

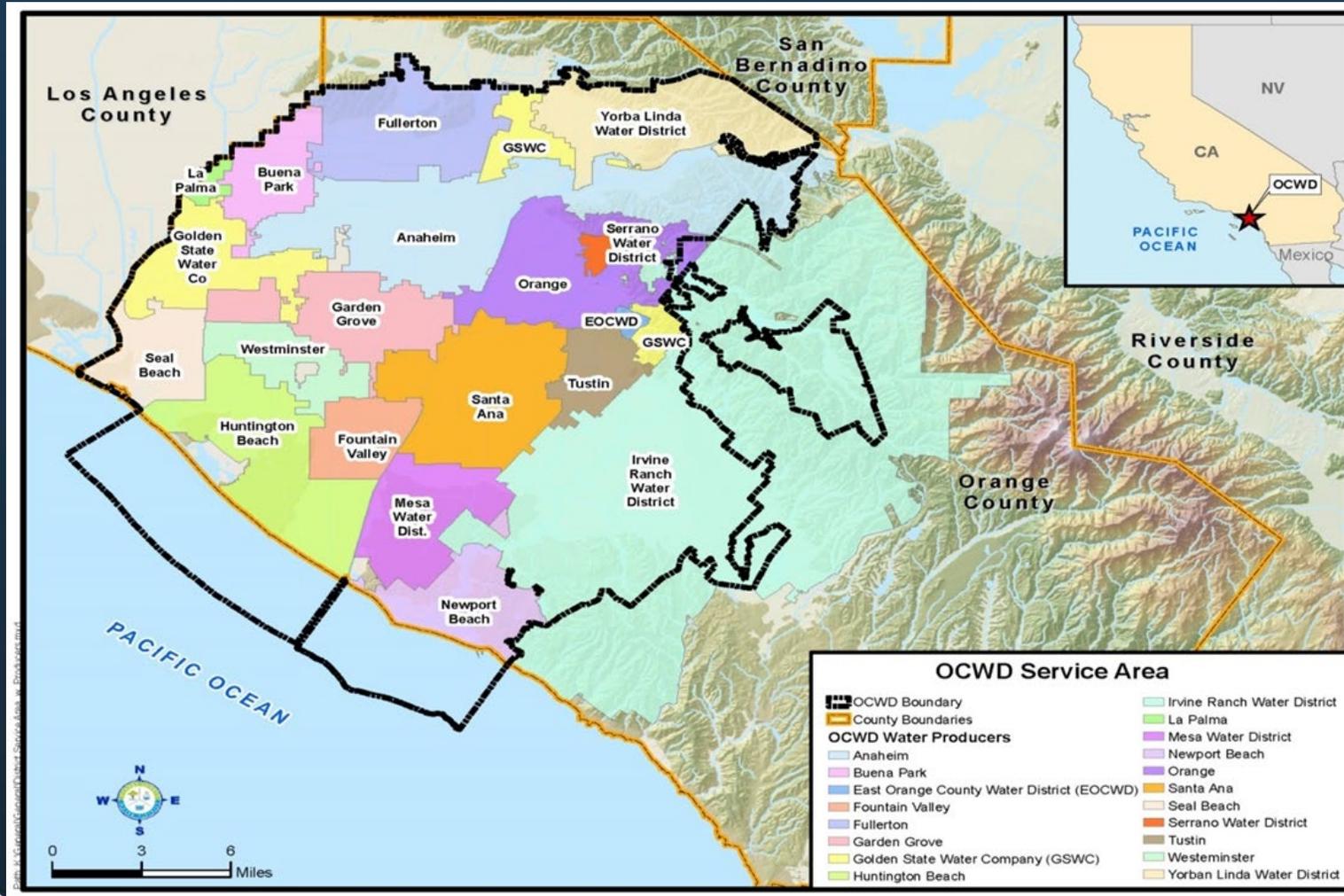
Orange County Water District Huntington Beach Ocean Desalination Project Presentation

Michael Markus – General Manager

May 15, 2020



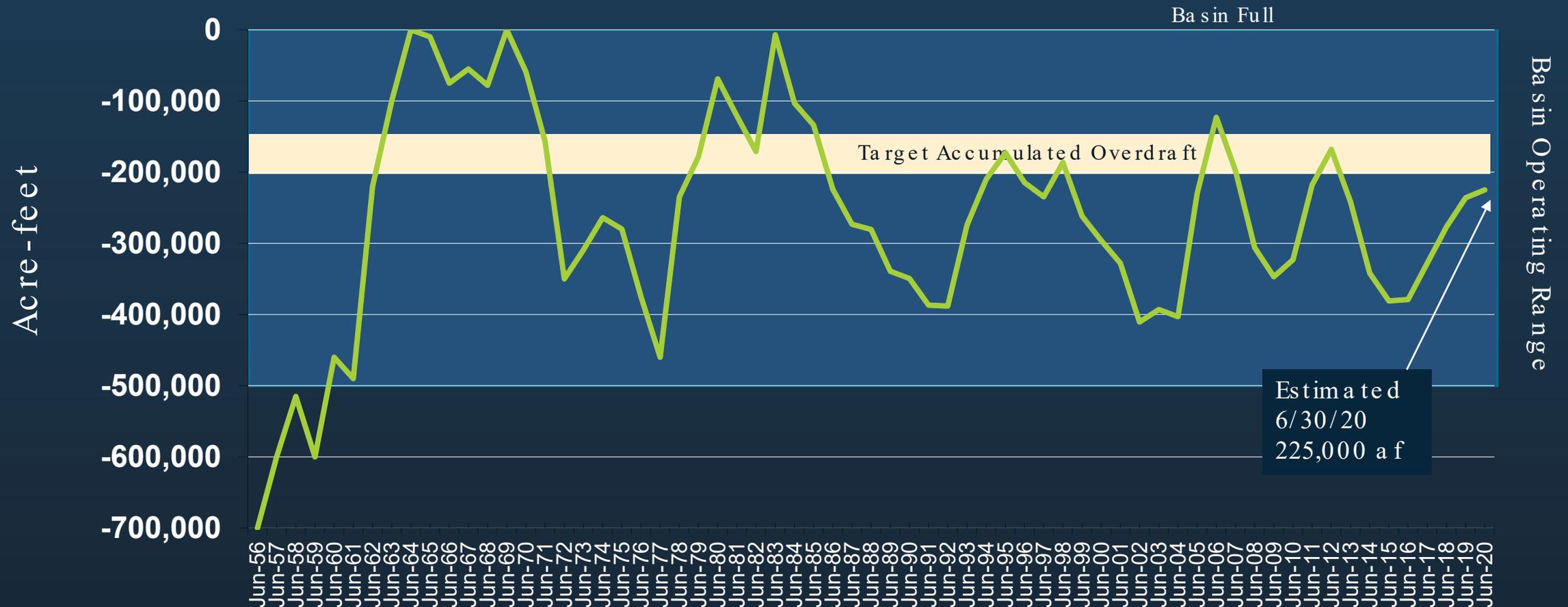
Orange County Water District (OCWD)



- Created in 1933
- Manage and protect the O.C. groundwater basin
- Serve approximately 2.5 million residents
- 13 Cities; 5 Retail Water District; 1 Investor Owned Water Agency (Producers)
- 10 member board



OCWD Groundwater Basin Accumulated Overdraft



History

- March 2010 – Entered into water purchase MOU with Poseidon
- May 2013 OCWD Board Resolution – to consider and develop new local water resources to ensure adequate water supplies are always available to the residents and businesses in the District's service territory
- July 2013 – Commissioned study of the economic feasibility of taking the entire 50 MGD / 56,000 AFY of Poseidon water and established a Citizens Advisory Committee
- November 2014 – Adopted OCWD Long -Term Facilities Plan which included consideration of a 50 MGD Poseidon Project
- May 2015 – Approved a Term Sheet with Poseidon to develop the 50 MGD project
- June 2015 – Adopted OCWD Groundwater Management Plan which included consideration of a 50 MGD Poseidon Project
- July 2018 – Approved amendments to the Term Sheet



Project Benefits

- New local 150 MGD water supply in OCWD service territory
- Drought proof & climate resilient
- Significant reduction in the amount of imported water from Northern California and Colorado River that is required to meet water demands
- Insurance from climate change impacts
- Further diversifies water sources
- Lower total dissolved solids concentration compared to imported water supplies being replaced
- Improves reliability and security of the region's water supplies
- OCWD takes ownership of project at end of contract term

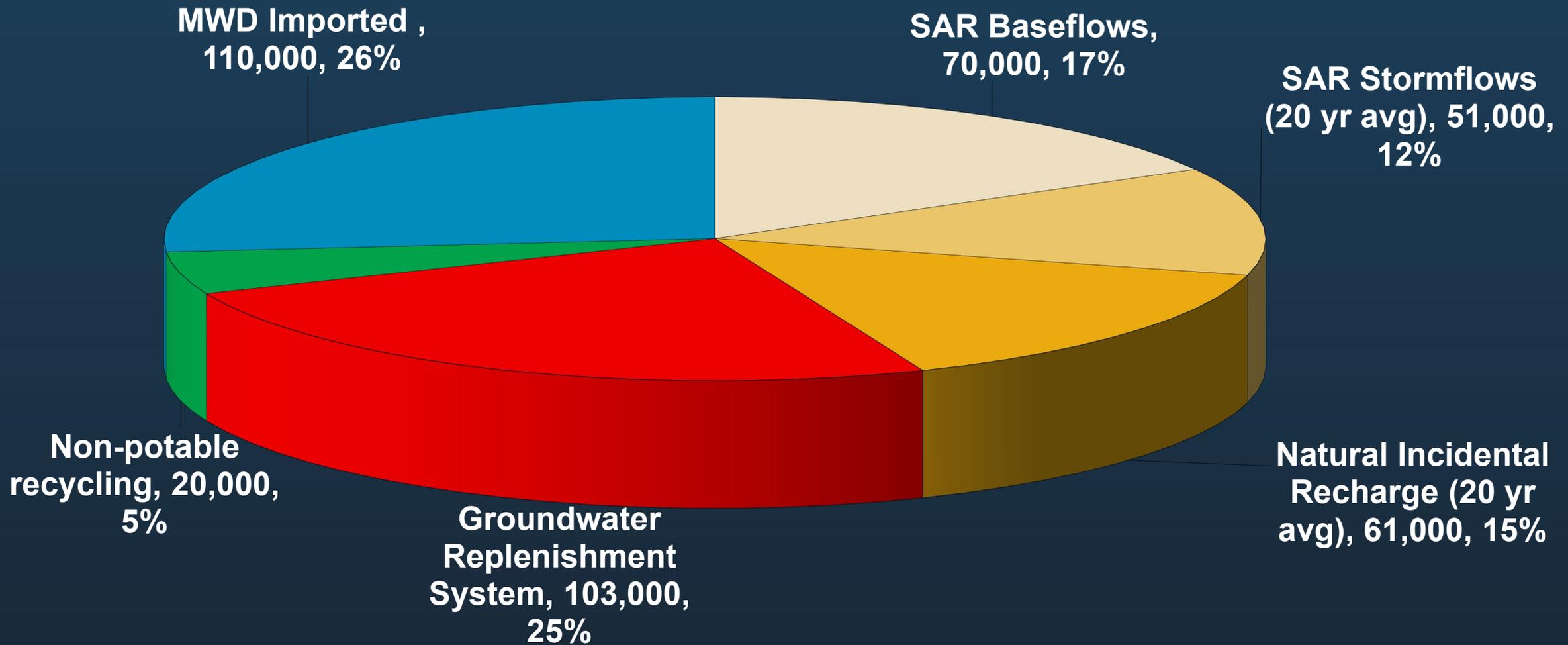


Poseidon OCWD Term Sheet

Provides key deal points to prepare a water purchase agreement

- Poseidon develop, permit, finance, design, construct and operate treatment plant
 - OCWD pays for plant water at the “fence line”
- OCWD develop, permit, finance, design, construct and operate distribution system
 - OCWD has option to have Poseidon design & construct the distribution system
- 30 to 35 year deal
- **Conditions Precedent** (to finalize a water purchase agreement with OCWD & construct a project)
 - Poseidon obtains necessary permits for plant
 - Distribution Plan is finalized
 - MWD LRP operating subsidy obtained



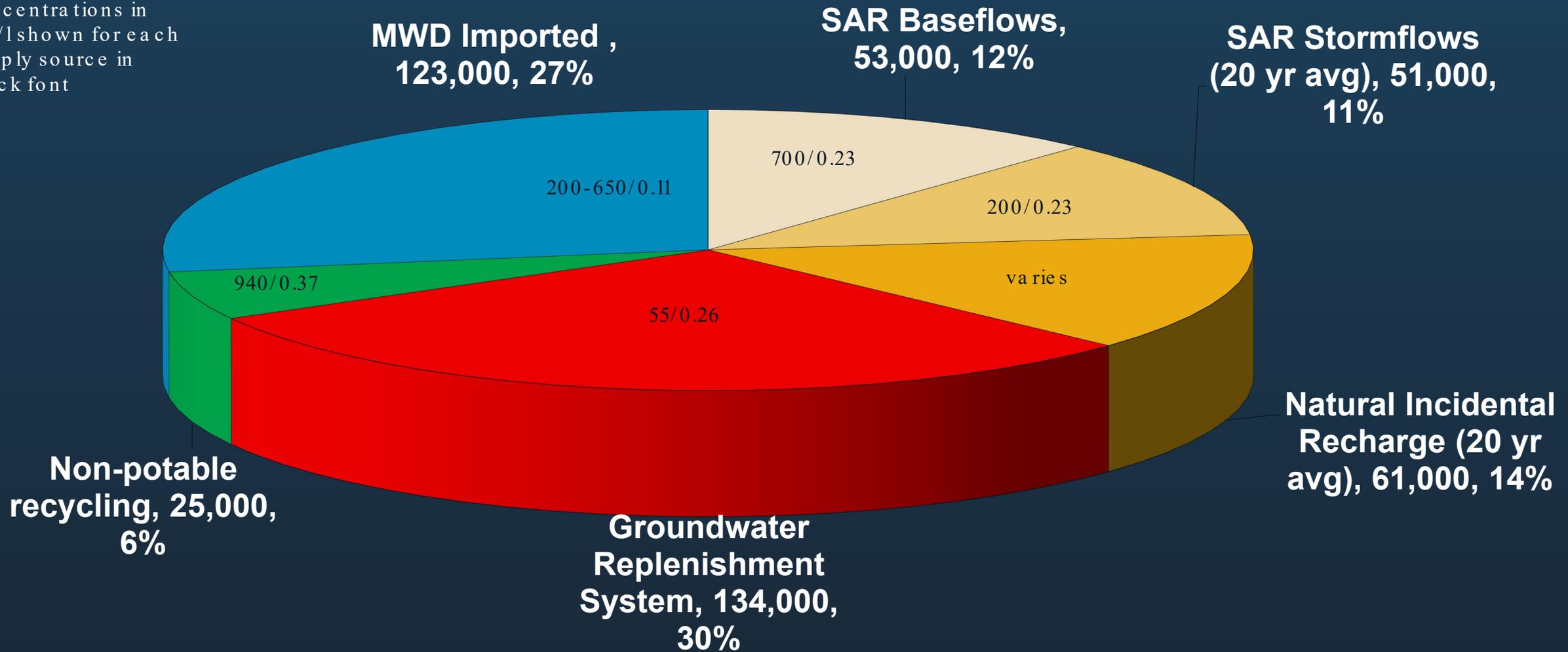


2020 Total Water Demands of 415,000 afy Within OCWD



Current OCWD Service Territory Water Supply Sources

Typical TDS/Boron concentrations in mg/l shown for each supply source in black font

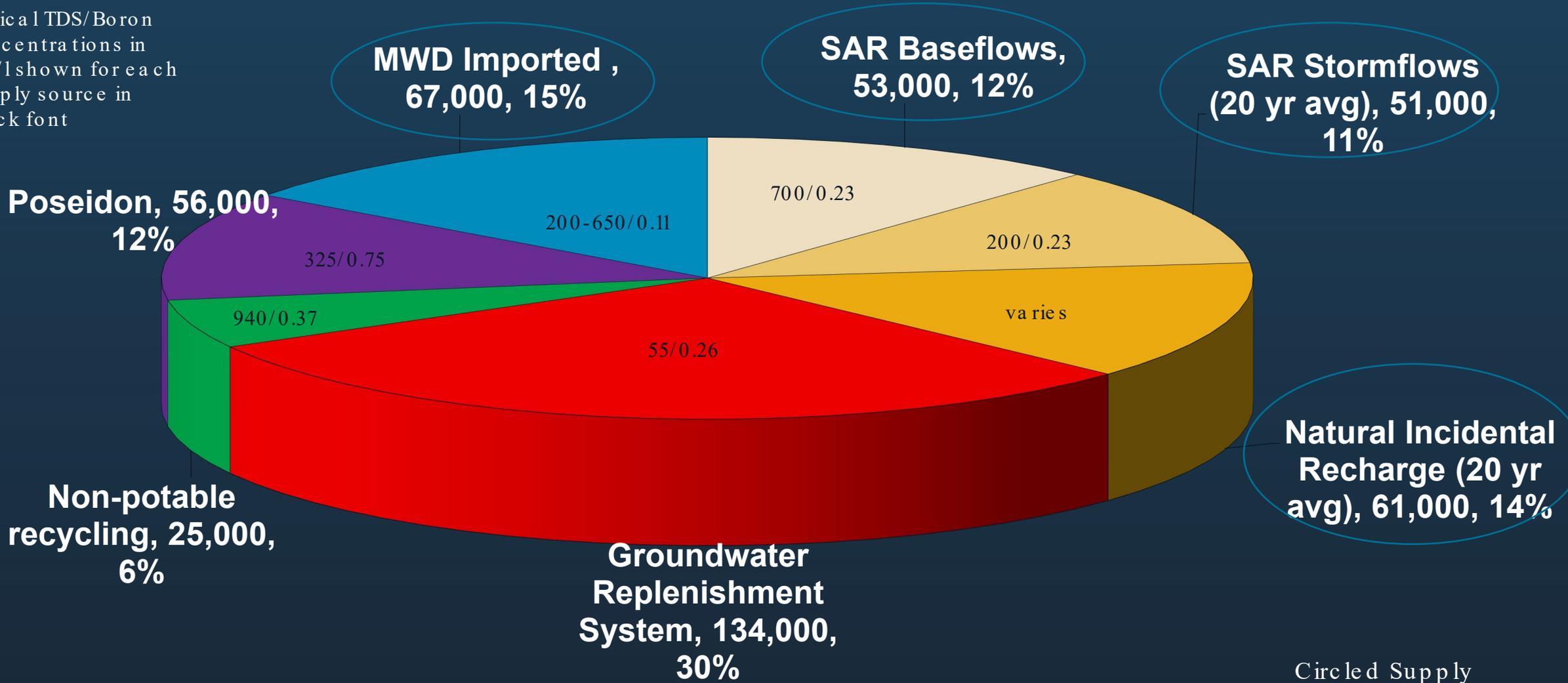


2040 Total Water Demands of 447,000 afy Within OCWD



Potential Future 2040 OCWD Service Territory Water Supply Sources

Typical TDS/Boron concentrations in mg/l shown for each supply source in black font



2040 Total Water Demands of 447,000 afy Within OCWD

Circled Supply Sources Susceptible to climate change impacts



Potential Future 2040 OCWD Service Territory Water Supply Sources

Project Compliance with Ocean Plan Amendment “Need Provisions”

OCWD staff concur with Regional Board staff that project meets Ocean Plan Amendment requirement for need

- OCWD Board approved a Term Sheet with Poseidon for a 50 MGD project
- Project is listed in a regional Urban Water Management Plan
- Project is listed in the OCWD Groundwater Management Plan
- Project is listed in the OCWD Long-Term Facilities Plan
- Metropolitan Water District Integrated Resources Plan and Urban Water Management Plan recognizes role of ocean desalination in meeting local water supply targets



Estimated Year 2022 Project Unit Cost

(Provided to OCWD Board on June 2018)

Item	Unit Cost (30 year deal)
Treatment Plant Cost	\$1,916/a f
MWD LRP Subsidy	<u>(\$475/a f)</u>
Total Project Unit Cost	\$1,441/a f

Cost to distribute water not included – ranges from \$200/a f to \$500/a f



Project Consumer Cost Impacts

- OCWD and Poseidon need to negotiate and finalize a water purchase contract
- Need to select a distribution plan
- Preliminary estimate - \$3 to \$6 increase to a typical residential monthly water bill



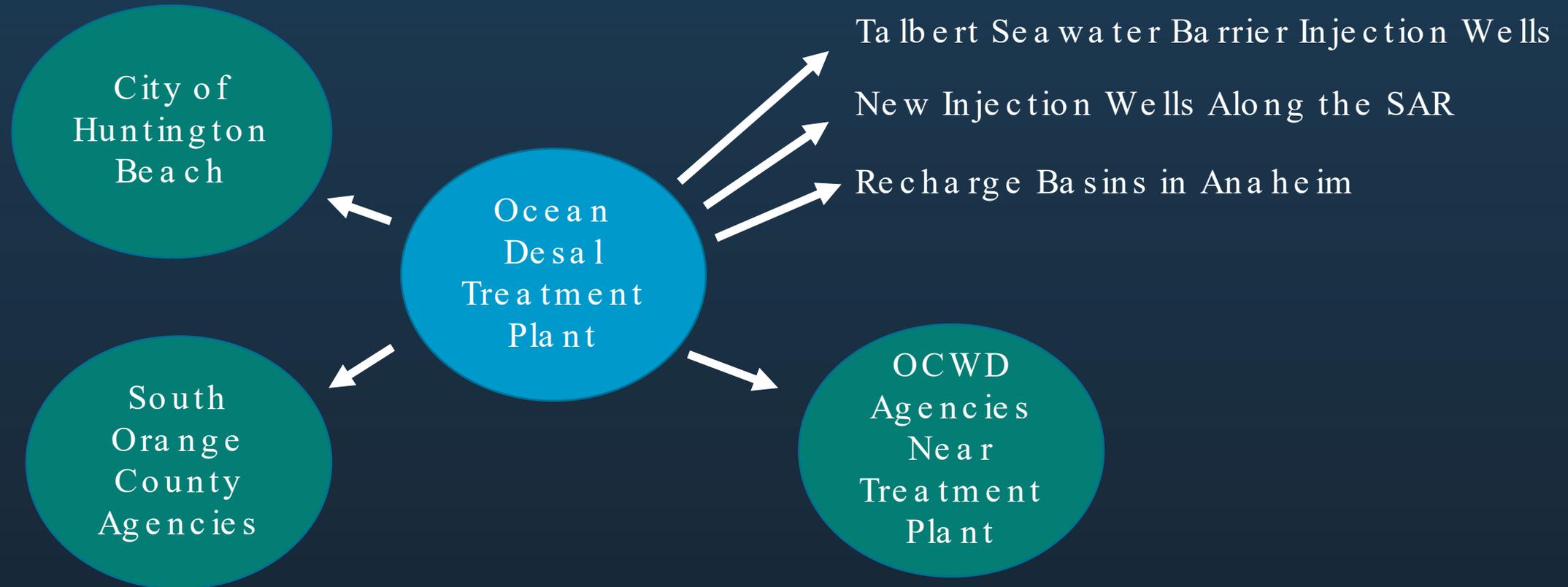
Why is Treatment Plant Sized at 50 MGD / 56,000 AFY?

- Plant would significantly reduce the amount of future imported water needed in the OCWD service area (124,000 AFY)
- Plant would provide insurance against possible climate change impacts (Future needed supplies susceptible to climate change impacts total approximately 288,000 AFY)
- Plant is large enough to benefit from “economies of scale”
- Distribution of 56,000 AFY is manageable



Treatment Plant Distribution Options

OCWD Facilities



Water Purchase Agreement Flow Chart

Conditions that must be met before Water Purchase Contract

CEQA – City of
Huntington Beach ✓

Orange County
Water District ✓

Santa Ana Regional Water
Quality Control Board

Coastal Commission

Plant capacity established through
Project objectives

Water Purchase Agreement
Term Sheet

NPDES
Permit

CDP
Permit

Water Purchase Agreement Executed AFTER

- Project Permitted
- Construction Contract (Project Costs) finalized
- Distribution system finalized
- MWD LRP Secured

Water Purchase Contract Execution

Binding contract to purchase the output of
the plant is a condition of project financing
and plant construction

Project Financing

Project Construction



MWDOC Water Reliability Study

Future OCWD Maximum Water Supply Need is 22,000 a fy

Different Assumptions	Estimated OCWD Amount of Lost Water
Sacramento Delta “Water Fix” Type Project Never Occurs	40,000 a fy
Santa Ana River Base Flows Decline to 34,000 a fy	19,000 a fy
MWD Carson Regional Recycle Water Project not extended to Orange County	<u>20,000 a fy</u>
Total	79,000 a fy

New Water Supply Need 101,000 a fy



Alternative OCWD Future Water Supply Projects

Project	Possible Water Supply	Comments
CADIZ	5,000 to 10,000 a fy	The project has yet to overcome significant regulatory and institutional challenges.
West Orange County Wellfield	3,000 to 6,000 a fy	This project has significant feasibility and institutional challenges.
Pra do Da m storage operation to elevation 505'	7,000 a fy	This project relies upon rainfall capture. During dry winters, it's possible the project would not supply any new water.
GWRS RO Brine Recovery	5,000 to 10,000 a fy	Project only needed if OCSD flows to GWRS are insufficient to produce 130 MGD
Santa Ana River Conservation and Conjunctive Use Program	12,000 a fy	This is a project to store water for drought cycles. The success of project is dependent on availability of surplus water from the State Water Project.
Peter's Canyon Water Treatment Plant	<u>6,720 a fy</u>	This East Orange County WD project has significant feasibility and institutional issues
Total	38,720 – 51,720 a fy	



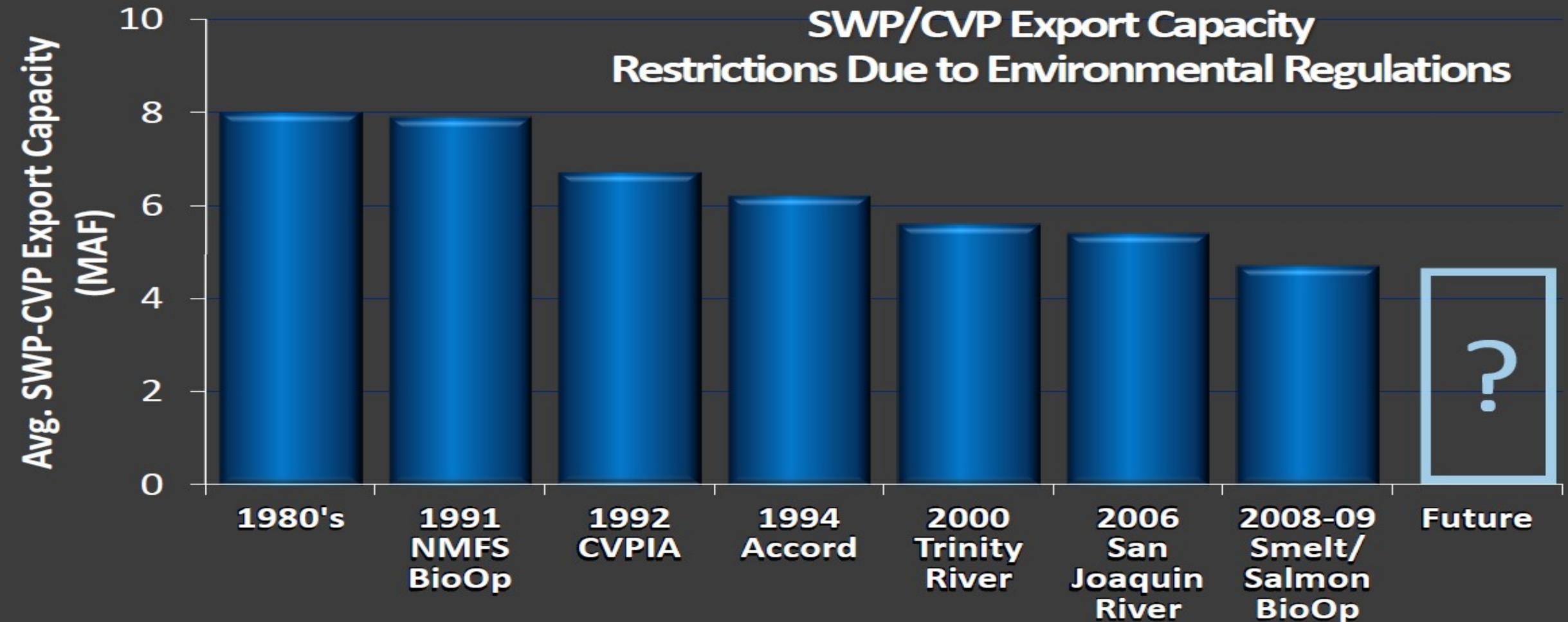
End of Presentation



Additional Slides if Needed



State & Federal Project Supplies History of Regulatory Restrictions



Lake Mead Photos

