Subcommittee on Long-Term Regional Planning Processes and Business Modeling

Review CAMP4W Annual Report

January 29, 2025

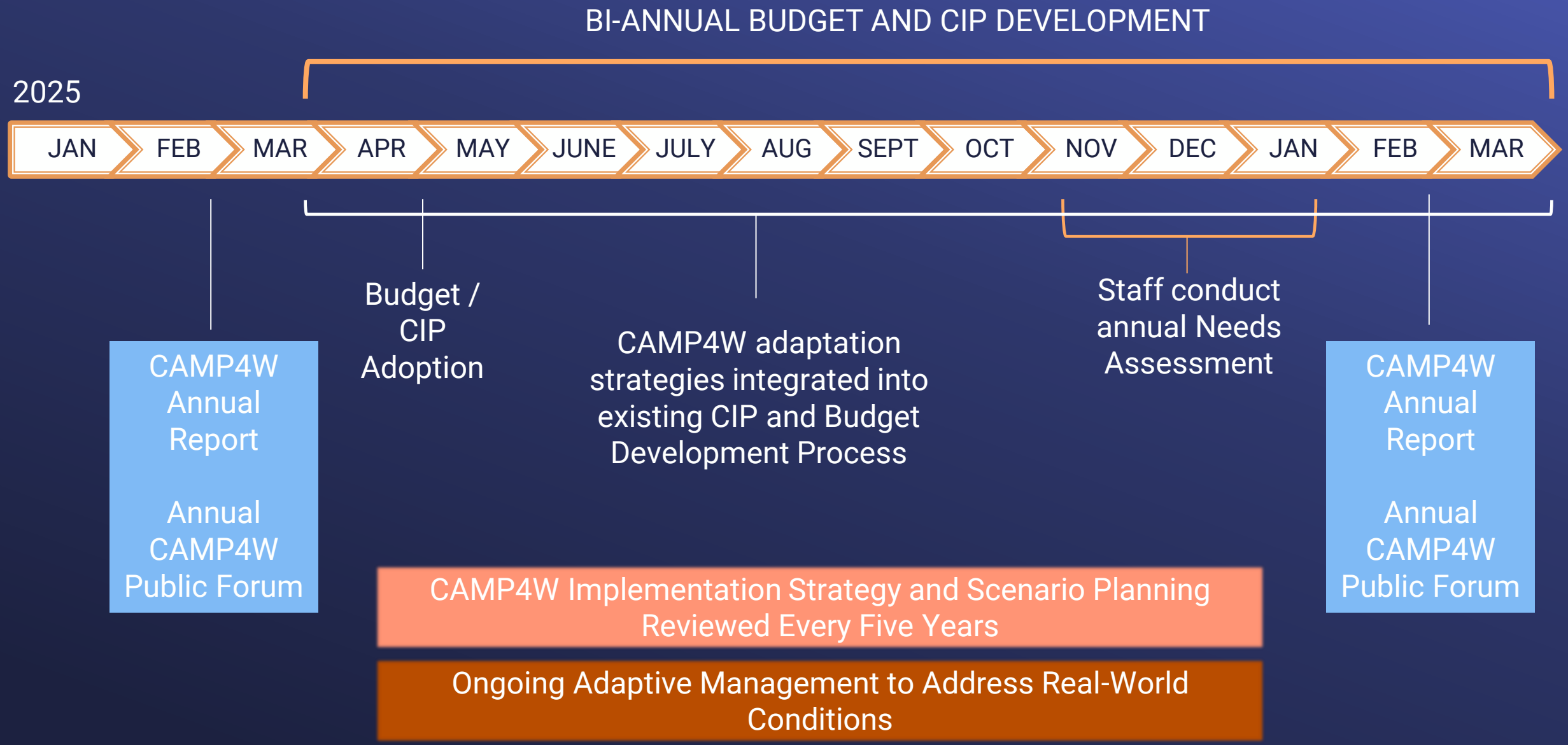
Review 2024 CAMP4W Annual Report

Today's Discussion

- Purpose of CAMP4W Annual Reports
- Annual Report Components
- Solicit feedback on:
  - Annual Report Template
  - Structure and Layout
  - Content and Level of Detail

CAMP4W
Climate Adaptation Master Plan for Water

Schedule of CAMP4W Reports and Updates



CAMP4W
Climate Adaptation Master Plan for Water

Annual Report

Lake Matthews 2024

Purpose of Annual Report

The annual report is intended to provide decision makers with up-to-date data to assist in the decision-making process, summarize advancement of the time-bound targets, and report on progress made toward CAMP4W goals and initiatives.

Water Supply Reliability Signposts

Signpost Overview

- Scenario planning approach helps account for a range of uncertainties
  - Signposts involve monitoring those uncertainties, specifically related to the drivers of change
- Tracking of signposts can provide an adaptive management approach to uncertainty
  - Signposts serve as measurable indicators of the direction and trends of drivers of change over time
  - Tracking of signposts utilized to compare actual conditions to a range of modeled scenarios
  - Help to inform decision-making in the face of uncertainty
- Provided report contains analyses of water reliability signposts with information as of November 2024

Water Supply Reliability Signpost Descriptions

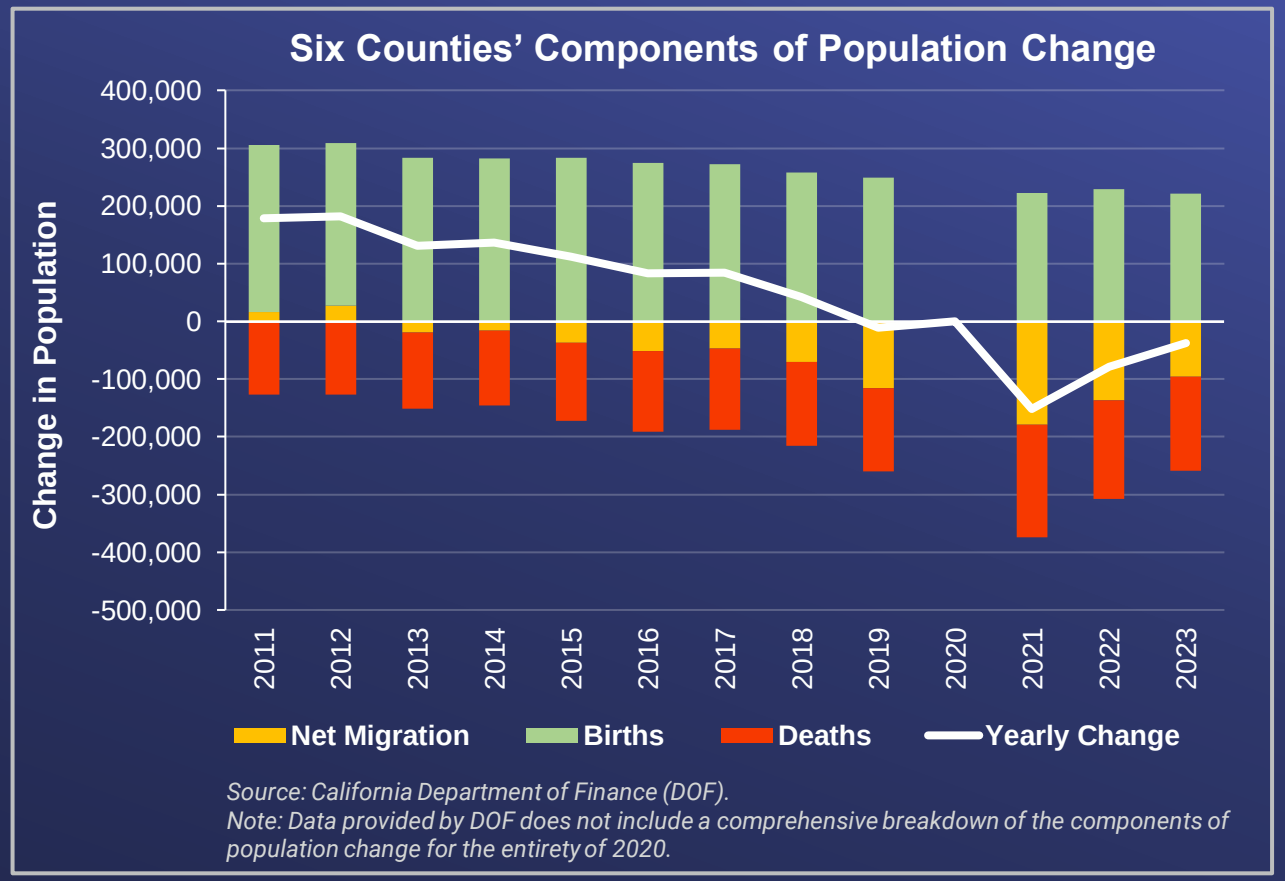
Demographics		Demographic factors (i.e., population, housing, employment) influence water demands. Systemic changes can affect demand/supply gaps (e.g., birthrate and migration).
Climate Change		Emission trends are an indicator of how climate change risk is developing. Evolving science and understanding, and policy and industry changes can also inform the approach to long-term planning for climate change for imported supplies and operations within Metropolitan's service area.
Local Agency Supply		Local agency supply is a key input in modeling demands on Metropolitan. Systemic changes can affect demand/supply gaps (e.g., impaired groundwater basins).
Imported Supply (Risks & Regulations)		Regulatory and contractual changes may have significant impacts on Metropolitan's imported supplies and demands and are reflected in Metropolitan's modeling.
Storage		Stored water is needed to balance demand and supply to ensure dry-year reliability. The development, use, and storage capacity of Metropolitan's stored supplies are tracked and evaluated.

Water Supply Reliability Signpost Metrics

Demographics	Changes in population, housing, and employment
Climate Change	Industry understanding of climate change impacts and emissions
Local Agency Supply	Changes to local agency supply production and capability
Imported Supply (Risks & Regulations)	Resulting supply impacts from climate change and regulations
Storage	Storage capability and accessibility

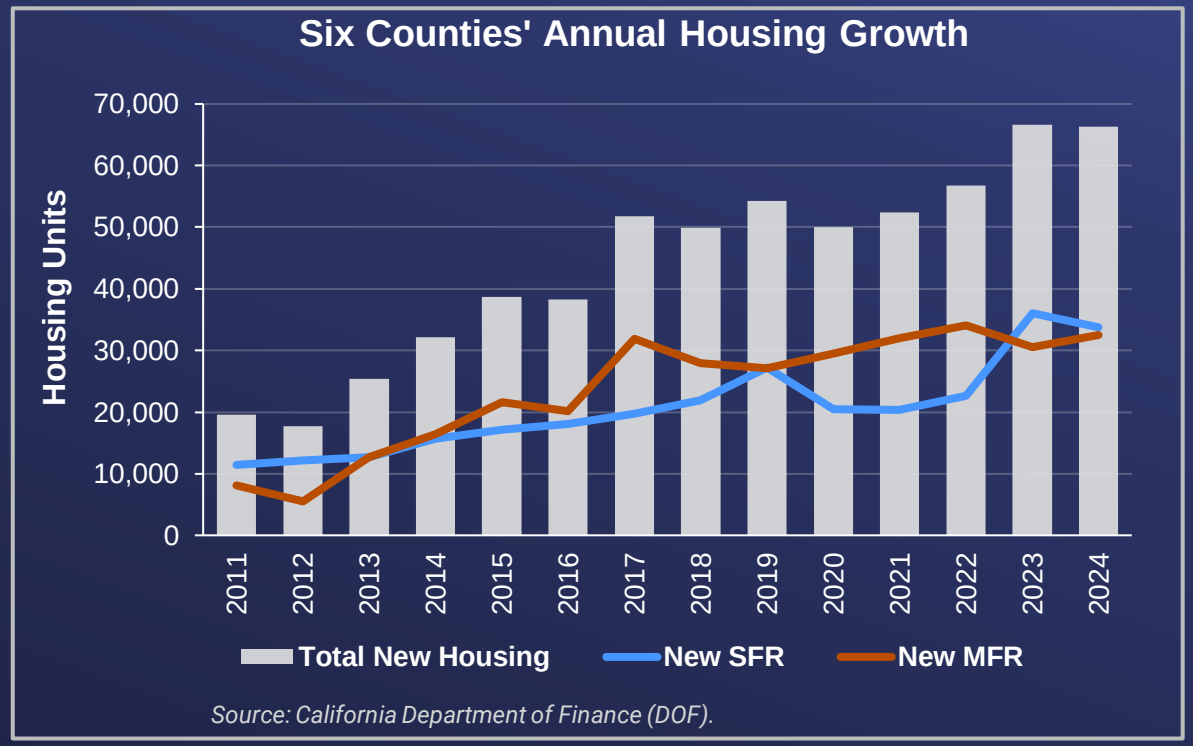
Demographics Signpost

- As of 2023, Metropolitan's service area population is estimated at ~18.5 million
  - Increase in population growth of ~400,000 people since 2011
- While the region has experienced recent population loss, this trend may be reversing (shown by white line)
  - Net loss of -37,000 in 2023 vs. -152,000 in 2021

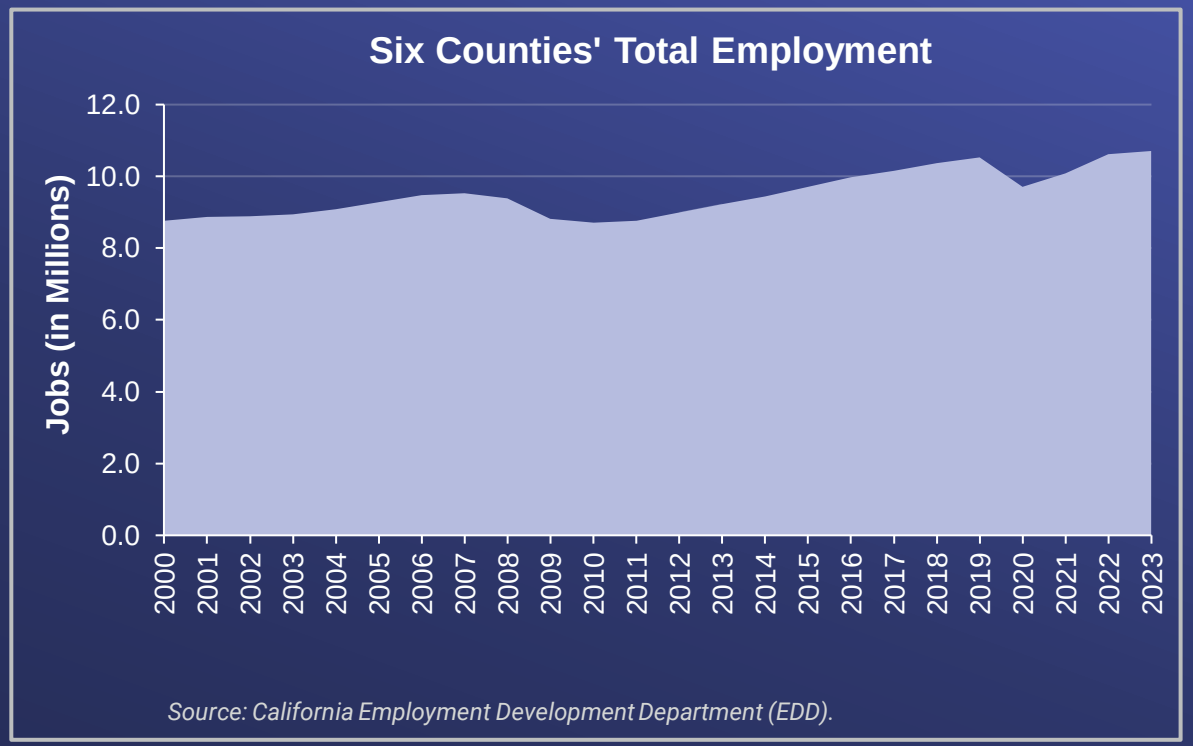


Source: California Department of Finance (DOF).
Note: Data provided by DOF does not include a comprehensive breakdown of the components of population change for the entirety of 2020.

Demographics Signpost (cont.)



Source: California Department of Finance (DOF).



Source: California Employment Development Department (EDD).

- Since the Great Recession, new housing construction reached a record high in 2023 at 66,000 units
  - Since 2011, the six-county region has added a total of 620,000 housing units

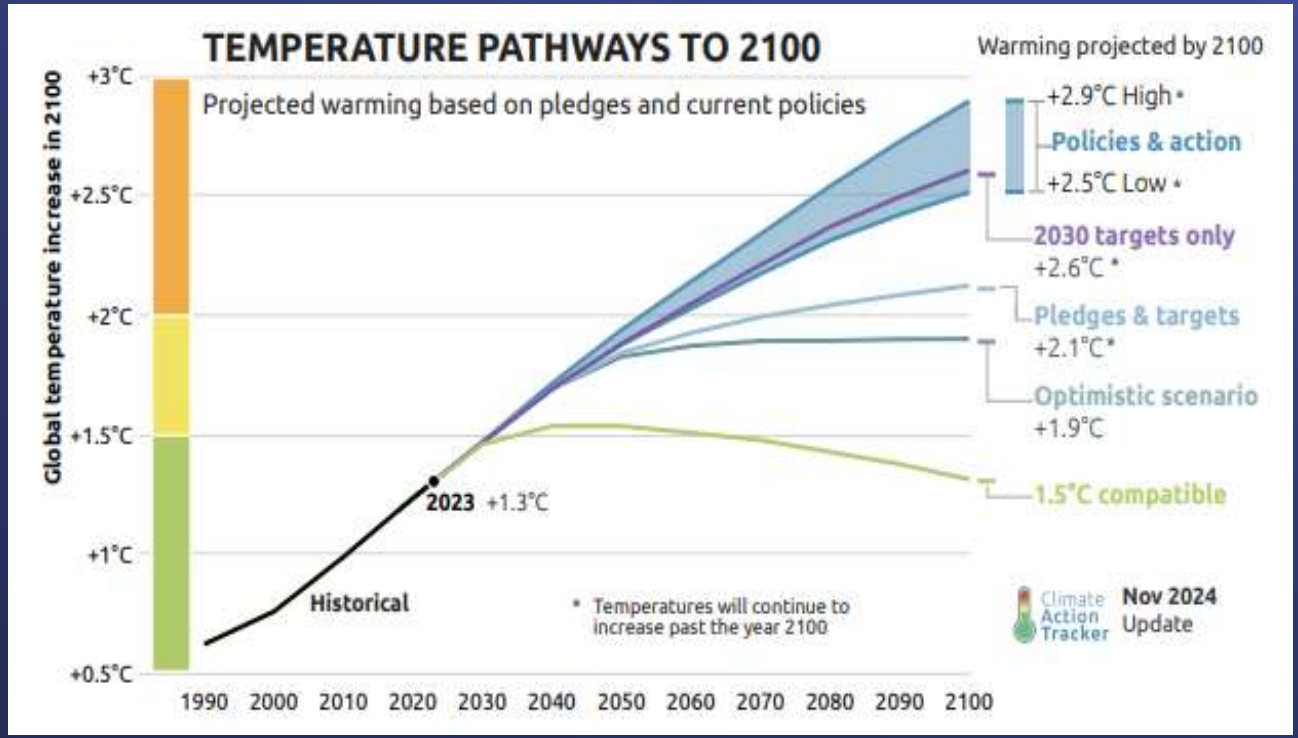
- Southern California's employment fell in 2020 during the COVID-19 pandemic but recovered to pre-pandemic levels by 2022
- Employment growth has continued on an upward trend

Demographic Signpost Finding

Demographic indicators (i.e., population, housing, and employment) support the range of uncertainty in the four IRP scenarios and neither favor nor eliminate one future over another.

Climate Change Signpost

- 2020 IRP Needs Assessment incorporated moderate (RCP 4.5) to severe (RCP 8.5) climate change futures
- Impacts described by RCP 4.5 require successful implementation of policies and actions
- Uncertainty exists as to the extent that emission targets will be achieved
  - Consideration of both RCP 4.5 and 8.5 for planning efforts remains appropriate
- Prime determinants on severity of climate change considered to be carbon emissions and loading



Source: "Warming Projections Global Update" Climate Action Tracker, November 2024.

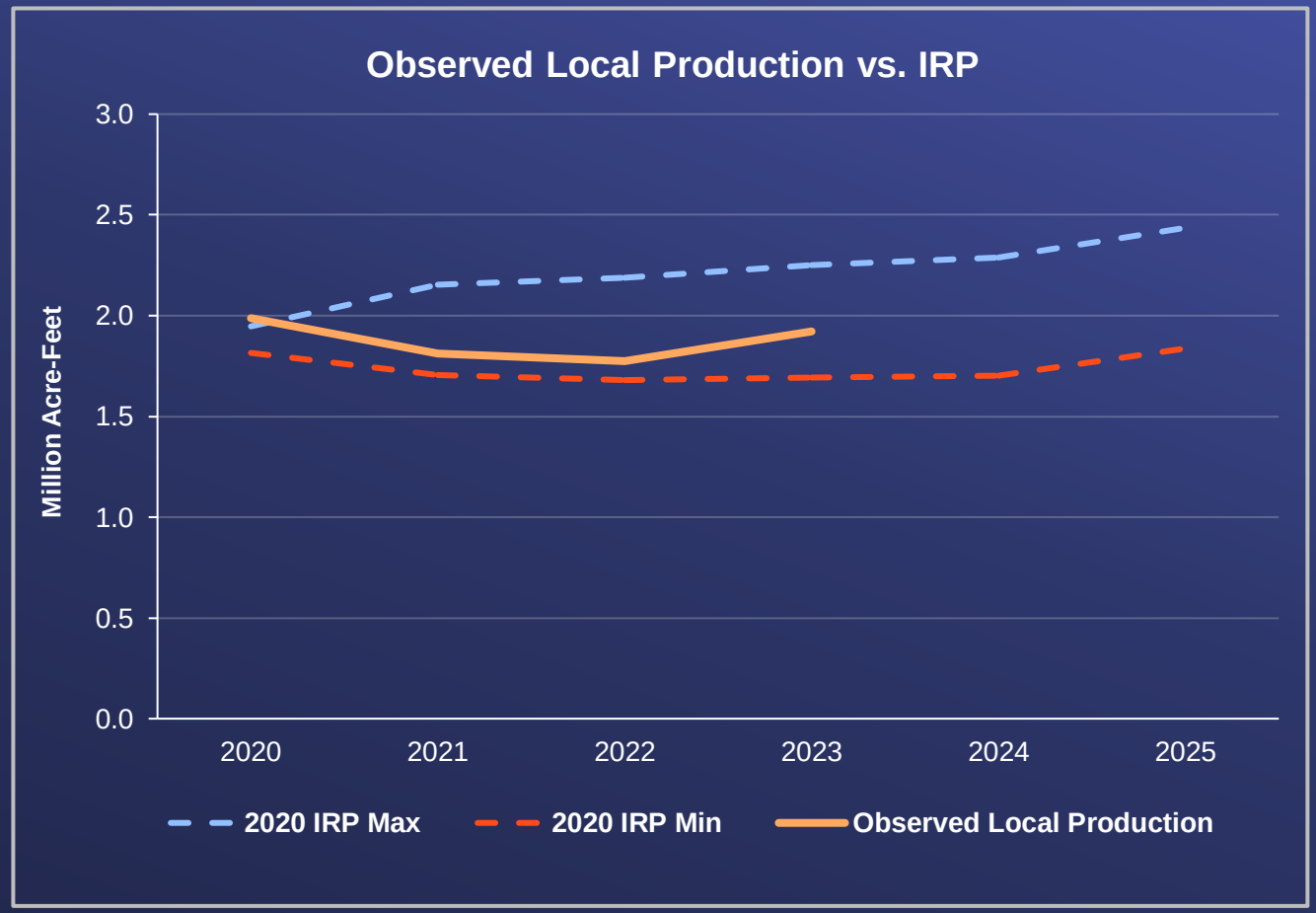
Note: While the figure above does not directly reference RCP 4.5 and 8.5, generally the temperature increase of "+2.9°C" depicted in the high end of the "Policies & action" projection aligns with year 2100 temperature assumptions consistent with RCP 4.5. RCP 4.5 results in global temperatures increasing up to 3 degrees Celsius above preindustrial levels by the end of the century. The more severe RCP 8.5 exceeds warming of 4 degrees (not shown on chart).

Climate Change Signpost Finding

Uncertainty exists as to how emission targets will be achieved in the future. Staff will explore additional methods of tracking emissions and projected climate impacts. For planning purposes, staff will continue to model both moderate and severe climate change futures.

Local Agency Supply* Signpost

- 2023 Local Agency production: 1.92 MAF
  - Long-term average production: ~1.93 MAF
- Lower groundwater production in 2023 primarily due to low retail demand and greater availability of local surface water supplies
  - Decline not due to supply or capability shortages
- Observed total local agency production was within 2020 IRP scenario planning range



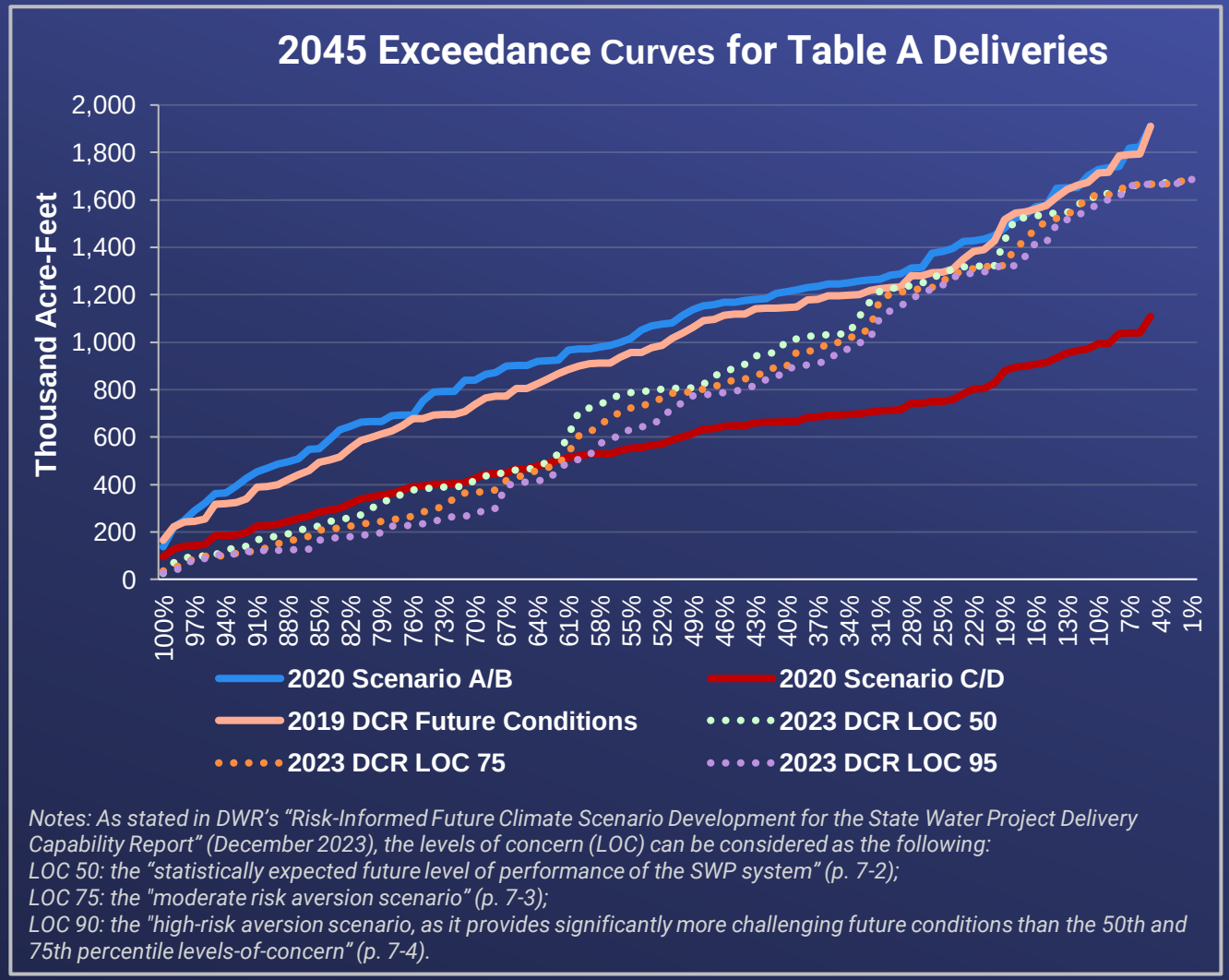
** Includes supplies produced and/or managed by local agencies including groundwater replenishment supplies purchased from Metropolitan and commonly referred to as Local Supplies.*

Local Agency Supply Signpost Finding

Recent local agency supply production remains within the minimum and maximum assumptions across the four scenarios of the 2020 IRP Needs Assessment. Local agency production will be monitored for significant systemic changes.

Imported Supply (Risks & Regulations) Signpost

- Climate change and regulations are two major uncertainties within imported supply
- 2019 and 2023 Delivery Capability Report (DCR) both do not model future regulatory uncertainties or restrictions
  - 2020 IRP Scenarios C and D have lower deliveries in wetter years than those found in the 2023 DCR levels of concern (LOCs)
- Updated State Incidental Take Permit and Federal Biological Opinion released in late 2024; Bay-Delta Water Quality Control Plan update expected in Q2 2025



Notes: As stated in DWR's "Risk-Informed Future Climate Scenario Development for the State Water Project Delivery Capability Report" (December 2023), the levels of concern (LOC) can be considered as the following:
LOC 50: the "statistically expected future level of performance of the SWP system" (p. 7-2);
LOC 75: the "moderate risk aversion scenario" (p. 7-3);
LOC 90: the "high-risk aversion scenario, as it provides significantly more challenging future conditions than the 50th and 75th percentile levels-of-concern" (p. 7-4).

Imported Supply (Risks & Regulations) Signpost (cont.)

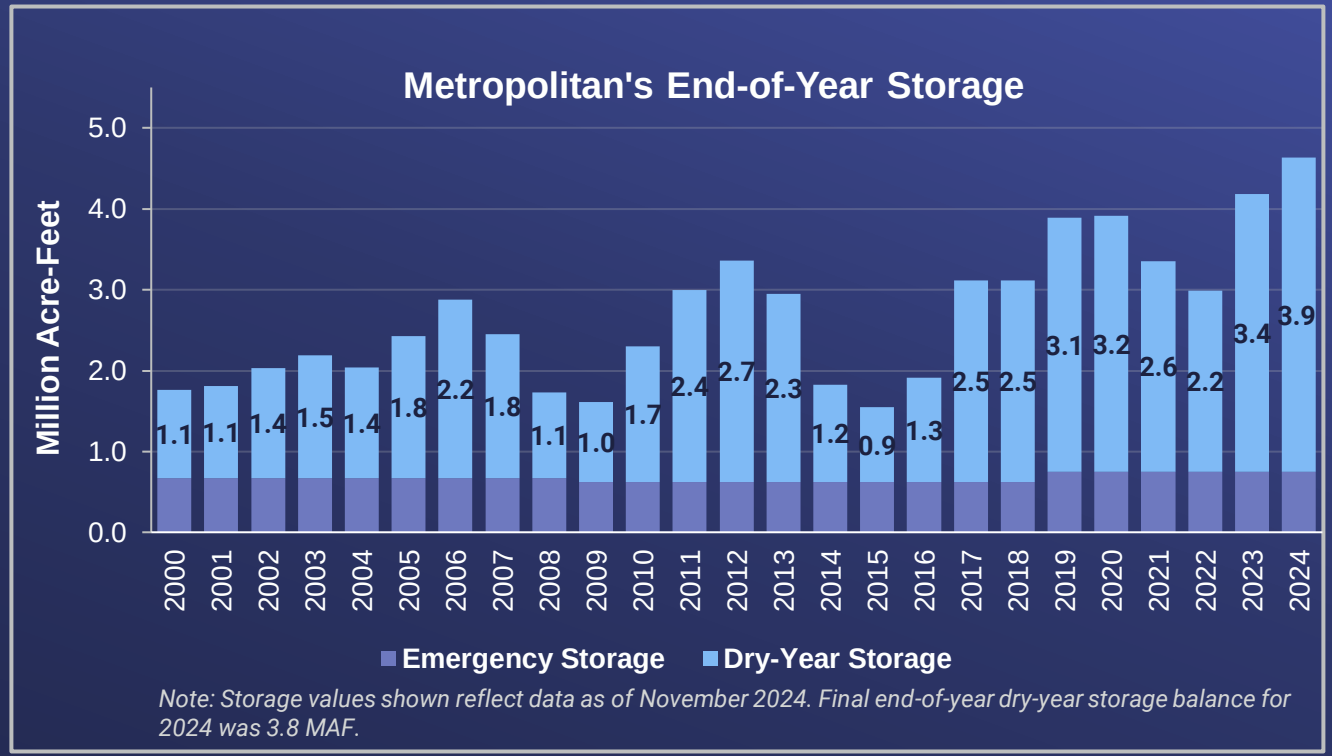
- In the short term, there are no anticipated impacts to Metropolitan's Colorado River supplies
  - Similar to CY 2024, Lake Mead will operate in a Tier 1 Shortage Condition during CY 2025
  - No DCP contributions are expected to be required in CY 2026
- Long-term outlook still contains a significant amount of uncertainty
  - Several documents and agreements are scheduled to expire at the end of 2026
  - USBR is undertaking a multi-year NEPA process to identify a range of alternatives and operations for Lakes Powell & Mead
  - Alternatives were set to be released by the CY 2024, with the analysis occurring in the first half of CY 2025

Imported Supply Signpost Finding

2020 IRP scenarios included climate change and regulations as primary uncertainties for Metropolitan's imported supplies. The results of the 2023 DCR, with respect to climate change modeling, are within the 2020 IRP range. However, the DCR did not include regulatory impacts. As regulatory changes are forthcoming for both the SWP and the Colorado River, Metropolitan staff will incorporate such changes in modeling efforts.

Storage Signpost

- Storage capacity and capability are key components of the storage signpost
- 2025 starting storage balance is higher than balances assumed in the 2020 IRP
  - Metropolitan ended CY 2024 with record high amount of storage
- Metropolitan has made great strides in storage developments, but availability of storage may change with ongoing and future negotiations



Storage Signpost Finding

While Metropolitan storage is higher than assumed in the 2020 IRP, there remains an importance in expanding and maintaining Metropolitan's storage capabilities. This includes the consideration of re-negotiating existing contracts that will have an impact on Metropolitan's storage.

Signpost Findings Summary

Demographics

Demographic indicators (i.e., population, housing, and employment) support the range of uncertainty in the four IRP scenarios and neither favor nor eliminate one future over another.

Climate Change

Uncertainty exists as to how emission targets will be achieved in the future. Staff will explore additional methods of tracking emissions and projected climate impacts. For planning purposes, staff will continue to model both moderate and severe climate change futures.

Local Agency Supply

Recent local agency supply production remains within the minimum and maximum assumptions across the four scenarios of the 2020 IRP Needs Assessment. Local agency production will be monitored for significant systemic changes.

Signpost Findings Summary (cont.)

Imported Supply (Risks & Regulations)

2020 IRP scenarios included climate change and regulations as primary uncertainties for Metropolitan's imported supplies. The results of the 2023 DCR, with respect to climate change modeling, are within the 2020 IRP range. However, the DCR did not include regulatory impacts. As regulatory changes are forthcoming for both the SWP and the Colorado River, Metropolitan staff will incorporate such changes in modeling efforts.

Storage

While Metropolitan storage is higher than assumed in the 2020 IRP, there remains an importance in expanding and maintaining Metropolitan's storage capabilities. This includes the consideration of re-negotiating existing contracts that will have an impact on Metropolitan's storage.

Current trends are tracking within the range of the 2020 IRP Regional Needs Assessment scenarios and will continue to be monitored on an annual basis

Resource-Based Time-Bound Targets

Resource-Based Time-Bound Targets (TBTs)

- Given the uncertainties in the future, Resource-Based TBTs were developed to address the scenario with the most severe supply-demand gaps (2020 IRP Scenario D)
- These TBTs are used to identify potential projects and programs to address these severe supply-demand gaps
  - An adaptive management approach through CAMP4W would be used to determine the appropriate implementation strategy
- 2020 IRP Scenario D portfolio analysis showed a need for a combination of core supply, flex supply, and storage categories to meet a future with severe climate change and high reliance on MWD supply
- CAMP4W Resource Based TBTs reflect Scenario D resource mixes for 2035 and 2045 as an upper-bound consideration for potential development needs

Current Resource-Based Time-Bound Targets

Resource-Based Targets Numbers reflect additional supplies unless indicated otherwise

CATEGORY	NEAR TERM	MID TERM	LONG TERM
Core Supply	N/A	Identify 300 TAF for potential implementation by 2035. Alternatively, 250 TAF of new storage will reduce core supply need to 200 TAF	Identify 650 TAF for potential implementation by 2045. Alternatively, 250 TAF of new storage will reduce core supply need to 550 TAF or, 500 TAF of new storage will reduce core supply need to 500 TAF
Storage	Identify up to 500 TAF for potential implementation by 2035		
Flex Supply (Dry Year Equivalent)	Acquire capability for up to 100 TAFY		

Progress on Resource-Based Time-Bound Targets

Metropolitan took several actions that advance towards Metropolitan's targets on core supply, storage, and flex supply:

- Accepted up to $125.4 million in grant funding for Pure Water Southern California
- Approved investing $141.6 million for planning and studies related to Delta Conveyance Project
- Authorized agreements for water transfer options for three years with agencies in the Sacramento Valley
- Accepted up to $82 million in federal funding to expand the Antelope Valley- East Kern High Desert Water Bank

Metropolitan and Antelope Valley-East Kern Water Agency High Desert Water Bank

Policy-Based Time-Bound Targets

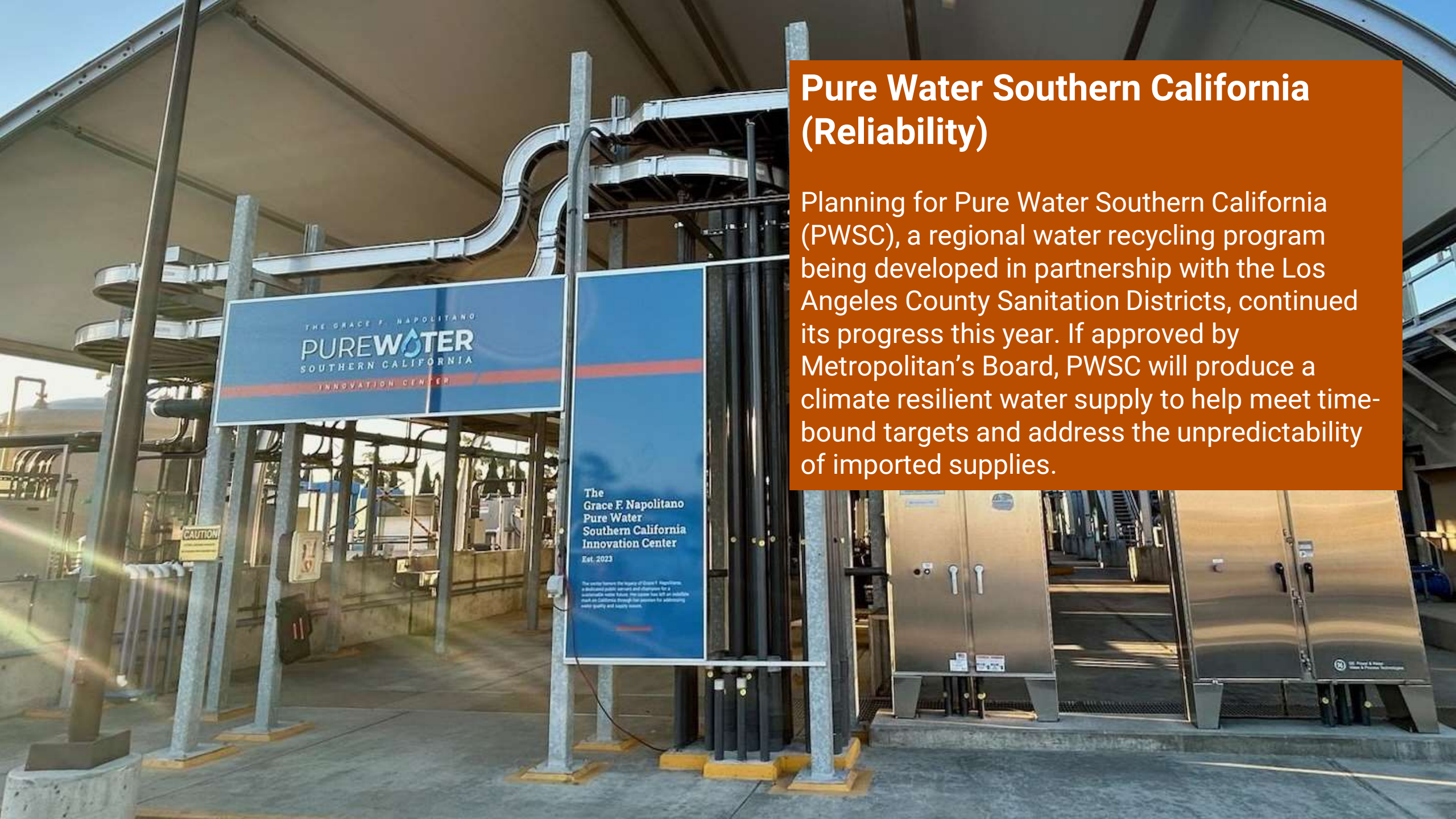
Policy-Based Targets

CATEGORY	NEAR TERM	MID TERM	LONG TERM
Equitable Supply Reliability	Add 160 CFS capacity to the SWPDA by 2026	Implement additional 130 CFS capacity to SWPDA by 2032	Implement capacity, conveyance, supply, and programs for SWPDA by 2045
Local Agency Supply[1]	Maintain 2.09 to 2.32 MAF (under average year conditions)	2.12 to 2.37 MAF (under average year conditions)	2.14 to 2.40 MAF (under average year conditions)
Demand Management[2]	Implement structural conservation programs to achieve 300 TAF by 2045		
Regional Water Use Efficiency	Assist Retail Agencies to achieve, or exceed, compliance with SWRCB Water Use Efficiency Standards[3]		
	GPCD target for 2030[4]	GPCD target for 2035	GPCD target for 2045
Greenhouse Gas Reduction	N/A	40% below 1990 emission levels by 2030	Carbon Neutral by 2045
Surplus Water Management	Develop capability to manage up to 500 TAFY of additional wet year surplus above Metropolitan's Storage Portfolio and WSDM action		
Community Equity*			
Water Quality*			
Imported Water Source Resilience*			

Policy-Based Time-Bound Targets

- Accepted $5 million in grant funding for Drought Mitigation projects; initiated implementation of Phase 1 projects
- Approved investing $600,000 in Forest Resilience Bond pilot program for forest restoration / watershed resilience
- Accepted up to $95.8 million in federal funding for replacing non-functional turf at commercial, industrial and institutional facilities
- Accepted $2 million in federal funding for water and energy efficiency improvements and turf removal in underserved communities
- Progress on zero emission vehicles purchases and charging infrastructure
- Added four projects to the Project Labor Agreement, expanding workforce development and equity for underserved communities
- Awarded $247.8 million in four new Local Resources Program projects
- Authorized storage of 100,000 acre-feet over two years through the Reverse Cyclic Program

Implementation Highlights

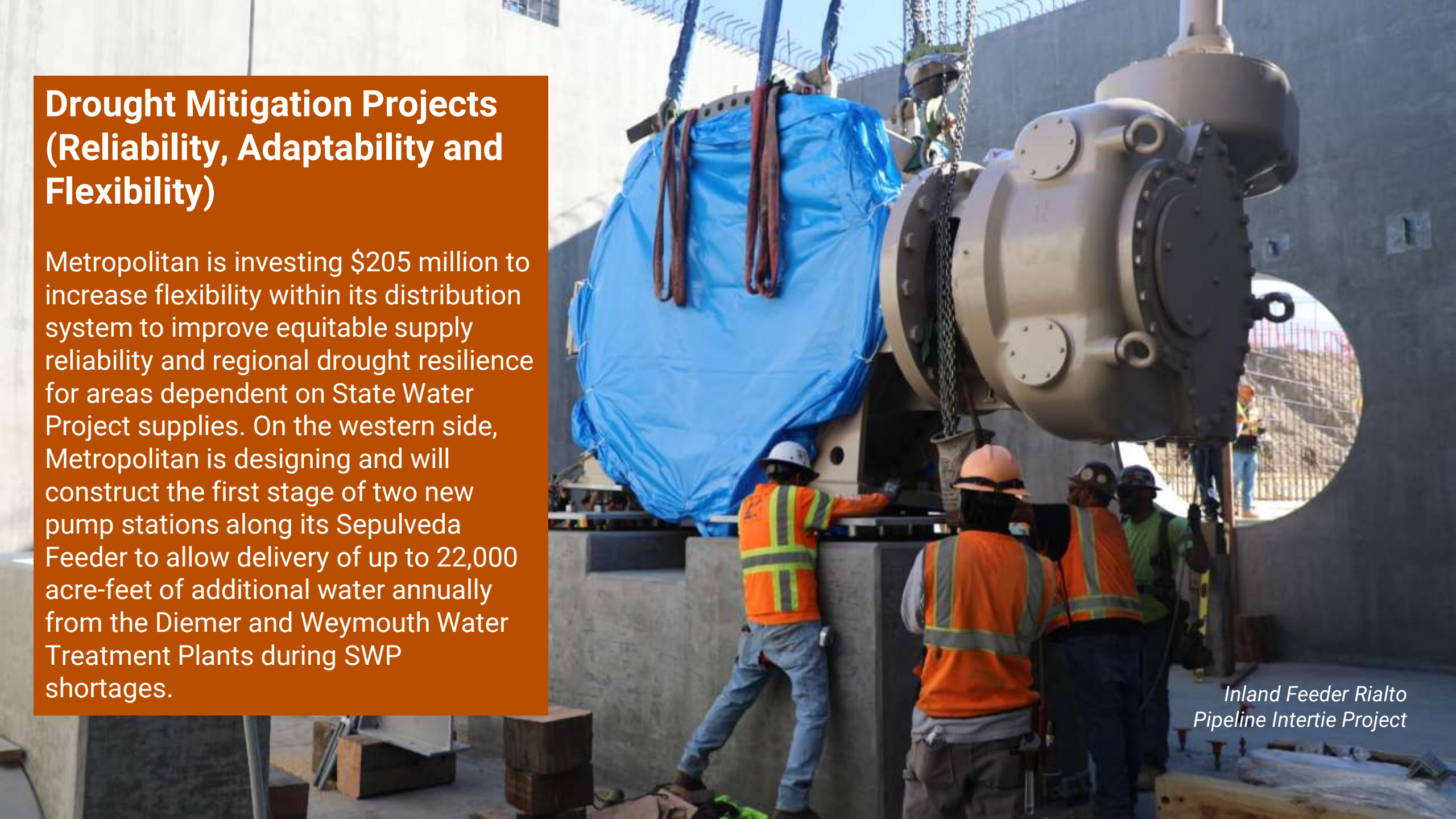


Pure Water Southern California (Reliability)

Planning for Pure Water Southern California (PWSC), a regional water recycling program being developed in partnership with the Los Angeles County Sanitation Districts, continued its progress this year. If approved by Metropolitan's Board, PWSC will produce a climate resilient water supply to help meet time-bound targets and address the unpredictability of imported supplies.

Drought Mitigation Projects (Reliability, Adaptability and Flexibility)

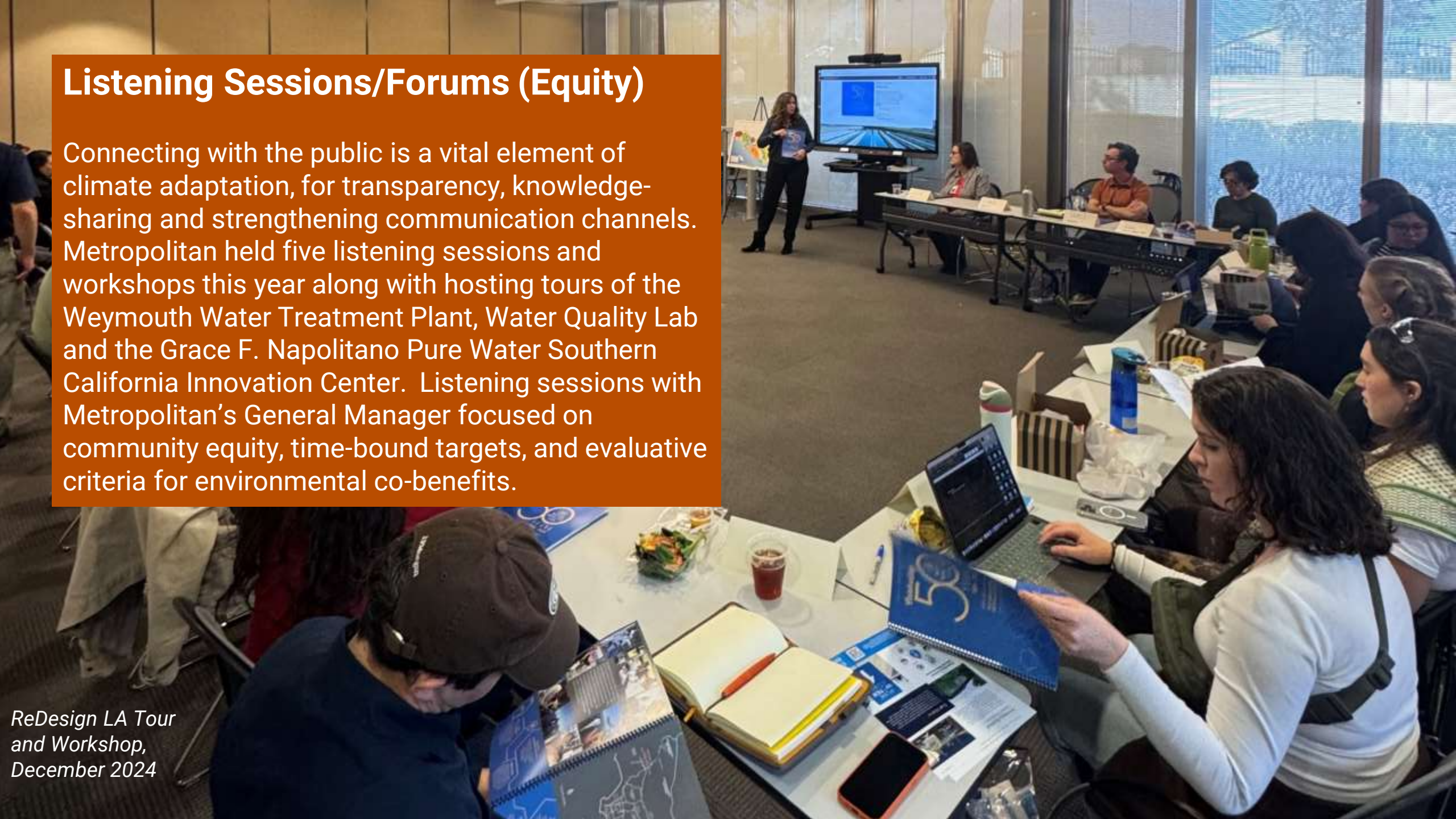
Metropolitan is investing $205 million to increase flexibility within its distribution system to improve equitable supply reliability and regional drought resilience for areas dependent on State Water Project supplies. On the western side, Metropolitan is designing and will construct the first stage of two new pump stations along its Sepulveda Feeder to allow delivery of up to 22,000 acre-feet of additional water annually from the Diemer and Weymouth Water Treatment Plants during SWP shortages.



Inland Feeder Rialto Pipeline Intertie Project

Listening Sessions/Forums (Equity)

Connecting with the public is a vital element of climate adaptation, for transparency, knowledge-sharing and strengthening communication channels. Metropolitan held five listening sessions and workshops this year along with hosting tours of the Weymouth Water Treatment Plant, Water Quality Lab and the Grace F. Napolitano Pure Water Southern California Innovation Center. Listening sessions with Metropolitan's General Manager focused on community equity, time-bound targets, and evaluative criteria for environmental co-benefits.



ReDesign LA Tour and Workshop, December 2024

Future Supply Actions Program (Reliability)

Regional climate adaptation can be advanced through working with member agencies on innovative technologies and approaches. Metropolitan is investing in research through the third round of funding for the Future Supply Actions Program. The Future Supply Actions Program funds technical studies and pilot tests to target barriers to future production of recycled water, stormwater, seawater desalination, and groundwater resources. In 2024 Metropolitan approved $2.75 million in funding for seven projects that will be led by member agencies.

Lake Henshaw Oxygenation Study
(photo courtesy of Vista Irrigation District)

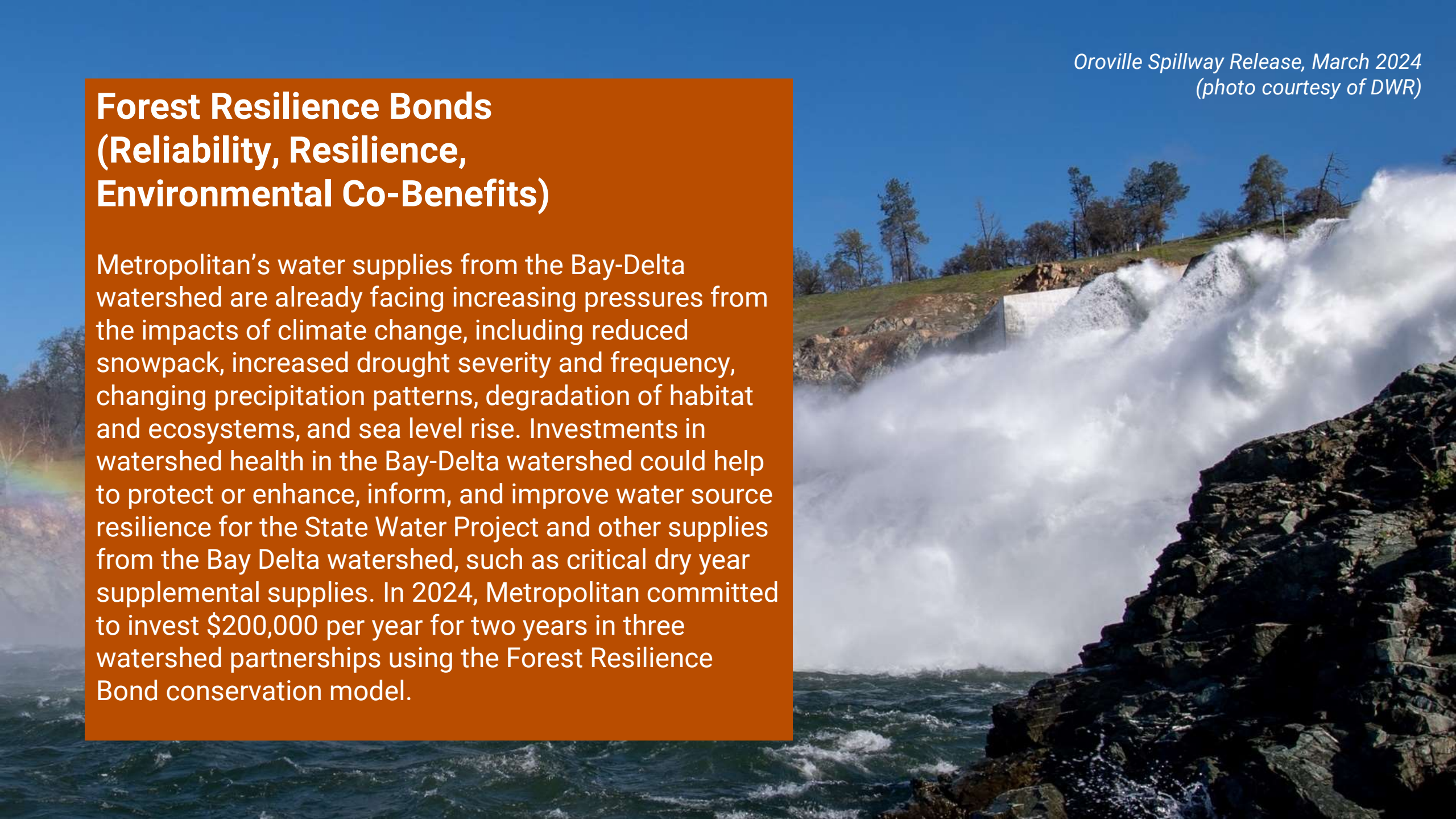
Grants (Financial Sustainability and Affordability)

Metropolitan was successful in pursuing grants to further climate adaptation work while easing the future financial impact to water ratepayers across Southern California. Grant awards this year include:

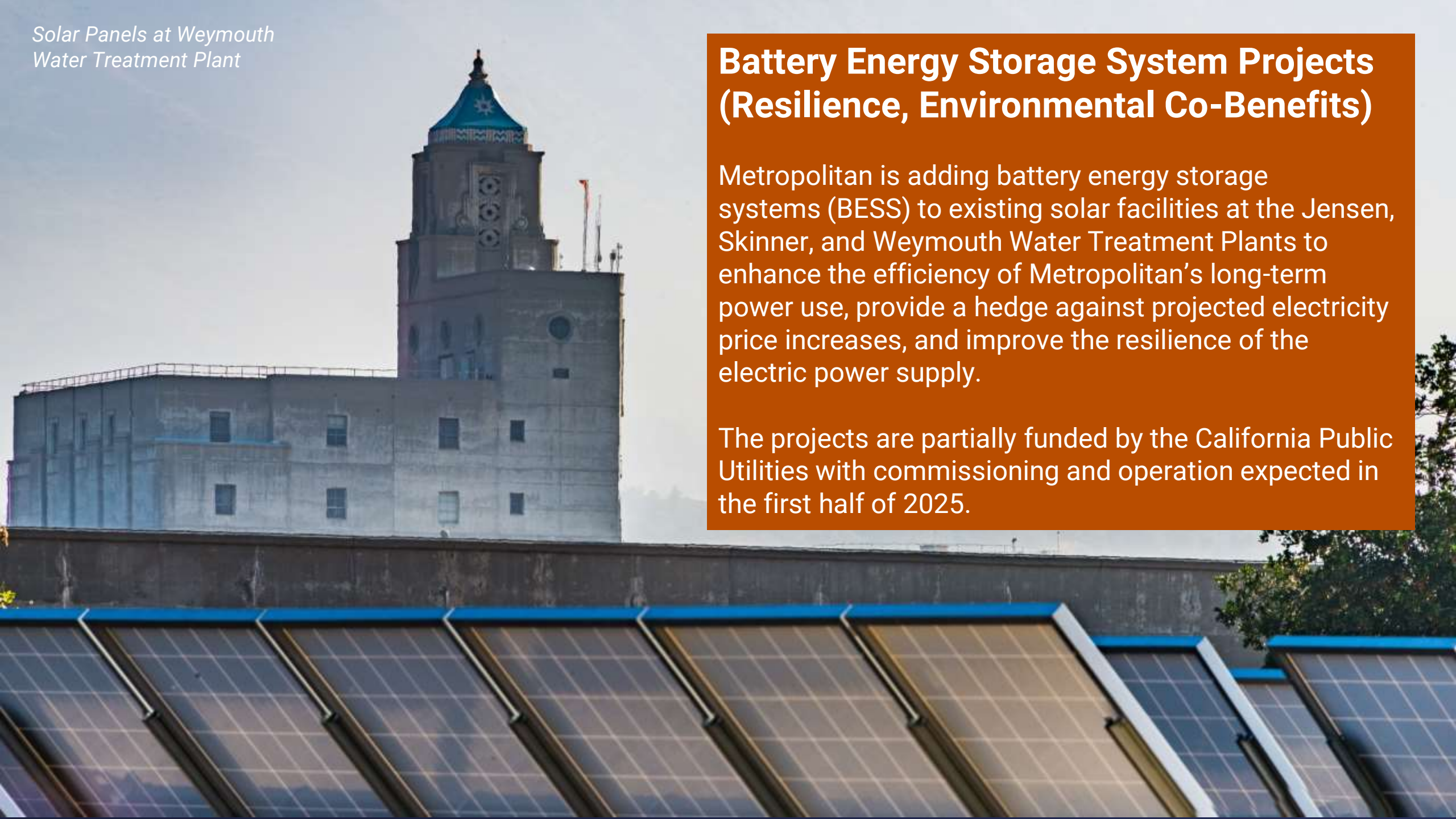
- $125.4 million from the U.S Bureau of Reclamation for planning and design of Pure Water Southern California
- Up to $178 million from the U.S. Bureau of Reclamation for phase two of the Lower Colorado River Basin System Conservation and Efficiency Program
- $2 million from the U.S. Bureau of Reclamation to support Metropolitan's ongoing collaboration with the Southern California Gas Company to provide water and energy efficiency upgrades
- $20.9 million from the Sacramento-San Joaquin Delta Conservancy to design and construct up to 3,500 acres of managed, flooded wetlands and up to 1,500 acres of rice fields on Webb Tract

Forest Resilience Bonds (Reliability, Resilience, Environmental Co-Benefits)

Metropolitan's water supplies from the Bay-Delta watershed are already facing increasing pressures from the impacts of climate change, including reduced snowpack, increased drought severity and frequency, changing precipitation patterns, degradation of habitat and ecosystems, and sea level rise. Investments in watershed health in the Bay-Delta watershed could help to protect or enhance, inform, and improve water source resilience for the State Water Project and other supplies from the Bay Delta watershed, such as critical dry year supplemental supplies. In 2024, Metropolitan committed to invest $200,000 per year for two years in three watershed partnerships using the Forest Resilience Bond conservation model.



Oroville Spillway Release, March 2024 (photo courtesy of DWR)



Solar Panels at Weymouth Water Treatment Plant

Battery Energy Storage System Projects (Resilience, Environmental Co-Benefits)

Metropolitan is adding battery energy storage systems (BESS) to existing solar facilities at the Jensen, Skinner, and Weymouth Water Treatment Plants to enhance the efficiency of Metropolitan's long-term power use, provide a hedge against projected electricity price increases, and improve the resilience of the electric power supply.

The projects are partially funded by the California Public Utilities with commissioning and operation expected in the first half of 2025.


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928