



- **Board of Directors**  
***Water Planning and Stewardship Committee***

9/11/2018 Board Meeting

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9-2

**Subject**

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Information on the Antelope Valley - East Kern Water Agency High Desert Water Bank Program

**Executive Summary**

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This report provides information on a potential High Desert Water Bank Program (Water Bank) with Antelope Valley-East Kern Water Agency (AVEK) to store State Water Project (SWP) supplies. Under the Water Bank, Metropolitan could store up to 280,000 acre-feet (AF) of its SWP Table A or other supplies in the Antelope Valley groundwater basin in an account designated for Metropolitan. Metropolitan would pay AVEK for the capital costs for construction of monitoring and production wells, turnouts off of the California Aqueduct, underground and aboveground pipelines, recharge basins, and water storage and booster pump facilities, which are estimated at \$119 million in 2018 dollars. Metropolitan would subsequently pay actual O&M, energy, and recovery usage fees to recover the water in storage. The Water Bank would improve water supply reliability during dry years or emergencies and provide greater operational flexibility to balance supplies and demand.

**Description**

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Background

Metropolitan's SWP groundwater storage programs provide the region with valuable benefits. The programs help Metropolitan manage surplus supplies and provide for dry year regional reliability. The programs also provide increased emergency reliability with direct pump-back of stored water into the California Aqueduct when needed. The SWP groundwater storage programs have performed well during the recent droughts, producing more than one million acre-feet of water in the last 24 years. The storage programs have been cost effective and provided Metropolitan with increased operational flexibility.

However, Metropolitan's SWP groundwater storage programs today contain some risks, that need to be managed. During the recent drought, the capacity to return water by exchange was significantly reduced during the low SWP allocations. Direct pump-back capacity is more reliable and valuable in low supply conditions or during an emergency when exchange supplies are not available. Water quality has also been an issue with some of Metropolitan's groundwater storage programs. New and changing water quality standards can reduce the amount of water returned to Metropolitan. Lastly, none of the current SWP groundwater storage programs extend beyond 2035. For continued long-term regional reliability, these programs will need to be extended or new programs developed.

AVEK is a SWP contractor that provides water to the Antelope Valley. Its 2,400 square-mile service area includes northern Los Angeles County, east Kern County and a small portion of Ventura County. AVEK has the third largest Table A contract amount of the 29 SWP contractors. Only Metropolitan and Kern County Water Agency have larger Table A contract amounts. AVEK's maximum Table A amount is 144,844 AF. AVEK is served by the East Branch of the California Aqueduct and delivers both treated and untreated water to its customers. AVEK's strategic location, downstream of Edmonston Pumping Plant, provides additional reliability. If that pumping plant is damaged by an earthquake or other incident, stored water would be returned from the Water Bank to help maintain reliable deliveries. In addition to earthquake related failures, the aging California

Aqueduct is becoming more prone to failure, particularly in portions of the San Joaquin Valley upstream of the AVEK connection.

In 2016, Metropolitan entered into a ten-year agreement with AVEK for an exchange and storage program of SWP supplies. Under the exchange portion of the program, AVEK provides its unused Table A supplies over 10 years, and Metropolitan returns half of the water through an uneven exchange at Banks pumping plant. The exchange is initiated by mutual agreement. When AVEK calls the water to meet their consumptive needs, there are no additional costs to Metropolitan. Under the storage portion of the program, Metropolitan, at its discretion, is able to store 30,000 AF of its SWP Table A or other supplies in the Antelope Valley groundwater basin account designated for Metropolitan. There are no costs to Metropolitan to put water into storage; however, there is an estimated cost of \$300 per AF to recover water from storage. If the actual costs exceed \$300 per AF, Metropolitan will pay the higher actual amount. The stored water also incurs a one-time loss of 10 percent. The current program will terminate in 2026.

#### Description of Potential Water Bank

AVEK proposes to build and operate a groundwater recharge and recovery program referenced as the potential High Desert Water Bank located near the East Branch of the California Aqueduct. The Water Bank has a 280,000 AF storage capacity and can store Metropolitan's SWP or other available supplies. The Water Bank facilities will be able to store and recover a maximum of 70,000 AF per year. Similar to other groundwater storage programs, Metropolitan would be assessed a one-time 10 percent loss when water is placed into storage. A key element of the program is that AVEK would be able to return a maximum of 70,000 AF per year by direct pump-back into the East Branch of the California Aqueduct. Though AVEK would own the capital facilities, Metropolitan would have first priority to the return capability which is critical during emergencies or dry years when SWP allocations are low.

Implementation of the Water Bank would require the construction of monitoring and production wells, turnouts from the California Aqueduct, underground and above ground pipelines, recharge basins, and water storage and booster pump facilities. Metropolitan would pay AVEK for the capital costs of the project which are estimated at \$119 million. Metropolitan would make payments based on a mutually agreed upon schedule related to construction progress. In addition, Metropolitan would pay for the actual operation, maintenance and power costs for the Water Bank facilities. There are no put costs to store the water. However, Metropolitan would pay AVEK a \$100/AF recovery usage take fee based on all the recovered water that would be escalated every year based on the Consumer Price Index (CPI) starting in 2018. Metropolitan would pay a minimum rolling average of \$2 million towards the recovery usage fee per year, starting after the project construction is complete. Any payments made in excess would be credited in future years to recovery usage fees. In total, Metropolitan would pay AVEK an estimated \$300/AF (present value).

Under the Water Bank, Metropolitan would have first priority to store its SWP Table A or other supplies. AVEK retains a secondary priority right to access the groundwater bank. Under mutual agreement, lower priority users may utilize unused capacity in the groundwater bank. Revenues collected from lower priority users would be shared equally between Metropolitan and AVEK. All program participants must meet all water quality requirements set by the Department of Water Resources. Based on preliminary groundwater testing, all constituents are below the maximum contaminant levels.

In summary, the potential High Desert Water Bank Program with AVEK would provide Metropolitan with improved water supply reliability for the region consistent with Metropolitan's Integrated Water Resources Plan. Further, this program protects against the water quality issues now observed with other water banks, nearly doubles the total direct pump-back capability of current SWP groundwater storage programs, and allows for a contract end date in 2057. The coordination of each water agency's water supply resources strengthens our ability to respond to future challenges and improves our partnership with a key SWP contractor. The draft terms for the potential Water Bank are included in **Attachment 1**.

Next Steps

Partner with AVEK to further study program and conduct a value-engineering effort to ensure efficient use of capital facilities. Once completed, staff would continue discussions with AVEK to develop a final proposal for Board consideration.

**Policy**

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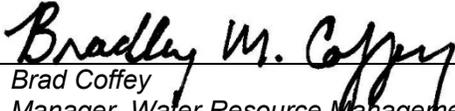
Metropolitan Water District Administrative Code Section 4203: Water Transfer Policy.

By Minute Item 50358, dated January 12, 2016, the Board adopted the 2015 Integrated Water Resources Plan Update

**Fiscal Impact**

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Up to \$119 million in capital costs for the construction of the High Desert Water Bank Program facilities. Payment of the take recovery usage fee of \$100 per AF (escalated by the CPI starting in 2018) and the actual operation, maintenance and power costs for the program facilities. In total, the estimated unit cost would be \$300 per AF.

  
Brad Coffey  
Manager, Water Resource Management

8/31/2018  
Date

  
Jeffrey Kightlinger  
General Manager

8/31/2018  
Date

**Attachment 1 – Draft Term Sheet for the Potential Antelope Valley-East Kern and Metropolitan Water District High Desert Water Bank Program**

**Draft Term Sheet for the Potential  
Antelope Valley-East Kern and Metropolitan Water District  
High Desert Water Bank Program**

**Program Overview**

- Storage Capacity: 280,000 AF
- Storage Losses: 10%
- Put Capacity: 70,000 AFY
- Take Capacity: 70,000 AFY (Dedicated Well Extraction Capacity)
- Term: September 20, 2037, plus twenty-year, no-cost option to extend the agreement

**Program Costs**

- Estimated Capital costs: \$118.9 million to fund recharge basins, recovery wells, transmission pipelines, electrical, instrumentation and controls, and other necessary High Desert Water Bank facilities.
- The estimated capital costs include oversized power and transmission facilities. As AVEK develops additional banking capacity that uses the oversized facilities, the capital costs will be reimbursed to Metropolitan, plus interest.
- Capital payments are linked to actual construction costs and paid on a mutually agreed schedule. If capital costs exceed the estimated capital budget, Metropolitan can determine on either scaling facilities to keep the costs within budget or paying the additional capital costs. Any unused funds will be returned to Metropolitan.
- Metropolitan is responsible for payment of actual O&M costs. If AVEK or other party uses facilities, AVEK or the other party are required to pay a prorated O&M cost.
- Metropolitan is responsible for paying the actual energy costs incurred to return water.
- Metropolitan shall pay AVEK a \$100 per acre-foot Recovery Usage Fee that will be escalated on the Consumer Price Index (CPI) starting in 2018.
- There is no cost to Metropolitan to put water into storage.
- Metropolitan shall pay a minimum rolling average of \$2,000,000 towards the Recovery Usage Fee (escalated on the CPI) per year, starting upon the earlier of (1) completion of the program facilities, or (2) first return of water to Metropolitan. Any payments made in excess of amounts owed during the year shall be credited in future years to Recovery Usage Fees. During the last five years of the agreement, Metropolitan may also use any available credits towards O&M, Recovery Treatment, or energy costs.
- Recovery Treatment Costs – If applicable, Metropolitan shall reimburse AVEK for actual capital and O&M treatment costs incurred for the return of Metropolitan-stored water.

**Other Key Terms**

- Metropolitan will have an exclusive first priority right to access High Desert Water Bank facilities. AVEK has an exclusive second priority right to unused capacity.
- Metropolitan and AVEK share equally on any lower priority banking by third parties.
- AVEK will enter into the necessary water storage agreements with the Antelope Valley Watermaster.