come online. This is on top of the high costs and revenue requirements associated with projects developed by the original Participating Transmission Owners.

The City and County of San Francisco (the "City") has proposed a unique transmission project in this planning cycle to help address these challenges. The City's proposed project would meet the State's reliability and policy goals and complement the other projects CAISO Management has recommended for approval in the CAISO Draft 2024-2025 Transmission Plan ("Draft Plan," hereafter). **The City respectfully requests that the Board and CAISO Management approve the Warnerville-Newark Transmission Expansion Project ("WaNTEP") in the current transmission planning cycle.**

The City submitted WaNTEP in the CAISO 2024-2025 TPP Request Window, utilizing the City's existing 100-mile Moccasin-Warnerville-Newark 115kV

line Right-of-Way (RoW) to rebuild a new 1,000MW 70-mile High Voltage Direct Current (HVDC) line as the preferred option[1]. The CAISO considered WaNTEP as an alternative to *the New Manning – Metcalf 500 kV line*, aka *Greater Bay Area 500 kV Transmission Reinforcement* project, in the 2024-2025 TPP. The City supports the approval of the New Manning – Metcalf 500 kV line ("Manning–Metcalf"). **The City also believes that WaNTEP should be approved based on its own reliability, policy, and economic merits and the clear synergy with the Manning–Metcalf and other projects recommended for approval in the Draft Plan.**

The CAISO Draft Plan preferred Manning–Metcalf over WaNTEP in part because Manning–Metcalf addresses P6 (two element outages) overloads in the South Bay that the WaNTEP project was not designed to address. However, as the City described extensively in its comments on the Draft Plan included in the Attachment to this letter, the City has identified numerous other reliability benefits offered by WaNTEP that are <u>not</u> addressed by Manning–Metcalf. **The City's comments also demonstrate that both WaNTEP and Manning–Metcalf are needed in the long term to mitigate reliability concerns.** Furthermore, the City's analysis shows that WaNTEP would effectively reduce congestion on the *Las Aguilas – Moss Landing 230 kV* path, which is expected to be highly congested prior to the completion of Manning–Metcalf, per the CAISO's economic assessment.

As the attached comments indicate, we believe that there are clear benefits of WaNTEP from both reliability and economic perspectives. But the WaNTEP project also offers broader and equally important benefits based on policy, timing, and risk considerations, including:

1. **Close alignment with CAISO's long-term objectives**
    a. Public project – The City is an ideal partner, invested in and committed to providing long-term affordable power to the community.
    b. Cost containment - WaNTEP's public-private ownership and attractive public financing will support the long-term cost containment objectives of the City and CAISO.
    c. Buildability - WaNTEP, located on the existing City RoW, will have significantly fewer permitting, ROW acquisition, and siting challenges – critical considerations that add time, cost, and risk to any transmission project.

[1] The City also considered a 230kV Alternating Current (AC) line option for WaNTEP, but found the HVDC configuration to be more beneficial from a reliability standpoint. The City is open to considering alternatives, including the 230kV AC.

2. **Clear risk mitigation**
    a. WaNTEP can be built over the next 5 to 7 years and serves as a hedge against delays associated with implementing the greenfield 100-mile Manning–Metcalf project and the complex South Bay projects. In short, it is a least-regrets solution that complements these projects.
3. **Confluence of events presents unique opportunity for CAISO**
    a. The WaNTEP project presents a generational opportunity to better utilize transmission lines in excess of 100 years old and for **the City potentially to become a CAISO Participating Transmission Owner** – an opportunity that may not present itself in the future and one that **enables today both the State and the City to expedite the joint delivery of critical transmission infrastructure to support the growing Greater Bay Area load**.
    b. Time is of the essence, as the City is moving forward with making a decision on its existing transmission assets, and the **CAISO has the opportunity today** to shape and simultaneously integrate WaNTEP into the long-term objectives of California, CAISO, and the City. **We urge the CAISO to not let this opportunity pass.**

The Manning–Metcalf and WaNTEP projects work in tandem to solve more problems while reducing long-term risk. Therefore, the City urges you to approve both WaNTEP and Manning–Metcalf in the 2024-2025 Transmission Plan. If the CAISO staff needs additional time to evaluate WaNTEP further, it could be performed as a continuation of 2024-2025 TPP.

The City thanks the CAISO Board and Management for the opportunity to provide these comments and hopes to work closely with the CAISO to address the State's urgent reliability and policy needs.

Sincerely,

Barbara Hale
Assistant General Manager, Power

Attachments:

Attachment 1: City and County of San Francisco's Comments on the CAISO Draft 2024-2025 Transmission Plan

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, CAISO
Mr. Binaya Shrestha, Manager-North, Transmission Infrastructure Planning, CAISO

Submit comment on Draft 2024-2025 Transmission Plan

2024-2025 Transmission planning process

1. Please provide your organization's comments on Reliability-driven Projects Recommended for Approval.

The City and County of San Francisco (City) appreciates the opportunity to comment on the CAISO Draft 2024-2025 Transmission Plan ("Draft Plan,"). The comments and questions below address the material presented at the CAISO Stakeholder meeting on April 15, 2025, and the 2024-25 TPP draft report posted on March 31, 2025. The City acknowledges the significant efforts of the CAISO staff to develop this comprehensive report.

The City Urges CAISO Management to Recommend Approval of the Warnerville-Newark Transmission Expansion Project (WaNTEP) in Conjunction with the Greater Bay Area 500 kV Transmission Reinforcement Project

The City urges CAISO management to recommend approval of the Warnerville-Newark Transmission Expansion Project (WaNTEP) in the current planning cycle for the following reasons.

1. WaNTEP mitigates planning criteria violations that remain after implementation of (i) the recommended *New Manning – Metcalf 500 kV* line, (ii) the 500/230kV transformer at Metcalf, and (iii) multiple South Bay projects that address reliability issues associated with delivering imports into the Greater Bay Area.
2. WaNTEP, located on the existing City Right-of-Way (RoW), will face significantly reduced permitting, ROW acquisition, and siting challenges – factors that would add time, cost, and risk to the implementation of the other projects.
3. WaNTEP can be built over the next 5 to 7 years and addresses many of the planning criteria violations that the other projects eventually would mitigate. Therefore, WaNTEP would be a hedge against delays associated with implementing the greenfield 100-mile Manning-Metcalf 500kV project and the complex South Bay projects.
4. WaNTEP would access low-cost public debt financing to support the long-term cost containment objectives of the City and CAISO as partners.
5. Approving WaNTEP is consistent with the least-regrets planning approach, and CAISO has the opportunity to shape and integrate WaNTEP into the long-term objectives of the State.

Background

The City submitted a transmission project in the CAISO 2024-2025 TPP Request Window that will utilize the City's existing 100-mile Moccasin-Warnerville-Newark 115kV line Right-of-Way (RoW) to rebuild a new 1,000 MW 70-mile High Voltage Direct Current (HVDC) line as the preferred option[1]. In

[1] The City also considered a 230kV Alternating Current (AC) line option for WaNTEP, but found the HVDC configuration to be more beneficial from a reliability standpoint. The City is open to considering alternatives, including the 230kV AC.

its application, the City showed that WaNTEP had demonstrable reliability benefits in reinforcing the transmission import infrastructure in the Greater Bay Area (GBA) and could be accomplished in a timely fashion utilizing the existing City RoW. In particular, WaNTEP was shown to mitigate the overloads caused by the significant load increase in the GBA, consistent with the findings in the CAISO 2024-2025 TPP preliminary reliability assessment. WaNTEP was shown to have a considerable synergy with the Hybrid project under consideration in the San Jose Area in the CAISO 2024-2025 TPP. WaNTEP was also shown to provide significant policy (deliverability) and economic (congestion) benefits in enhancing the State's ability to meet its policy goals.

CAISO's Consideration of WaNTEP in 2024-2025 TPP

As indicated in the Draft Plan, the CAISO considered WaNTEP as an alternative to the ***New Manning – Metcalf 500 kV*** line, aka ***Greater Bay Area 500 kV Transmission Reinforcement project***.[2] One reason the Draft Plan preferred the Greater Bay Area 500 kV Transmission Reinforcement project over WaNTEP was because it addresses overloads on the Metcalf – Moss Landing 500 kV and Las Aguilas – Moss Landing – Metcalf 230 kV path under P6 contingencies, that the WaNTEP project was not designed to address. The City appreciates the New Manning – Metcalf 500 kV line's effectiveness in addressing this particular P6 overload and supports that project as a good solution to mitigate these specific problems. However, the City found numerous other reliability benefits offered by WaNTEP that are not addressed by the new Manning - Metcalf 500 kV line, and do not appear to have been considered by CAISO in its evaluation of WaNTEP.

WaNTEP is highly effective in addressing reliability criteria violations not addressed by the New Manning – Metcalf 500 kV line and complements it and two other projects in the South Bay area recommended for approval by CAISO by resolving planning criteria violations. WaNTEP is also a hedge against potential delays faced by the greenfield Manning – Metcalf 500 kV project. The City's latest reliability assessment models the following three (3) transmission projects recommended for approval in the South Bay area in the Draft Plan.

1. Metcalf Substation 500/230 kV Transformer Bank Addition;
2. San Jose B to NRS 230kV line; and
3. South Bay Reinforcement Project

As shown in Table 1 below, there are eighty-one (81) planning criteria violations that remain unaddressed with the new Manning - Metcalf 500 kV line and the South Bay Projects that WaNTEP would mitigate, including thirteen (13) 115kV and two (2) 230kV P1 violations in 2034. See Appendix A Table 8 for the detailed contingency results. In 2039, a subset of sixty-three (63) contingencies were analyzed that have a large impact in the Greater Bay Area; the planning criteria violations are summarized in Table 2 with the details included in Appendix B Table 11. Without the additional projects recommended for approval in the Draft Plan, such as upgrading the Los Esteros – Metcalf 230kV line as part of the South Bay Reinforcement project, the Los Esteros – Metcalf 230kV line would have overloaded under contingency conditions even with the new Manning - Metcalf 500 kV line, but would be resolved with WaNTEP. We have excluded these instances from the above-mentioned tables.

[2] Draft Plan, Appendix B, p. B-136-137, and Reliability Assessment Recommendations –PG&E Area Draft 2024-2025 Transmission Plan, 2024-2025 Transmission Planning Process Stakeholder Meeting, April 15, 2025 slide 34.

Table 1: 2034 Existing Overloads Mitigated by WaNTEP and not Mitigated by the New Manning - Metcalf 500 kV Line

		Outage Category					
		P1	**P2**	**P3**	**P5**	**P6**	**P7**
Branch or Transformer Voltage (kV)	**60**	0	1	0	0	2	0
	115	13	20	4	6	8	14
	230	2	2	1	0	4	3
	230/115	0	1	0	0	0	0

Table 2: Subset of 2039 Existing Overloads Mitigated Jointly by WaNTEP and not Mitigated by the New Manning - Metcalf 500 kV Line

		Outage Category					
		P0	**P1**	**P2**	**P3**	**P6**	**P7**
Branch or Transformer Voltage (kV)	**60**	0	0	2	0	0	4
	115	0	2	11	0	2	0
	230	3	7	15	3	8	9
	230/115	0	0	1	0	0	0

As illustrated in Table 3, the new Manning—Metcalf 500 kV line introduced fifteen (15) additional P2, P5, P6, and P7 criteria violations, which WaNTEP mitigates in 2034. See Appendix A Table 9 for the detailed contingency results. In 2039 the subset of sixty-three (63) contingencies analyzed have a large impact on the Greater Bay Area and there are such instances as summarized in Table 4, where the new Manning—Metcalf 500 kV line introduced P0, P1, P2, P6, and P7 criteria violations which WaNTEP can mitigate. The details of the detailed contingency results are included in Appendix B Table 12. There are additional transmission planning criteria violations, such as on the Swift to Metcalf 115kV line that are caused by the new Manning - Metcalf 500 kV line and resolved by WaNTEP. We have excluded them from these tables as the CAISO has proposed new projects or rescoped the previously approved projects, such as using advanced conductors for the Swift to Metcalf 115kV line.

Table 3: 2034 New Overloads Caused by the New Manning - Metcalf 500 kV Line that are Mitigated with WaNTEP

		Outage Category			
		P2	**P5**	**P6**	**P7**
Branch or Transformer Voltage (kV)	**115**	5	1	1	1
	230	1	0	0	0
	230/115	6	0	0	0

Table 4: 2039 New Overloads Caused by the New Manning - Metcalf 500 kV Line that are Mitigated with WaNTEP

		Outage Category					
		P0	P1	P2	P3	P6	P7
Branch or Transformer Voltage (kV)	230	1	3	3	0	1	0

Table 5 shows that WaNTEP or the new Manning-Metcalf 500 kV lines are effective in addressing sixty-three (63) planning criteria violations on several facilities in 2034. See Appendix A Table 10 below for the detailed contingency results. Table 6 shows comparable results for the year 2039 with a subset of contingencies. The detailed contingency results are included in Appendix B Table 13. WaNTEP outperforms the new Manning-Metcalf 500 kV project in some cases, while in others, the new Manning-Metcalf 500 kV project proves to be more effective. Both WaNTEP and the new Manning-Metcalf 500 kV line would be needed with the increasing load in the outer years, which is confirmed in the 2039 assessment. This is evident with the thirty-six (36) planning criteria violations from the subset of contingencies analyzed which are summarized in Table 7, with the details included in Appendix B Table 14.

Table 5: 2034 Overloads Mitigated by WaNTEP or the New Manning - Metcalf 500 kV Line

		Outage Category					
		P1	P2	P3	P5	P6	P7
Branch or Transformer Voltage (kV)	60	0	1	0	0	1	0
	115	16	9	8	4	3	1
	230	0	6	3	1	7	1
	230/115	0	2	0	0	0	0

Table 6: 2039 Overloads Mitigated by WaNTEP or the New Manning - Metcalf 500 kV Line

		Outage Category					
		P0	P1	P2	P3	P6	P7
Branch or Transformer Voltage (kV)	60	0	2	3	0	1	3
	115	1	7	5	0	3	0
	230	2	3	4	1	4	2
	500/230	0	0	0	0	0	0

Table 7: 2039 Overloads Mitigated Jointly by WaNTEP and the New Manning - Metcalf 500 kV Line

		Outage Category				
		P1	P2	P3	P6	P7
Branch or Transformer Voltage (kV)	115	4	1	1	8	1
	230	2	7	1	6	4
	230/115	0	1	0	0	0

WaNTEP Should Be Considered for Approval As a Reliability Project in the 2024-2025 TPP on Its Own Merit and Also as a Project Complementary to the Manning-Metcalf 500kV Project

WaNTEP, located on the existing City RoW, will face significantly reduced permitting, ROW acquisition, and siting challenges – factors that would add time, cost, and risk, ultimately affecting the deliverability of any alternative project. In addition, WaNTEP will access low-cost public debt financing to support the long-term cost containment objectives of the City and CAISO as partners. The City believes WaNTEP can be built over the next 5 to 7 years, and, therefore, would be a hedge against delays associated with implementing the greenfield 100-mile Manning-Metcalf 500kV project and the complex South Bay projects. In short, it is a least-regrets solution that complements these projects. As shown in Appendix A Table 8 and Appendix B Table 11, WaNTEP addresses several reliability criteria violations that would remain should the new Manning-Metcalf 500kV line be delayed. Furthermore, as we discuss in our response to Q.5, WaNTEP is also expected to reduce congestion on the Las Aguilas – Moss Landing 230 kV path. Given the significant standalone reliability and economic benefits associated with WaNTEP, we request that CAISO consider it for approval in the Final Transmission Plan. If the CAISO staff needs additional time to evaluate WaNTEP further, it could be performed as a continuation of the 2024-2025 TPP.

2. Please provide your organization's comments on Frequency Response.

No comments at this time.

3. Please provide your organization's comments on Maximum Import Capability Expansion Requests.

No comments at this time.

4. Please provide your organization's comments on Policy-driven Projects Recommended for Approval.

No comments at this time.

5. Please provide your organization's comments on the Economic Assessment.

The City acknowledges that the new Manning-Metcalf 500kV line is effective in reducing and probably eliminating the congestion on the PG&E Moss Landing - Las Aguilas 230 kV line based on CAISO's detailed economic assessment using a production cost model (PCM) simulation.[3] The City understands that the CAISO staff did not conduct a similar detailed economic assessment using a PCM simulation for WaNTEP. The City believes that WaNTEP would be an effective mitigation measure in reducing congestion on the Moss Landing - Las Aguilas 230 kV line until the new Manning-Metcalf 500kV line is built. The CAISO's PCM analysis shows that the Moss Landing - Las Aguilas 230 kV line will be highly congested in the future, with the congestion cost as high as $290 million in 2039.[4] The CAISO PCM analysis calculates the annual net CAISO savings of $120 million in 2039 associated with the new Manning-Metcalf 500kV line. Building WaNTEP 4-5 years sooner than the new Manning-Metcalf 500kV line, could lead to significant CAISO ratepayer savings due to reduced congestion on the Moss Landing – Las Aguilas 230 kV line. Therefore, the City believes the CAISO needs to consider WaNTEP's economic benefits in addition to its significant reliability benefits leading to its approval in the current planning cycle.

[3] Draft Plan, Appendix F, p. G-21. See Table G.6-2: Congestion changes by modeling the Manning - Metcalf upgrade.
[4] *Ibid*.

6. Please provide your organization's additional comments on the Draft 2024-2025 Transmission Plan April 15, 2025 stakeholder call discussion.

See the attached Appendix, which includes Appendix A and Appendix B.