THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Board Information

- **Board of Directors**
  Engineering, Operations, and Technology Committee

5/13/2025 Board Meeting

9-5

Subject

Colorado River Aqueduct High Voltage Transmission System – Affected Systems Mitigation Agreements

Executive Summary

During the second half of 2024, Metropolitan received an unexpected influx of requests for affected system studies from seven energy service providers (ESPs) and a request from a generation developer to connect a project directly to the Colorado River Aqueduct transmission system (CRATS). As required by law and to protect the CRATS, staff initiated a study of a cluster of seven-generation projects on December 30, 2024, with a projected completion date in the fourth quarter of 2025. It is the responsibility of the ESPs to pay for any necessary mitigation upgrades. The generation projects may not connect to the electric transmission system and commence commercial operation until any potential impacts on the CRATS are mitigated. Initial study results indicate that the projects will impact the CRATS and require mitigating upgrades. Because these upgrades to the CRATS cannot be completed before some of the third-party projects go online, staff is examining the potential for Metropolitan to enter into interim affected systems mitigation agreements or "bridge" agreements. These bridge agreements will allow third-party projects to proceed with construction and operation while upgrades are made to the CRATS. Once Metropolitan staff completes the transmission cluster study, projects will enter into longer-term affected system mitigation agreements to pay for the upgrades to the CRATS.

Fiscal Impact

No immediate fiscal impact because the work is reimbursable.

Applicable Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

Related Board Action(s)/Future Action(s)

Staff will return to the Board to request authority to enter into the affected systems mitigation agreements, and staff will present the results of the cluster study at a later board meeting, likely in the fourth quarter of 2025 or the first quarter of 2026.

Details and Background

Background

Metropolitan owns a 230,000-volt (230 kV) transmission system that provides power to its Colorado River Aqueduct (CRA) pumps. The CRATS was built pursuant to the 1928 Boulder Canyon Project Act for the sole and exclusive purpose of supplying power from the Hoover and Parker-Davis projects to the five pumping plants along the CRA. The CRATS extends south and west from the Mead substation at Hoover Dam to serve

Metropolitan's five Colorado River pumping stations, and interconnects with adjacent utilities Southern California Edison (SCE) and the Western Area Power Administration (WAPA). The CRATS comprises approximately 300 miles of transmission lines that pass through what is generally considered to be desirable solar generation territory. Recent years have seen substantial interest in the development of solar and bulk energy storage projects in the areas adjacent to the CRATS, to meet the demand for renewable energy to meet California's ambitious Renewable Portfolio Standard (RPS) goals. Due to the interconnected nature of the transmission grid, development of these projects can have impacts on Metropolitan's power and water system operations. An example of such an impact would be similar to an event that occurred on November 21, 2022, when a disturbance on an adjacent transmission system resulted in involuntary load shedding and water spillage at Metropolitan's Eagle Mountain pumping station.

During the second half of 2024, Metropolitan received an unexpected influx of Affected System Study requests from generators interconnecting to the California ISO (CAISO) and WAPA systems. Although the CRATS is not part of the CAISO or WAPA, it is connected to both systems and, pursuant to federal law and regulation, new-generation projects must ensure that they do not impact existing systems and if they do, they are responsible for the costs of mitigation. To address potential impacts, an Affected System Study is requested by a third-party generator developer that wishes to connect their project to the grid to determine the impact of that generator on adjacent systems. These studies are highly technical in nature and assess a proposed generation project's impacts on the transmission system across several dimensions (steady-state thermal loading, steady-state, transient, and post-transient voltage stability impacts, and so forth). These studies are critical to ensure that a generation project does not have an adverse impact on the CRATS or water operations and to protect Metropolitan against incurring costs to mitigate any negative impacts through operational procedures or physical system improvements. The timeliness of these studies is critical to protect Metropolitan's interests and to support the broader state and national policies promoting renewable energy development and robust electrical energy markets. Although new-generation projects may not proceed without ensuring that any impacts on existing systems are mitigated, existing systems must conduct their studies and upgrades with timely and reasonable efforts.

Affected system studies are paid for by the ESP. The developer signs a study agreement and makes a study deposit, typically on the order of $50,000 to $250,000, from which the actual study costs are deducted. Any residual study deposit funds are returned to the developer once the study is completed.

As Metropolitan received simultaneous inquiries from multiple generation projects for affected system studies, to expedite the work and assign mitigation costs in a fair and transparent manner, staff elected to use a 'cluster study' approach, where a group of generation projects are studied for their aggregate impact to the CRATS and mitigation costs apportioned to each project by their net impact. Seven-generation projects were included in the current cluster study that officially kicked off on December 30, 2024.

At the completion of the Affected System Study, any negative impacts are identified, along with required mitigations and their associated costs. These mitigations may be operational in nature or may require capital improvements, such as the reconductoring of transmission lines, addition or replacement of circuit breakers, and so forth. Cost estimates for the required mitigations are developed and apportioned to each project based on clear and transparent criteria. Completion of the current cluster study and identification of mitigations and costs are anticipated by the fourth quarter of 2025 or the first quarter of 2026.

Bridge agreements

Several of the projects need to secure financing and commence construction before the completion of Metropolitan's study in the fall of 2025. To allow these projects to proceed and to protect Metropolitan's interests, staff recommends entering into preliminary or "bridge" agreements with the ESPs. Bridge agreements would essentially allow projects to demonstrate that they have received provisional agreement from Metropolitan to

allow their project to become operational in exchange for a financial deposit to offset an assigned portion of mitigation costs to be identified when the cluster analysis is completed. Key terms of the bridge agreement include:

1. A preliminary estimate of the developer's pro rata share of the mitigation costs.
2. Provision of a credit or security to confirm the developer's obligation to pay for its pro rata share of future mitigation costs.
3. Agreement by the developer to enter into a more detailed and longer-term affected system mitigation agreement once the transmission cluster study is completed.
4. The developer's commitment to work cooperatively with Metropolitan, CAISO, and other stakeholders to establish and operate subject to interim operating measures pending completion of required mitigating upgrades.
5. In exchange for the foregoing, Metropolitan's preliminary authorization for the developer to commence construction and operation prior to completion of upgrades.

Metropolitan staff recommends providing the bridge agreements with the ESPs as an option to protect the CRATS while ensuring generation projects of regional importance are not delayed. Staff will return to the board soon to request authority to enter into specific bridge agreements.

4/28/2025
Shane O. Chapman *Date*
Assistant General Manager, Operations

4/28/2025
Deven Upadhyay *Date*
General Manager

Ref# wso12701831