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BAMx Comments on 23-SB-100 Draft Results & Implementation Challenges Workshop

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Additional submitted attachment is included below.

Subject: BAMx Comments on 23-SB-100 Draft Results & Implementation Challenges Workshop
Submitted By: Bay Area Municipal Transmission Group (BAMx)
Date: March 4, 2026

The Bay Area Municipal Transmission Group (BAMx)[1] thanks the California Energy Commission (CEC), California Public Utilities Commission (CPUC) and California Air Resources Board (CARB) (Joint Agencies, hereafter) for the effort on the February 19, 2026, Hybrid Workshop on 2025 SB 100 Joint Agency Report Draft Results ("Results Presentation"). BAMx respectfully submits the following comments and requests clarifications on the SB 100 Inputs & Assumptions and Draft Results. BAMx will update these comments by March 20, 2026, if the CEC makes the requested additional data and documentation available within the next week.

Clearly Identify Forced-In versus Economically Selected Resources

BAMx requests clarification regarding which resources in the SB 100 modeling were administratively included versus selected endogenously by the model. The SB 100 Modeling Inputs and Assumptions presentation[2] ("Inputs Presentation") states that resources in the 2023 Preferred System Plan (PSP) and Supply Form filings through 2030 were included in all scenarios as part of the baseline build. The presentation further appears to indicate that offshore wind resources and fossil combustion were administratively included or excluded from certain scenarios to reflect scenario policy targets rather than selected based on modeled economics. BAMx requests that the Joint Agencies: (1) confirm which resources were administratively applied in each scenario; (2) positively identify which resources were forced into or out of scenarios, for policy or other reasons; and (3) clearly distinguish forced-in resources from economically selected resources in the Draft Results documentation, such as through a summary table or appendix.

In summary, stakeholders need additional details on the underlying assumptions that led to the Draft Results. Furthermore, BAMx seeks clarity on how the Joint Agencies expect stakeholders to use these scenarios—are some of the sensitivities purely illustrative, or are they intended to inform future SB 100, IEPR, or IRP planning decisions?

[1] BAMx consists of the City of Santa Clara *dba* Silicon Valley Power and City of Palo Alto Utilities.
[2] Presentation for SB100 Inputs and Assumptions Workshop, California Energy Commission Staff, 02/16/2024, p.11, Online: https://efiling.energy.ca.gov/GetDocument.aspx?tn=254504&DocumentContentId=89916

Investigate the Role of Existing Gas-Fired Generation

BAMx notes that the gas usage drops across all SB 100 scenarios as more clean resource capacity is added to the system, but gas power plants are retained for reliability.[3] While BAMx understands concerns about local environmental impacts and air quality from continued natural gas generation, we also note that the Inputs Presentation states that no new gas resources were permitted to be built. Carbon capture and sequestration (CCS) technology is offered as an upgrade or retrofit to existing resources, so CCS additions in the SB 100 models should result in a net decrease of emissions, while still retaining the reliability benefits of firm dispatchable generation. We also note that the substantial additional resource builds and associated costs in the Combustion Resource Retirement scenario indicate that a policy-driven shift to entirely zero-emissions resources by 2045 would have a substantial impact on electric rates and affordability. Conversely, the 15 GW Carbon Capture scenario results in the smallest resource builds and lowest overall system costs. CCS, however, is a nascent technology with uncertain future technology costs. BAMx requests the Joint Agencies to investigate what the buildout of the 15 GW Carbon Capture scenario would be if CCS technologies are more expensive than forecast, or if CCS resources cannot achieve the stated 95% emissions reductions. In summary, BAMx requests that the Joint Agencies evaluate the robustness of this scenario under alternative assumptions, including higher CCS costs and lower-than-assumed emissions capture rates.

Need Insight into Modeling of Geothermal Resources and Projected Transmission Capacity to Access Them

In the afternoon panel discussion on Implementation Challenges & Opportunities, the Fervo Energy representative indicated that transmission capacity does not currently exist to import the full 500 MW of capacity expected by 2028 at the Cape Station enhanced geothermal generating station in Utah. Have the Joint Agencies considered the impact on model results if additional import capacity is added to bring clean firm resources, such as enhanced geothermal, into the California generation mix? The Inputs Presentation states that geothermal resource costs are developed from the 2024 National Renewable Energy Laboratory Annual Technology Baseline[4] (NREL ATB). However, the ATB includes a variety of cost estimates for differing geothermal technologies, with significant implications for both technical potential and resource cost.[5] Resource potential for “traditional” geothermal

[3] Results Presentation, p. 48.

[4] NREL (National Renewable Energy Laboratory). 2024. "2024 Annual Technology Baseline." Golden, CO: https://atb.nrel.gov/.

[5] NREL (National Renewable Energy Laboratory). 2024. "2024 Annual Technology Baseline – Geothermal." Golden, CO: https://atb.nrel.gov/electricity/2024/geothermal

resources is limited, according to ATB; potential for enhanced geothermal is significantly higher and is concentrated in the Western US with substantial potential in California and neighboring states.[6] Annual Technology Baseline forecasts show advanced geothermal reaching levelized costs of energy (LCOE) competitive with offshore wind during the SB 100 study horizon. BAMx requests clarification regarding which geothermal technology was assumed in the SB 100 modeling and how results might change if enhanced geothermal resources were modeled explicitly, particularly given their potential contribution to winter reliability.

Additional Sensitivities Around Long Duration Battery Storage Discharge Period Are Required

BAMx understands that the SB 100 model inputs included short-duration battery storage with four hours of discharge capability, and long-duration storage with 25 hours of discharge.[7] Did the Joint Agencies model storage resources with intermediate durations, such as between five and 24 hours of discharge? The Inputs Presentation shows that the intermediate duration storage resources were substantially more expensive than the short- and long-duration options, but we are curious how those resources may have interacted with the fuel-switching-driven winter peaking described in the study results. Though it isn't stated in the Inputs Presentation, we expect the mid-duration storage option to have better round-trip efficiency than the long-duration option. Given the Joint Agencies' explanation that the long-duration batteries were utilized for only 6-8 hours per day during the winter months at 50% round-trip efficiency, we are curious if the battery selections or dispatch would have differed if a mid-duration storage resource were available to the model. We are also curious if modeling parameters such as lookahead period or hourly/daily sampling could have influenced the selection and/or performance of storage resources.

BAMx requests clarification on whether intermediate-duration storage resources were modeled, and whether storage selection outcomes would differ if mid-duration resources with higher round-trip efficiency were available to the model, particularly under winter-peaking conditions. We also request additional information regarding the model specifications used in these scenarios: what lookahead and sampling periods were employed in the long-term capacity expansion and production cost models? Were storage

[6] Roberts, Billy J., NREL (National Renewable Energy Laboratory). 2018. "Geothermal Resources of the United States: Identified Hydrothermal Sites and Favorability of Deep Enhanced Geothermal Systems (EGS)" Golden, CO: https://atb.nrel.gov/img/electricity/2021/p23/v1/geothermal-identified-hydrothermal-and-egs.png

[7] Results Presentation, p. 22.

resources configured to dispatch according to demand or according to arbitrage opportunities?

Import Assumptions Need Additional Scrutiny

As electrification and fuel switching increase winter peak demand, BAMx encourages the Joint Agencies to clearly describe how regional winter conditions were reflected in assumptions regarding import availability. Many neighboring regions, including the Pacific Northwest and Mountain West, are also winter-peaking and may experience constrained export capability during cold weather events or periods of reduced hydro availability.

For example, during the January 2024 Martin Luther King weekend cold event in the Pacific Northwest, available transfer capacity into the Bonneville Power Administration balancing area was heavily utilized to meet regional needs. In addition, even under non-extreme conditions, hydro-dependent systems in the Northwest often experience reduced generation during December and January, increasing reliance on imports.

Given these dynamics, BAMx requests clarification on whether the SB 100 modeling evaluated coincident winter peak conditions across regions and, if so, how these conditions may affect assumed import availability, congestion, and prices. Additional transparency on how these uncertainties were treated would help stakeholders appropriately interpret the Draft Results.

SB 100 Modeling Should Reflect Emerging Demand-Reducing Technologies

The Inputs Presentation demand forecast shows significant load growth from building fuel switching and electrification. A panelist in the afternoon discussion on Implementation Challenges & Opportunities raised the potential for waste heat capture and re-use systems to mitigate the impact of electrification by supplying heating loads and cooling loads via heat-recovery chillers and district energy systems. Examples of such projects in California include a series of UCSF efforts to capture and reuse waste heat from data centers and medical devices on its Mission Bay campus[8], the City of San Jose Net Zero Community partnership with PG&E to develop a district heating system for downtown San Jose that utilizes waste heat from three planned data centers[9], and the Stanford Central Energy Facility waste heat recovery system[10]. Have the Joint Agencies assumed or modeled any

[8] See https://realestate.ucsf.edu/content/arthur-and-toni-rembe-rock-hall-captures-waste-heat-power-campus-sustainability-goals

[9] See https://investor.pgecorp.com/news-events/press-releases/press-release-details/2025/PGE-Begins-Energy-Infrastructure-Upgrades-to-Bring-San-Joses-Net-Zero-Community-to-Life/default.aspx

[10] See https://sesi.stanford.edu/energy-systems/central-energy-facility

such efforts to capture and repurpose waste heat into process heat or district energy systems?

Given the magnitude of load growth associated with building electrification, BAMx requests clarification on whether the Joint Agencies evaluated sensitivities reflecting waste heat recovery, district energy systems, or similar technologies that could materially reduce winter peak demand.

We thank the Joint Agencies and staff for accepting these comments and for their continued effort on the SB 100 Joint Agency Report.