Lower Colorado River Tour

February 28, 2019

Sarah Bartlett
Metropolitan Water District
Metropolitan Water District

Water Wholesaler
5,200 Square Miles
26 Members Agencies
19 Million People
4 MAF Annual Demand

½ Local Supplies
½ Imported Supplies
Metropolitan’s imported water supplies

Upper Colorado River Basin Watershed

Average 10-year Deliveries

- SWP: 0.8 MAF
- CRA: 1.0 MAF
Colorado River use maximized during California droughts

- 100% SWP Allocation
- Near Full CRA

MAF

- SWP Allocation
- CRA Diversions

Years: 2003 to 2018
How we used to fill the Colorado River Aqueduct

~1.2 MAF

Surplus Supplies

Basic Apportionment
Colorado River Apportionments (MAF)

Upper Basin States
- WY: 1.04
- CO: 0.49
- UT: 1.71
- NM: 0.84
- AZ: 3.86
- NV: 1.8
- CA: 2.8
- Mexico: 0.39

Lower Basin States
- WY: 0.8
- CO: 0.49
- UT: 0.8
- NM: 2.4
- AZ: 2.5
- NV: 0.2
- CA: 0.5
- Mexico: 0.05

Deliveries in 1990s
- Mexico: 2
- WY: 5
- CO: 2.5
- UT: 0.3
- NM: 0.2
- AZ: 1.5
- NV: 0.1
- CA: 5
- Lee's Ferry: 4

Apportionments
- Upper Basin: 10.3
- Lower Basin: 10.3
- Mexico: 3
- Total: 23.6

Legend:
- Blue: Apportionments
- Orange: Deliveries in 1990s
<table>
<thead>
<tr>
<th>Priority</th>
<th>California Party</th>
<th>Million acre-feet</th>
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<tbody>
<tr>
<td>1</td>
<td>Palo Verde Valley Irrigation District</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Yuma Project</td>
<td>3.85</td>
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<tr>
<td>3</td>
<td>Imperial Irrigation District</td>
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<td></td>
<td>Coachella Valley Water District</td>
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<td>4</td>
<td>Metropolitan Water District</td>
<td>0.55</td>
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<tr>
<td></td>
<td></td>
<td><strong>Subtotal</strong></td>
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<tr>
<td>5</td>
<td>Metropolitan Water District</td>
<td>0.70</td>
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<td><strong>Total</strong></td>
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**1931 Seven Party Agreement California Water Allotments**
## Quantification Settlement Agreement

### Quantified Water Budgets

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<th>Priority</th>
<th>California Party</th>
<th>Million acre-feet</th>
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<tr>
<td>1</td>
<td>Palo Verde Valley Irrigation District</td>
<td>0.42 (Average)</td>
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<tr>
<td>2</td>
<td>Yuma Project</td>
<td>3.10</td>
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<td>3</td>
<td>Imperial Irrigation District</td>
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<td>4</td>
<td>Coachella Valley Water District</td>
<td>0.33</td>
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<tr>
<td>4</td>
<td>Metropolitan Water District</td>
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<td></td>
<td><strong>Total</strong></td>
<td><strong>4.40</strong></td>
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* Amount fluctuates based on PVID/Yuma Project use, unused IID and CVWD water
How we fill the Colorado River Aqueduct moving forward

~1.2 MAF

- Invest in local supplies and demand reduction
- Agricultural partnerships

Basic Apportionment
Metropolitan has invested $1.4B to reduce demands and develop local supplies

$158M
941,000 acre-feet recovered

$782M
2,848,000 acre-feet saved

$474M
2,757,000 acre-feet produced

### Regional Water Supply Reliability

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<th>Program</th>
<th># of Projects</th>
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<td>Recycling</td>
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<td>Groundwater</td>
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Demands have decreased

**Potable Per Capita Water Use***
Metropolitan's Service Area

*2017 GPCD based on best available data as of July 2018 and is subject to reconciliation.*
QSA Opens Door For Supply Programs
Agriculture Conservation Measures with IID

- 50-year Program (1990-2040)
- Between 100 and 110 TAF conserved each year
- Allows IID to grow the same crops with less water
IID-MWD Conservation Program Yield

Acre-feet

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<tbody>
<tr>
<td>Yield</td>
<td>20,000</td>
<td>40,000</td>
<td>60,000</td>
<td>80,000</td>
<td>100,000</td>
<td>120,000</td>
<td>140,000</td>
<td>160,000</td>
<td>180,000</td>
<td>200,000</td>
<td>220,000</td>
<td>240,000</td>
<td>260,000</td>
<td>280,000</td>
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All-American, Coachella Canal Lining
PVID Land Fallowing

- 35-year Program (2005-2040)
- Variable Fallowing Call
- Stabilizes Farm Economy
- Community Improvement Program
Development of Lake Mead Storage (ICS) Program

- MWD can store 1.5 million acre-feet in Lake Mead
- Avoids costs and impacts of building new storage reservoirs
How We Fill the Colorado Aqueduct Today

1.2 MAF

ICS Storage

Land Fallowing

Conservation Programs

Basic Apportionment
Dealing with Drought and Overallocation
Upper Colorado River Basin Runoff

Historic Drought

Runoff (MAF)

10.83 MAF Average

78%
Increasing Chances of Shortage

Lake Mead Elevation
Max. Capacity 1229 ft, 26.1 MAF

69% Chance of Shortage in 2020

Shortage Elevation 1,075'

EOM Elev  Shortage  Surplus
Drought Contingency Plan to Help Avoid Shortage on the Colorado River

If Mead falls below 1,020’, AZ, NV, and CA could all face severe and sustained water curtailments.
Summary of Proposed DCP

Goal is to avoid Lake Mead reaching critical elevations

- Water use reductions triggers for each state
  - In addition to existing shortage amounts
- Delivery reduction amounts conditionally recoverable
- Provides flexibility during shortages
  - Delivery of stored water in Lake Mead (ICS)
  - Interstate Banking
Total Lower Basin Contributions with DCP by Elevation

- Thousand Acre-feet
- California Contribution
- Nevada Contribution
- Arizona Contribution
- Nevada Shortage
- Arizona Shortage

Lake Mead Elevation (feet)
If DCP is approved, what’s next?

- Negotiations on post-2026 operating guidelines to begin immediately
- MWD to conduct study looking at new Colorado River water supply options