One Water and Stewardship Committee

Update on State Water Project Overview

Item 6d
September 9, 2024

Item 6d
Update on State Water Project Overview

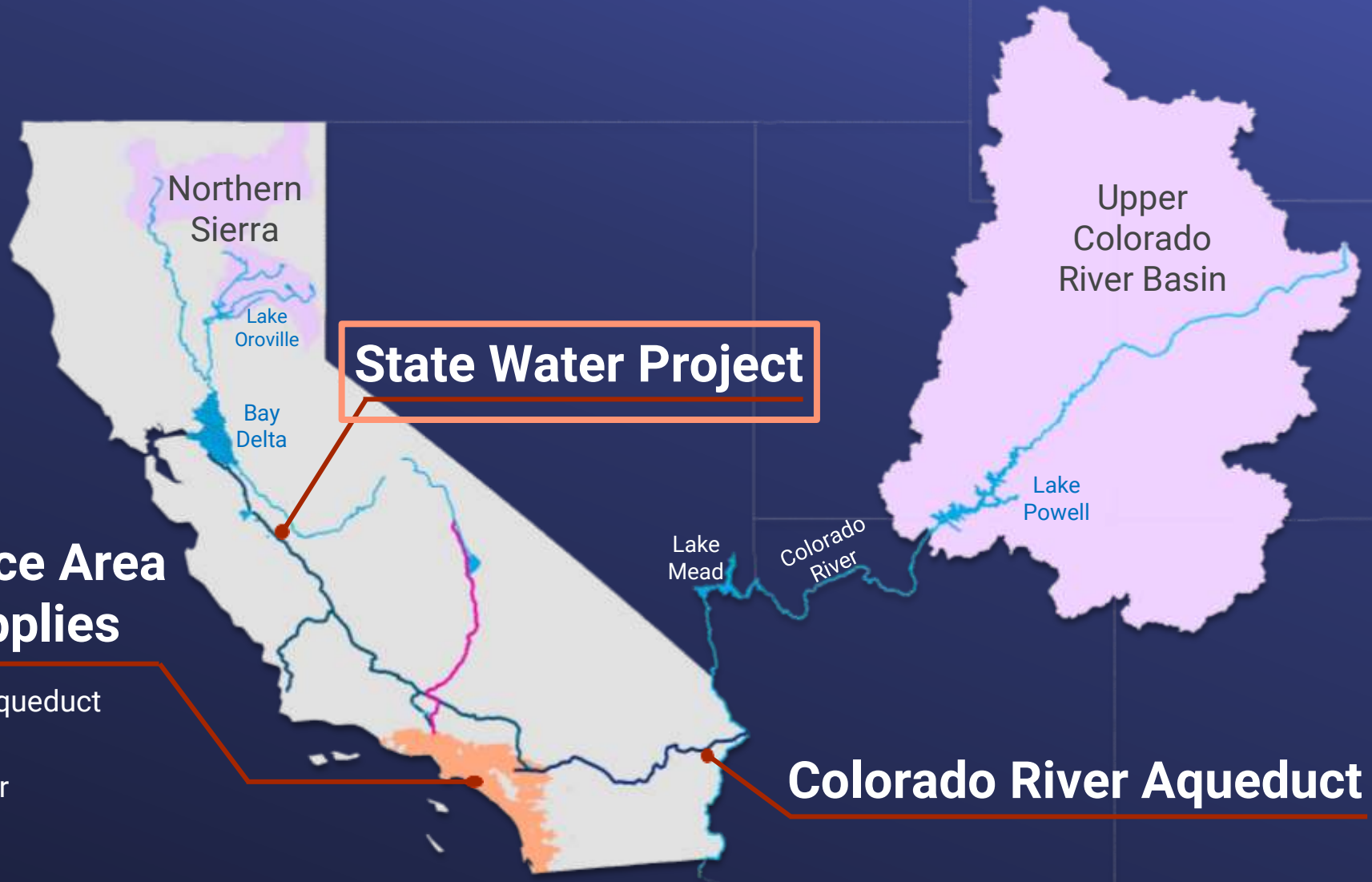
Subject

State Water Project Overview

Purpose

Provide a history of and challenges to the State Water Project and the benefits and costs of the State Water Project to Metropolitan

Metropolitan Water District's Sources of Supplies

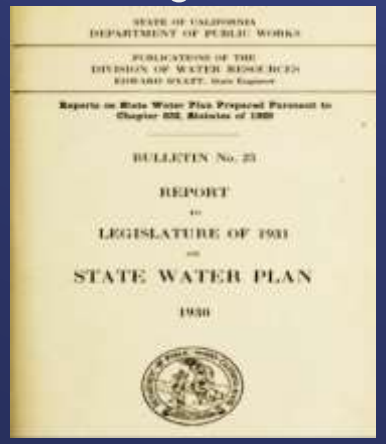


MWD Service Area Local Supplies

- Los Angeles Aqueduct
- Groundwater
- Recycled Water
- Desalination
- Conservation

Background on the State Water Project

History of Metropolitan & the State Water Project


STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

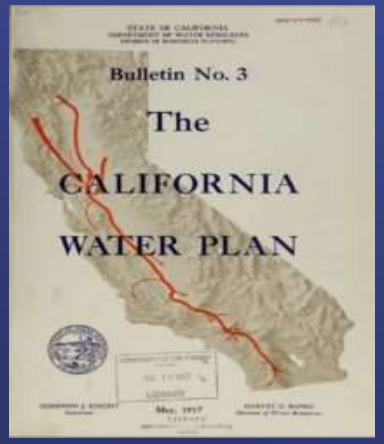
PUBLICATIONS OF THE
DIVISION OF WATER RESOURCES
EDWARD HYATT, State Engineer

Reports on State Water Plan Prepared Pursuant to Chapter 852, Statutes of 1929

BULLETIN No. 25

REPORT
TO
LEGISLATURE OF 1931
ON
STATE WATER PLAN

1930



1928 Formation of Metropolitan

1931 Development of first “State Water Plan”

1941 First delivery of Colorado River Water to Southern California

1957 Division of Water Resources issues first modern, “California Water Plan”

1960 California ratifies Burns-Porter Act; Metropolitan signs contract with State

1972 First delivery of State Water Project supplies to Southern California

State Water Contractors

	Region	Contractors
M&I	Feather River	County of Butte Plumas County FC&WCD City of Yuba City
M&I	North Bay	Napa County FC&WCD Solano County WA
M&I	South Bay	Alameda County FC&WCD, Zone 7 Alameda County WD Santa Clara Valley WD
Ag	San Joaquin Valley	Oak Flat WD County of Kings Dudley Ridge WD Empire West Side ID Kern County WA Tulare Lake Basin WSD
M&I	Central Coastal	San Luis Obispo County FC&WCD Santa Barbara County FC&WCD
M&I	Southern California	Antelope Valley-East Kern WA Santa Clarita Valley WA Coachella Valley WD Crestline-Lake Arrowhead WA Desert Water Agency Littlerock Creek ID **Metropolitan Water District** Mojave Water Agency Palmdale Water District San Bernardino Valley MWD San Gabriel Valley MWD San Gorgonio Pass WA Ventura County WPD

Note: Map not drawn to scale.

SWP Contract Extension & Subsequent Amendments

- In 2018, Metropolitan's SWP contract extended to 2085
  - Stability for participation in State Water Project
  - Improved the project's overall financial integrity and management
- In 2021, water management amendment approved for SWP contract
  - Additional flexibility to manage its SWP supplies
    - Provides additional tools to manage SWP water more efficiently
    - Creates new opportunities for creative partnerships with other agencies
    - New provisions provide fair compensation for transfers and exchanges

Overview of SWP Facilities

20 Pumping plants

5 Hydroelectric power plants

4 Pumping generating plants

>700 Miles of canals, tunnels, and pipelines

34 Storage facilities

Note: Map not drawn to scale.

Overview of SWP Facilities

Note: Map not drawn to scale.

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Overview of SWP Facilities

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California Aqueduct (May 2023)

Credit: DWR

Credit: DWR

California Aqueduct Bifurcation (May 2023)

Overview of SWP Facilities

Note: Map not drawn to scale.

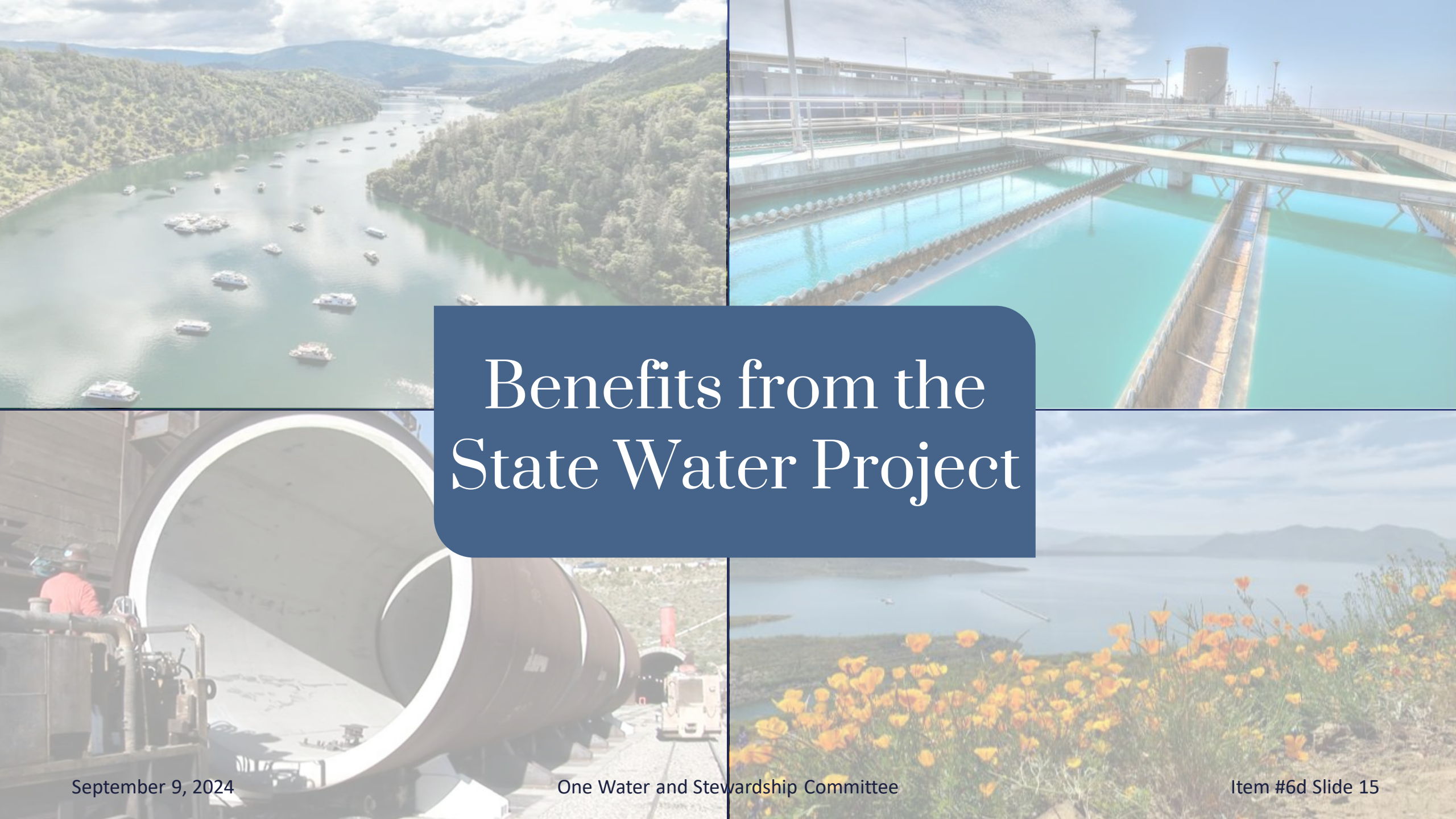
Hydropower Generation

SWP is a major producer & consumer of power

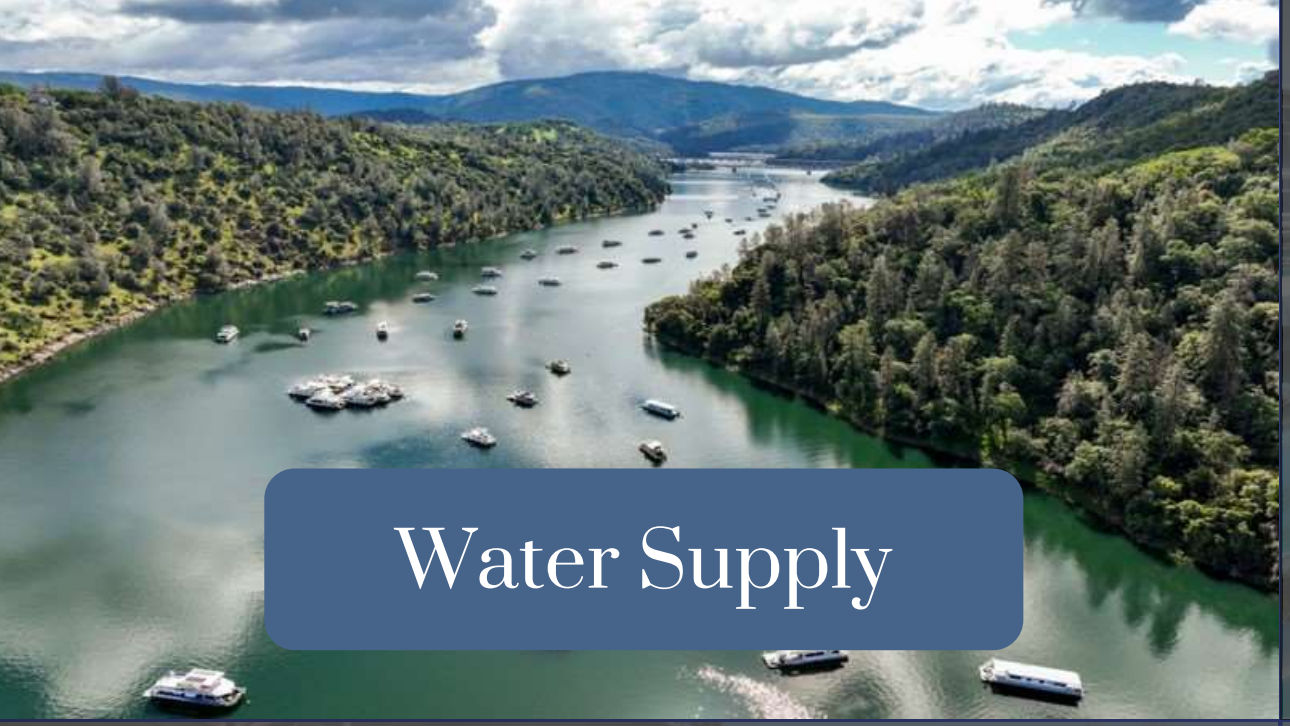
- The SWP self-generates the majority of its own power demands
  - Fourth largest generator of hydropower in California
    - SWP provides ~14% of state's hydroelectricity
  - Produces power sold to grid during peak demand hours
    - Displaces fossil fuel generation
    - Lowers GHG emissions
    - Generates revenue → lowers water delivery costs

Hyatt Power Plant (May 2022) *Credit: DWR*

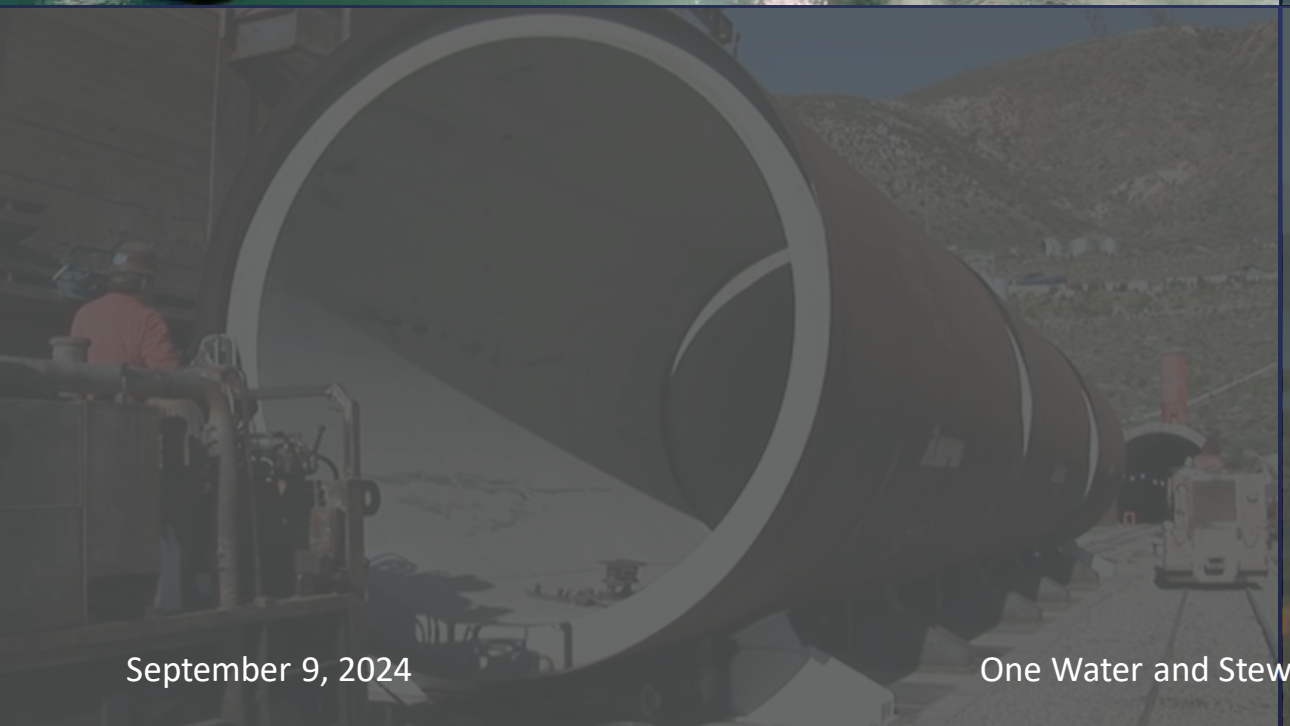
Sources: California Department of Water Resources and State Water Contractors.

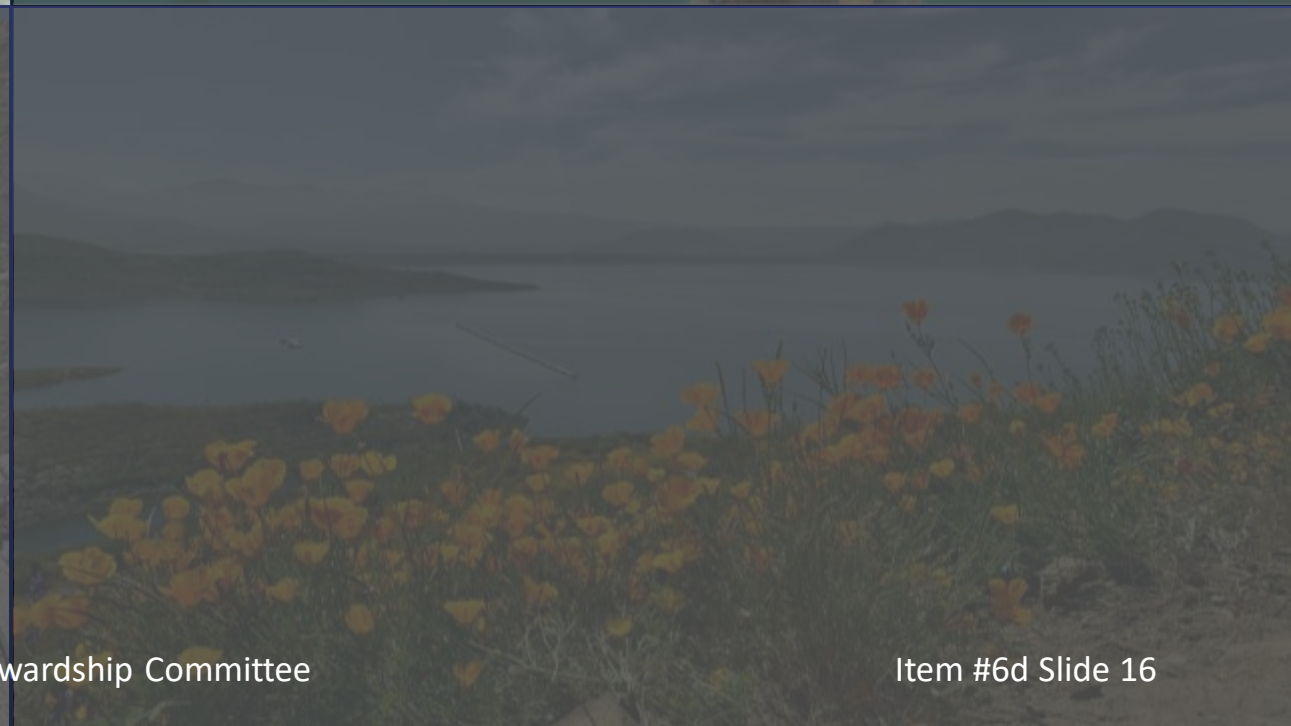


Benefits from the State Water Project

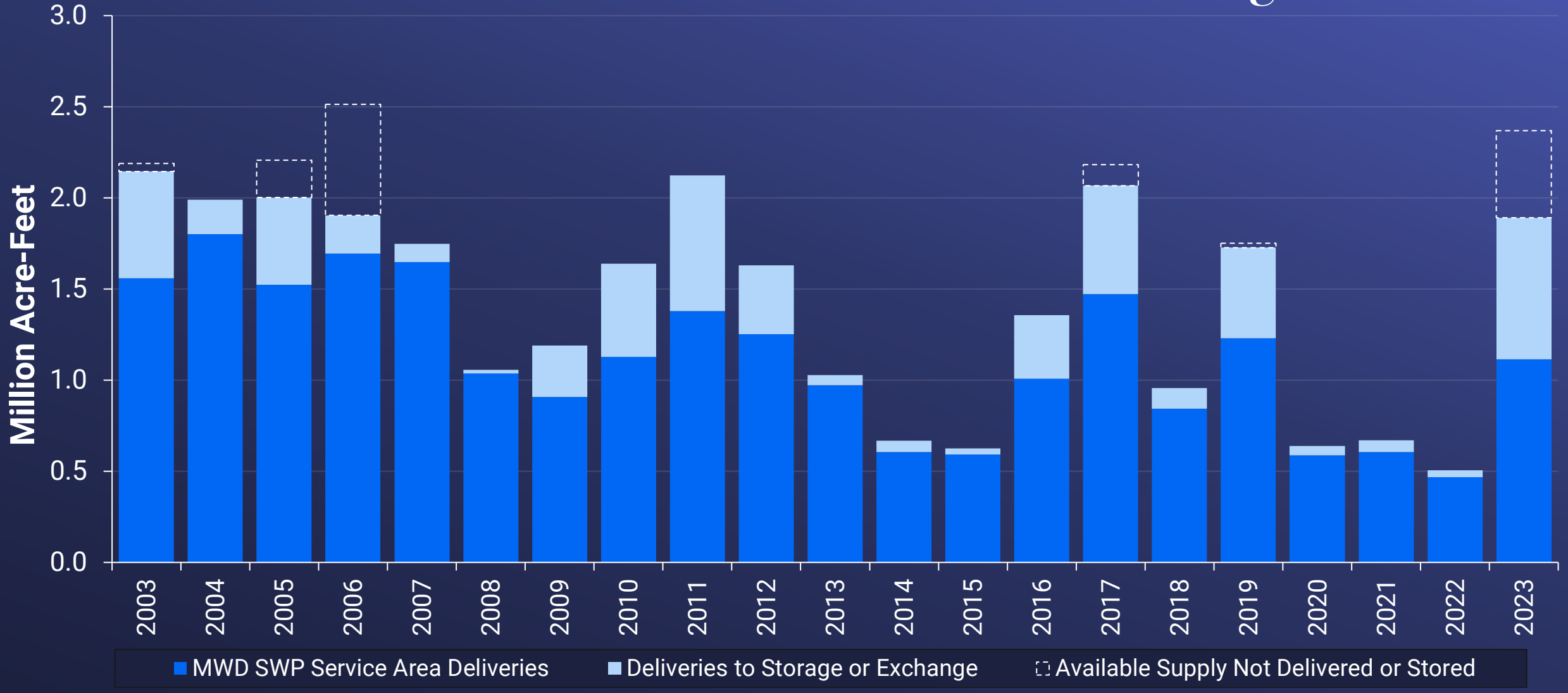


Water Supply





SWP Deliveries to Service Area & Storage



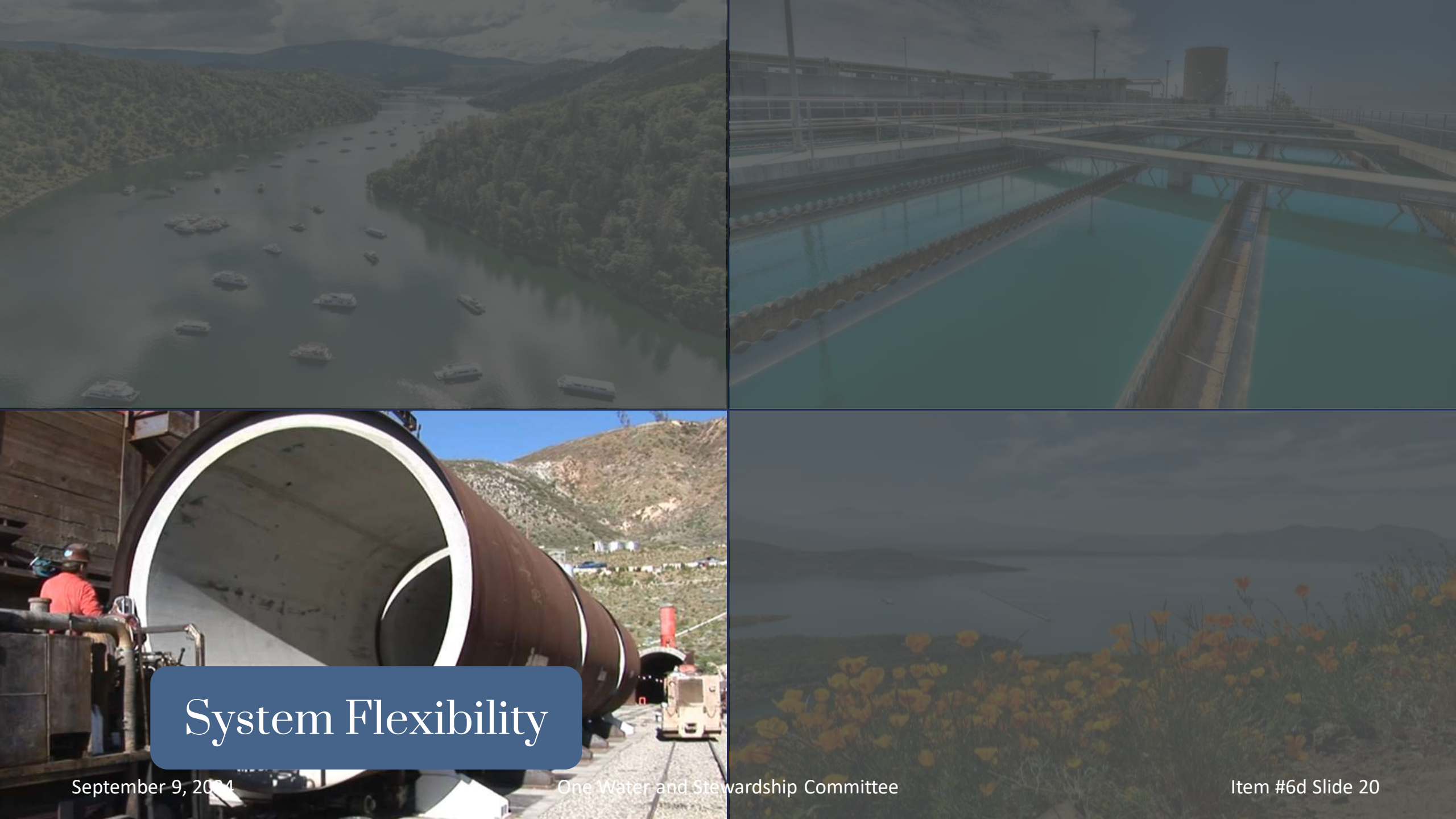
Note: Service area deliveries include Table A Supplies, Art. 21, Art. 14(b), Art. 12(d), Art. 12(e), Art. 55, draws from storage & carryover, DWCV & other exchanges, transfers, Drought Water Bank and Dry Year Pool Purchases, Pools A&B, Flood Water, wheeling, Port Hueneme lease, and SBVMWD Purchases. Deliveries to storage or exchange includes deliveries to groundwater storage, carryover, flexible storage, HH&S repayment, and returns to exchange programs.

Water Quality

Water Quality

- Southern California's consumers and local supplies depend on SWP's high-quality water
- SWP supplies help Metropolitan meet salinity goals of 500 mg/L at treatment plants
  - SWP supplies typically contain lower total dissolved solids (TDS) compared to CRA supplies
    - Average TDS: 250-325 mg/L (SWP) vs. 625 mg/L (CRA)
  - SWP supplies preferred for blending purposes
- SWP's water quality and salinity management desirable for groundwater basins and recycled water

Deliveries to USG-03 (June 2024)

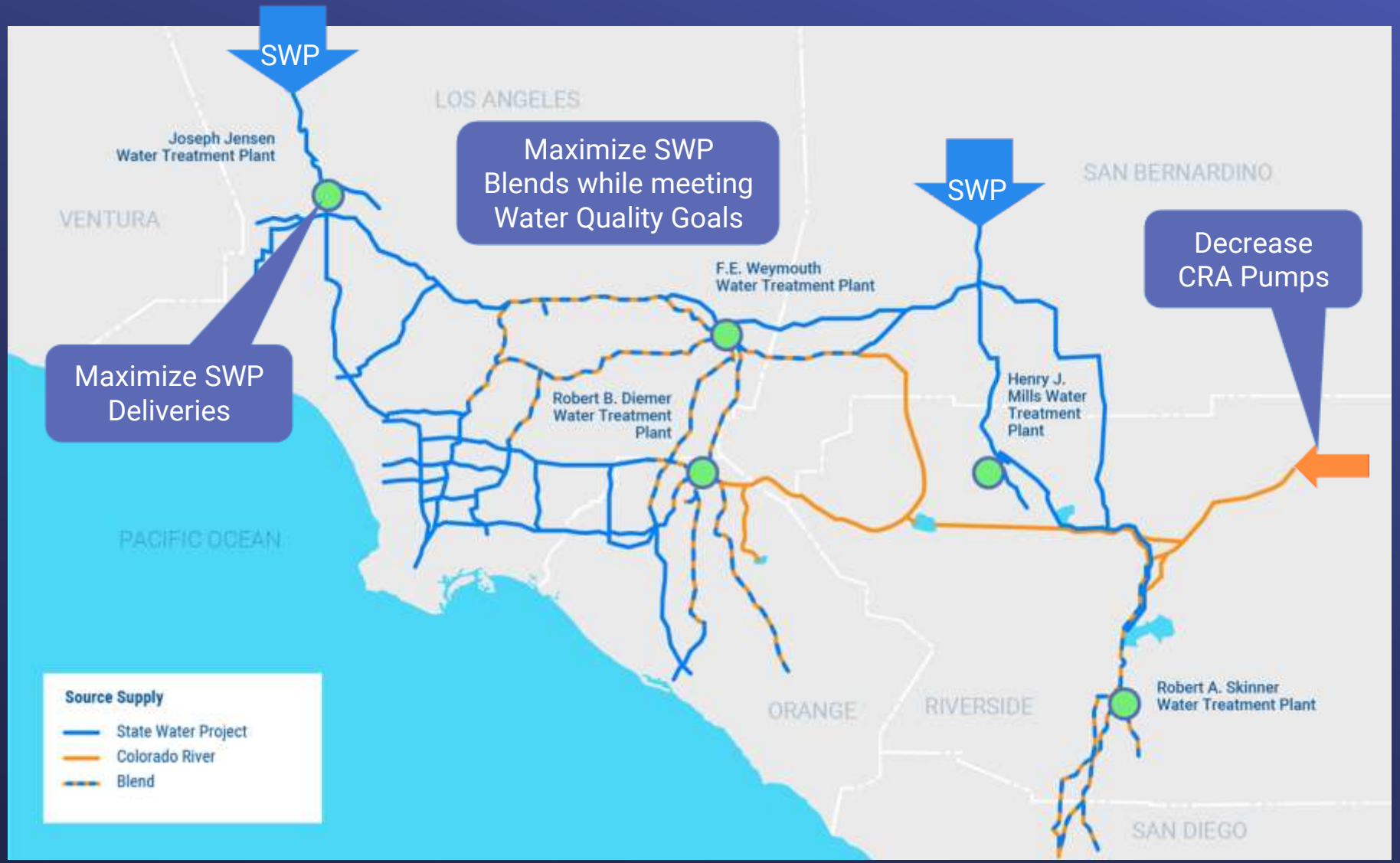


System Flexibility

Metropolitan's Flexible System

Surplus Year Operations
(Higher SWP Allocations)

- Maximizing West Branch & East Branch
- Maximizing SWP Blends
- Minimizing CRA Diversions
- Maximizing Groundwater Deliveries
- Replenishing Storage Accounts






Storage Portfolio

SWP Essential to Metropolitan's Storage & Reliability

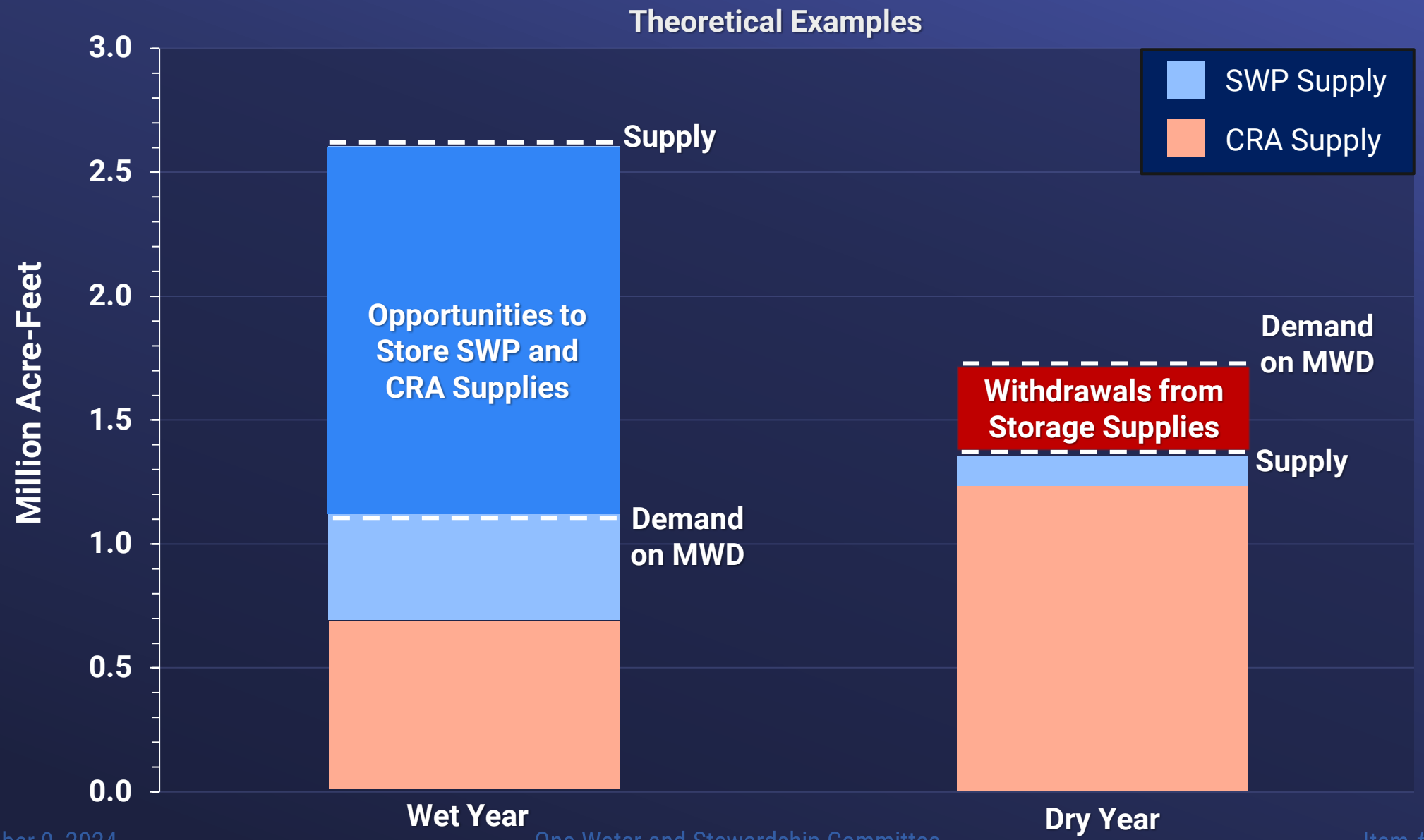
Key SWP storage facilities utilized within Metropolitan's storage portfolio

Metropolitan's SWP system captures, stores, and delivers high-quality water that is accessible to all member agencies across the entire service area

SWP supplies are actively managed to preserve Colorado River water in non-dry years and to make the most of Metropolitan's extensive storage portfolio

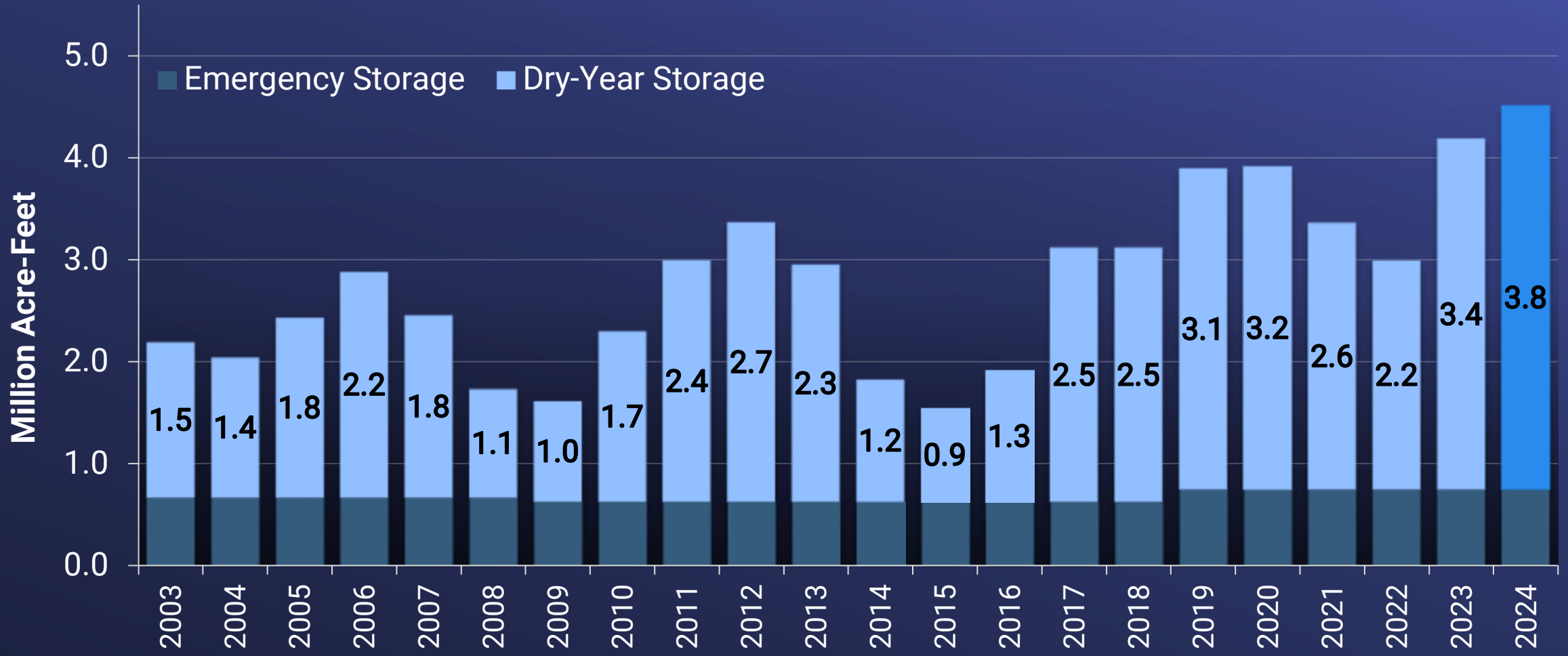
Note: Map not drawn to scale.

Metropolitan's Water Supply/Demand Balance Strategy



Metropolitan's Record-High Storage

End-of-Year Balances

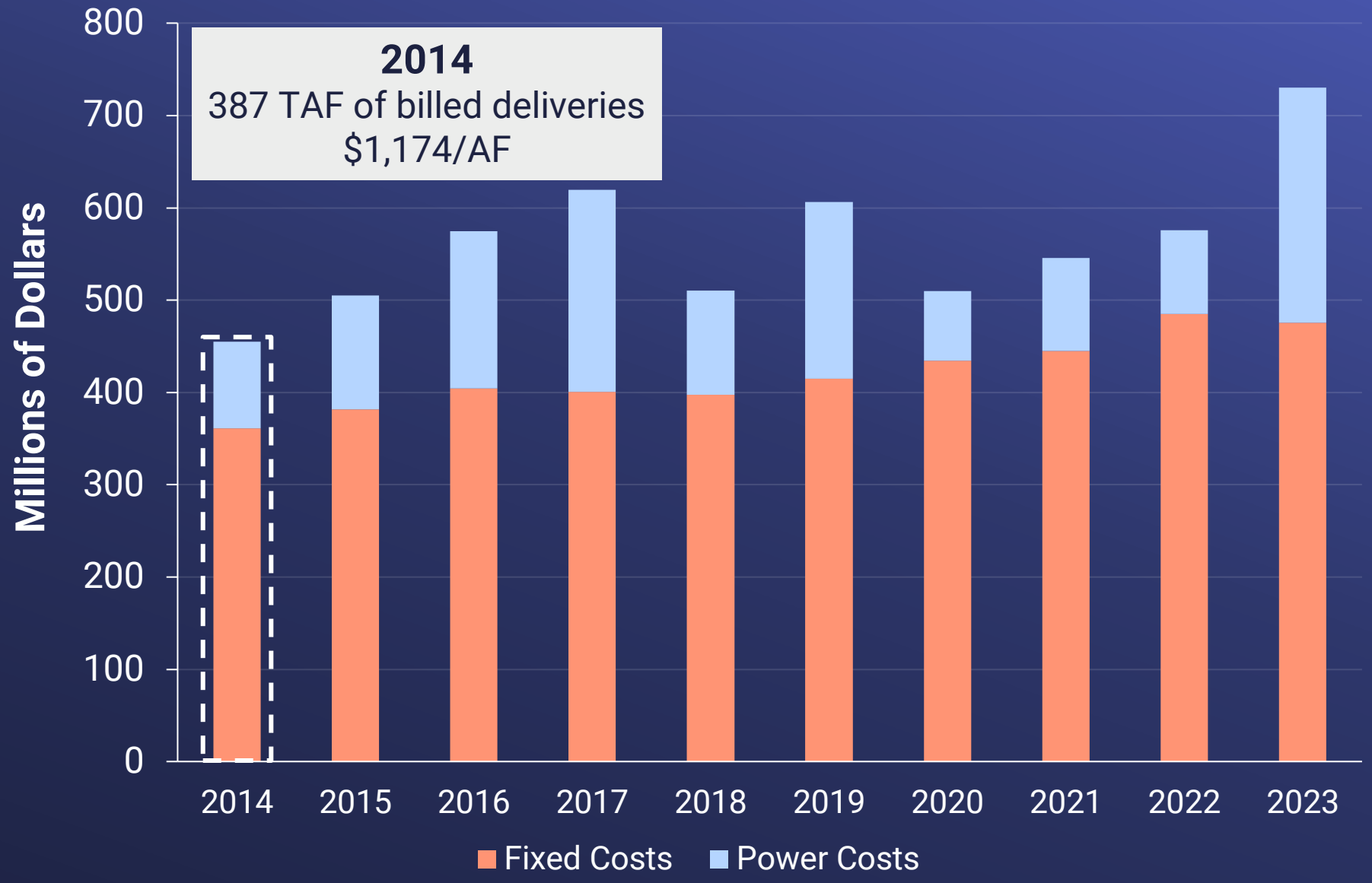


Note:
2024 end-of-year balance is preliminary as it is subject to DWR adjustments and USBR final accounting.

Costs & Value of the SWP

Metropolitan SWP Charges

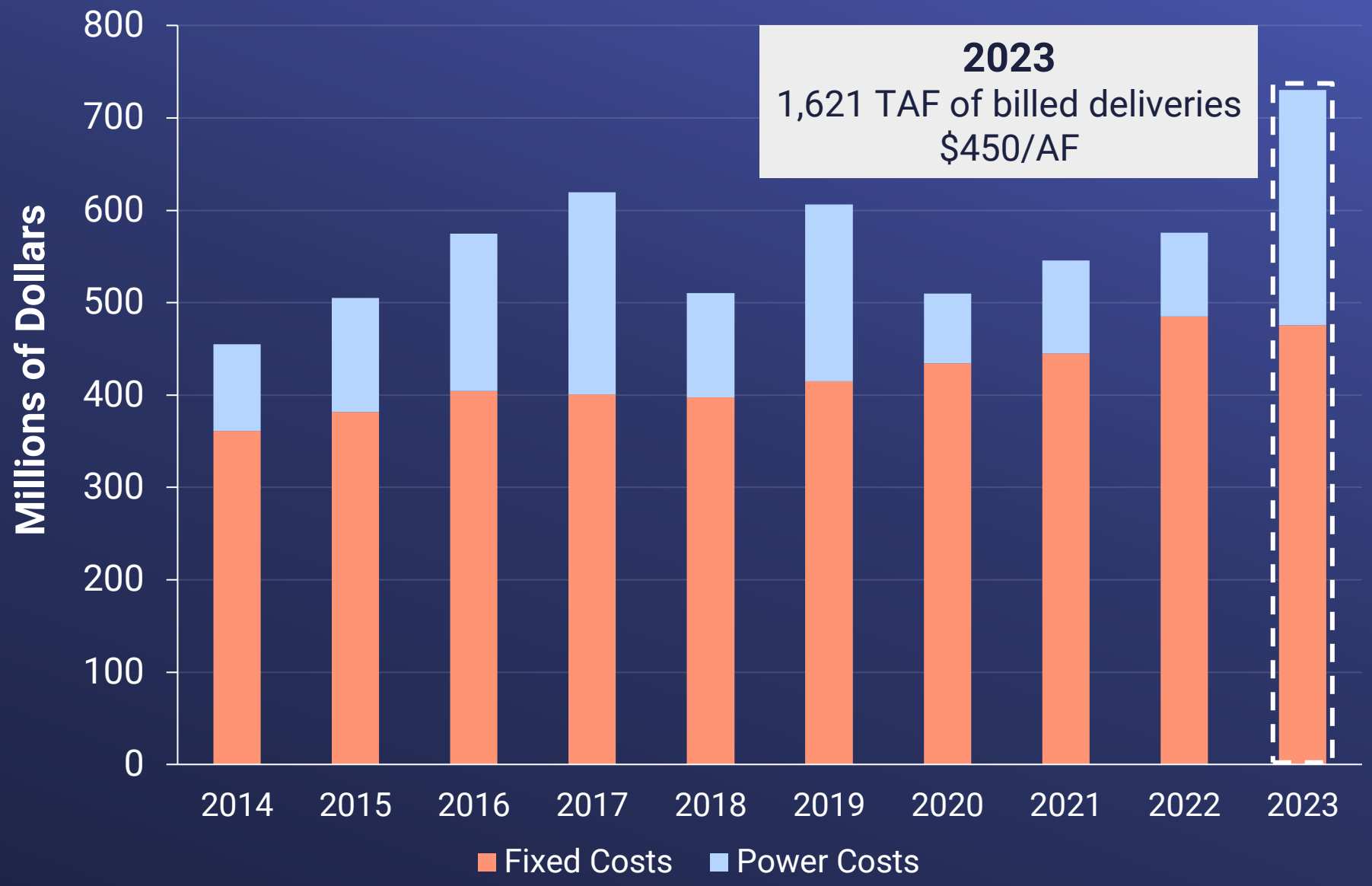
2014-2023
(in nominal dollars)



Note: Data compiled from Department of Water Resources Bulletin-132-23 Appendix B. Dollar per acre-foot calculation utilizes total billed deliveries from Table B-5B.

Metropolitan SWP Charges

2014-2023
(in nominal dollars)



Note: Data compiled from Department of Water Resources Bulletin-132-23 Appendix B. Dollar per acre-foot calculation utilizes total billed deliveries from Table B-5B.

Metropolitan SWP Charges

1963-2023 (in 2023 $)

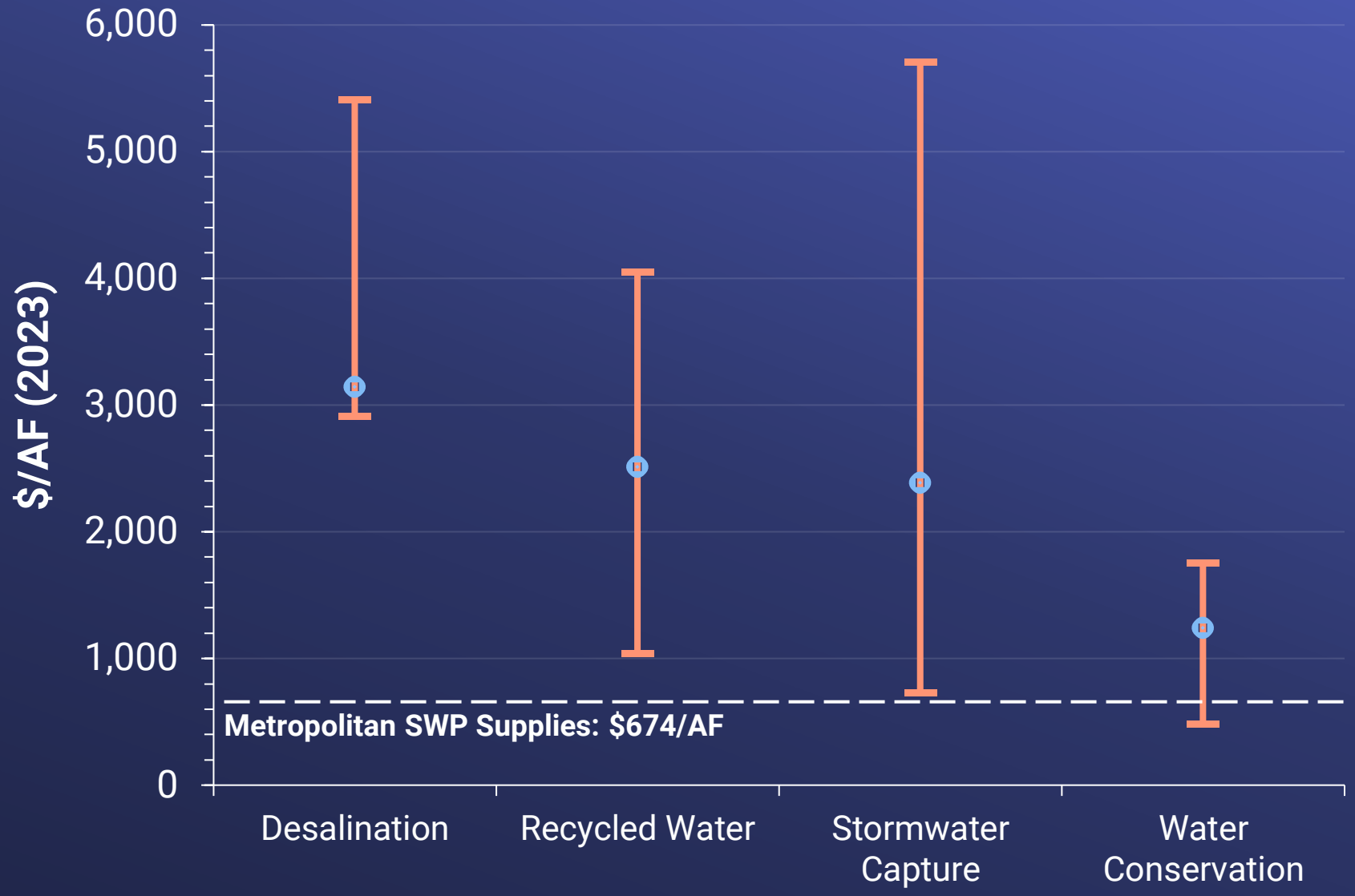
$29.9 Billion
Total Charges

44.3 Million AF
Total Billed Deliveries

$674/AF
Average

Note: Data compiled from Department of Water Resources Bulletin-132-23 Appendix B. Total deliveries and dollar per acre-foot calculation utilizes total billed deliveries from Table B-5B.

SWP Costs vs. Alternative Supplies (in 2023 $)



Sources: Metropolitan SWP costs calculated from DWR Bulletin-132 and adjusted to 2023 dollars. Other values from previous studies by the Pacific Institute, PPIC, and CPUC and adjusted to 2023 dollars as published in "Facts About the Economic Value of the Delta Conveyance Project"

Present & Future Challenges

Key Challenges

Regulatory Restrictions

Climate Change

Regulatory Restrictions

Water Quality

Endangered Species

Note: Photos courtesy of DWR.

Effects of Climate Change

Declining Snowpack

Wildfires

Extreme Precipitation

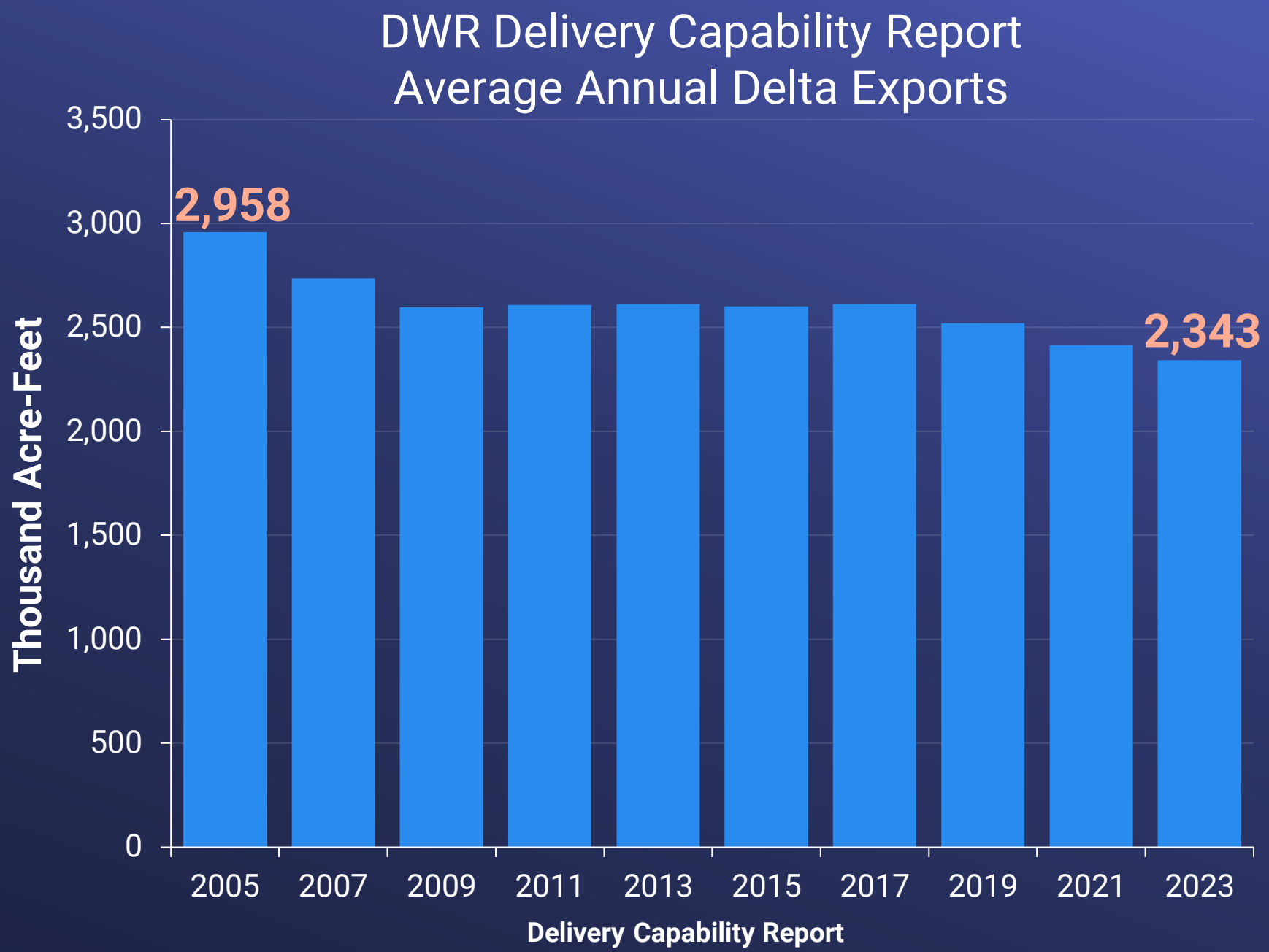
Higher Temperatures

Infrastructure Stressors

Note: Photos courtesy of DWR, Cooperative Institute for Research in the Atmosphere (CIRA) at Colorado State University, and East Bay Times.

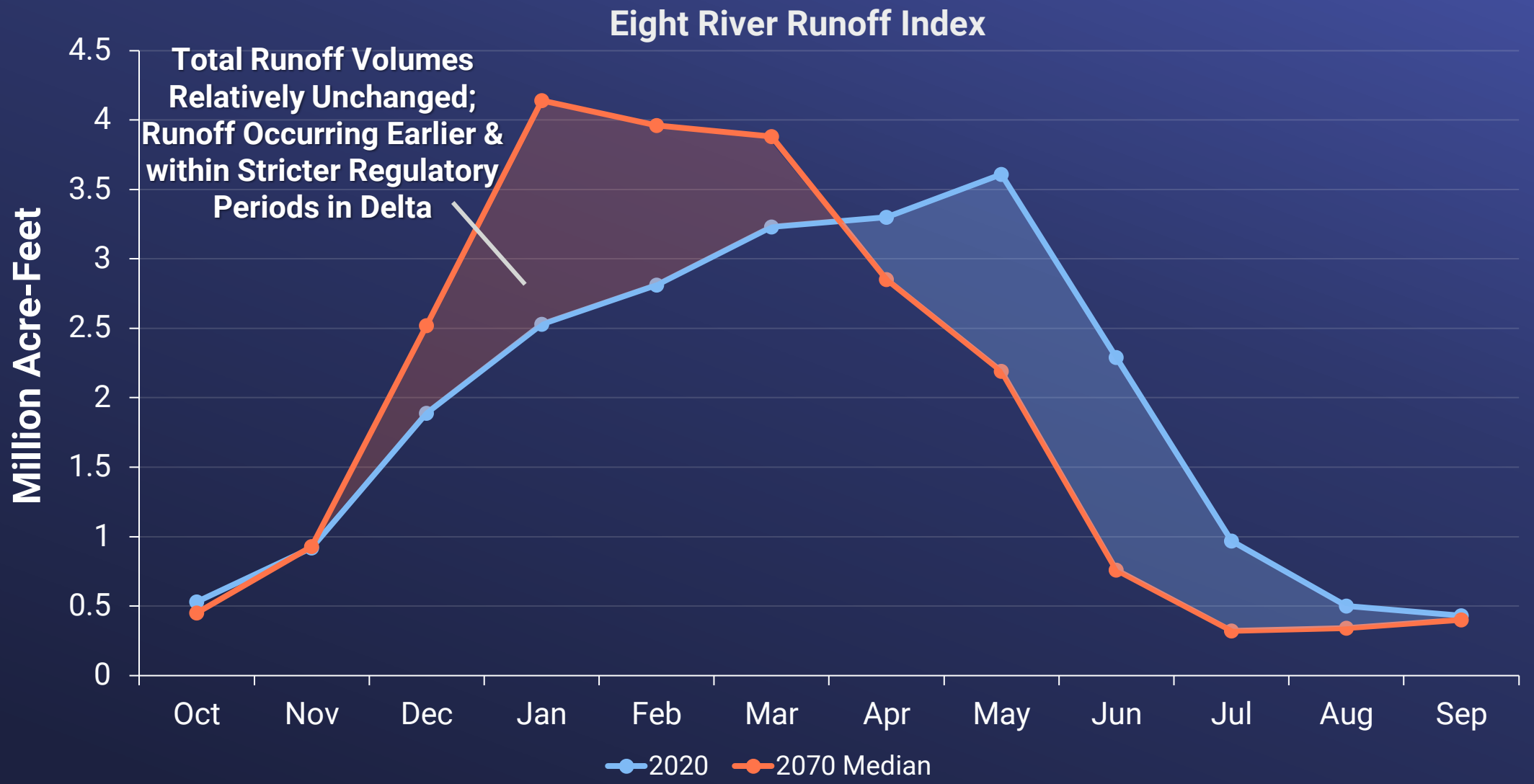
Reliability Estimates Trending Downward

Graph depicts modeled average annual SWP Delta Exports, which have declined by 600,000 AF since 2005.
This volume is equivalent to a 15% SWP Table A Allocation.



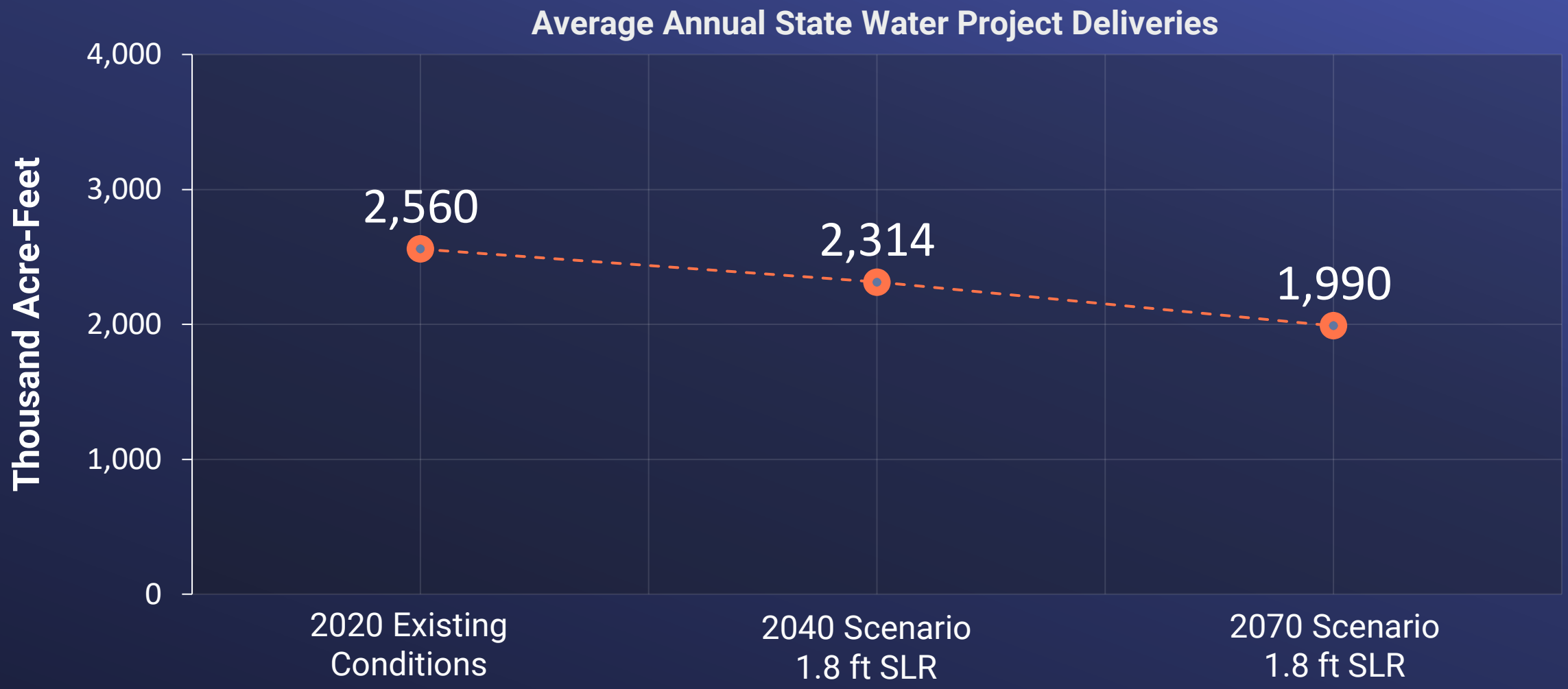
Source: Data from SWP Delivery Capability Report 2023, Figure 6-1.

SWP System Designed for Hydrologic Patterns that are Shifting with Climate Change



Source: Delta Conveyance Project Final EIR Appendix 4A, Table 4A-1.

Continued Decline in Reliability by 2070



Source: Berkeley Research Group, Benefit-Cost Analysis of the Delta Conveyance Project, Table 2, Analysis 5 and Main Scenario.

Key Takeaways

- Over the last 20 years, estimated reliability has declined by 15%
- Future water supply projections show continued decline over time
- Increased regulations and climate change continue to impact the reliability of the SWP
- More rainfall, less snowpack, and earlier runoff indicative of the climate change impacts to the hydrologic pattern
- The current SWP system is not designed to effectively manage the shifting hydrologic pattern


Lake Oroville (May 09, 2024)
Credit: DWR
Managing
Risks & Uncertainty

Increase Resiliency and Reliability of the SWP

Additional Storage

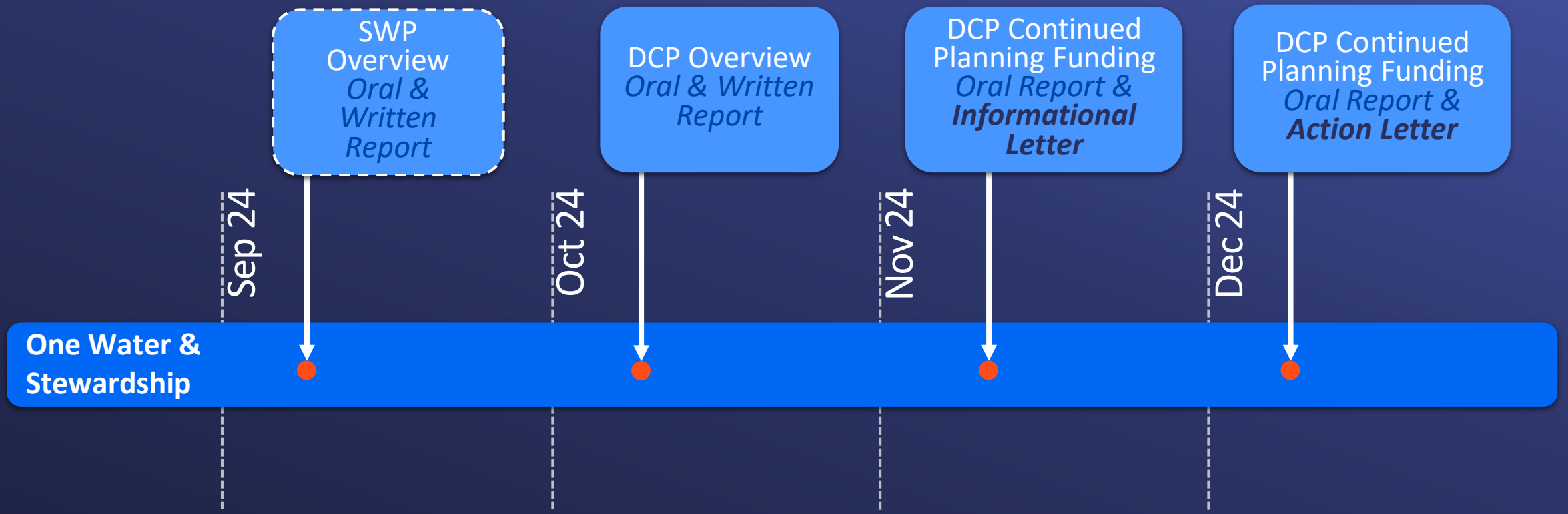
- Meet demands in dry years
- Manage excess supplies
- Improve system flexibility

Flexible Conveyance

- Maintain existing capability
- Manage shifts in hydrology
- Optimize project operations

Next Steps: Conveyance for the SWP

Delta Conveyance Project – Board Updates and Deliberation for Continued Planning Efforts




THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928