Central Arizona Project

336-mile aqueduct stretches from Lake Havasu to Tucson

14 pumping plants lift water nearly 3,000 feet

8 siphons, 3 tunnels

Lake Pleasant/New Waddell Dam

Delivery of Colorado River water began in 1985
1916 - 1922

• Various proposals are made to bring Colorado River water into central Arizona

• In 1922, engineers survey an aqueduct route from Parker to the Salt River valley

Representative Carl Hayden
Colorado River Compact

1922 - Colorado River Compact approved
1944 Arizona Joins CO River Compact

Arizona reserves 2.8 MAF entitlement
Treaty with Mexico for 1.5 million acre-feet
1952 - 1963

U.S. Supreme Court confirms Arizona’s rights to Colorado River water in Arizona

Mark Wilmer
1968

CAP authorized by Congress in Colorado River Basin Project Act

Senator Carl Hayden
1973

Reclamation begins construction of CAP
CAP Construction
1985

First CAP water delivery – Harquahala Valley Irrigation District
Mark Wilmer Pumping Plant

The system begins with an initial lift of 826’ then travels through a 7-mile tunnel to the aqueduct.
Waddell Dam and Lake Pleasant

Waddell pumping plant is unique in the system, it generates electricity. Waddell Dam creates Lake Pleasant, the largest of the 3 reservoirs in the CAP system.
Lake Pleasant

CAP’s Largest Reservoir – Seasonal storage, ~ 800 kaf capacity
Superstition Mountains recharge site is one of six recharge sites storing excess water in the aquifer.
CAP Service Area

3 counties

23,790 square miles

< 8” annual rainfall

5 million people (approx. 80% of Arizona’s population)

350,000 acres of irrigated agriculture

11 Native American tribes
How Much Water Does CAP Deliver?

1.6 million acre-feet each year = 521 billion gallons
Who Gets CAP Water?

Municipal & Industrial 33%

Agriculture 26%

Native American Communities 35%

Recharge 6%
CAP’s Water Delivery Contract
(Section 5 Contract)

• Section 5 of the 1928 Boulder Canyon Project Act authorized the Secretary of the Interior to deliver mainstem Colorado River through water delivery contracts.

• CAP’s Section 5 Contract is unique. It is an unquantified contract that allows CAP to take delivery of all of Arizona’s 2.8 MAF after satisfaction of other more senior priority rights.

• CAP’s long-term contract obligations total 1.415 MAF but CAP has routinely delivered 1.6 MAF or more.

• The creation of the Arizona Water Banking Authority and CAGRD were facilitated by CAP’s unique “sponge” contract.
CAP Water Service Contracts

• Authorized to subcontract with non-Indian water users for delivery of each user’s share of CAP water supplies.

• M&I subcontractors include the cities of Phoenix, Tucson, Scottsdale, Mesa, Peoria, Glendale, Tempe and Chandler, which collectively represent nearly 60 percent of CAP M&I water supplies.

• The Bureau of Reclamation has entered into contracts for the delivery of CAP water to Indian entities. CAWCD is not a party to Reclamation’s contracts but is required to deliver CAP water pursuant to such contracts.
CAP Priority Pools

- Indian Priority
- M&I Priority
- NIA Priority
- Ag Pool
- Other Excess
- Priority 3
What is the value of CAP to the state of Arizona?

This question has come up over and over through the years, but was never quantified.

CAP sought to quantify the value and looked to Arizona State University researchers for help.
Findings

- 2005-2010 - CAP generated an annual economic benefit averaging over $90 billion per year (35% Arizona gross state product)

- 2010 - CAP generated $128 billion (49.5%) of gross state product
Shortages Drivers – Risk to CAP Supplies

- Climate change = hot drier future
- Structural deficit
- Lack of augmentation
1096’ = 44% capacity

• 2020 – Tier Zero
• 2021 – 80% Tier Zero
• 2022 – 71% Tier Zero
• 2023 – 31% Tier One
Three Colorado River Challenges – A Growing Gap

Colorado River Water Supply and Demand Study

Historical Supply and Use

- Water Supply (10-year Running Average)
- Water Use (10-year Running Average)

Projected Future Supply and Demand

- Projected Water Demand
- Projected Water Supply (10-year Running Average)
Three Colorado River Challenges – A Long-Avoided Risk

Structural Deficit at Lake Mead

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Inflow</td>
<td>9.0 MAF</td>
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<tr>
<td>(Release from Lake Powell plus smaller rivers)</td>
<td></td>
</tr>
<tr>
<td>Normal Outflow</td>
<td>9.6 MAF</td>
</tr>
<tr>
<td>Evaporation</td>
<td>0.6 MAF</td>
</tr>
<tr>
<td>Balance</td>
<td>-1.2 MAF</td>
</tr>
</tbody>
</table>

Approximately 12 foot decline in normal year
CAP Prepares for Shortages

- Arizona Water Banking to firm CAP supplies (4 MAF stored)
- Voluntary contributions to Lake Mead (~1.5 MAF to date)
### LBDCP Main Components

#### 2007 Interim Guidelines Shortage Reductions and Incremental DCP Contributions

<table>
<thead>
<tr>
<th>Lake Mead Elevation</th>
<th>AZ 2007</th>
<th>AZ DCP</th>
<th>AZ TOTAL</th>
<th>NV 2007</th>
<th>NV DCP</th>
<th>NV TOTAL</th>
<th>CA 2007</th>
<th>CA DCP</th>
<th>CA TOTAL</th>
<th>BOR DCP</th>
<th>MX Min 323</th>
<th>MX BWSCP</th>
<th>MX Total</th>
<th>TOTAL</th>
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<tr>
<td>≤1090 &gt;1075</td>
<td>0</td>
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<td>192K</td>
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<td>70k</td>
<td>76k</td>
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<td>84k</td>
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<td>100k</td>
<td>125k</td>
<td>150k</td>
<td>275k</td>
<td>1,475k</td>
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CAP Priorities and DCP Impacts

- Other Excess
- Ag Pool
- NIA Priority
- Indian Priority
- M&I Priority

Excess
Cities & Industry
Long-Term Contracts

Tribes

Priority 3
CAP Priority Pools
Impacts from ‘07 Guidelines vs. DCP

Based on Annual Operating Plan, prior to conservation/forbearance other than Ag F3
Arizona LBDCP Process

• ADWR & CAWCD Lead Steering Committee Process:
  – Tom Buschatzke and Ted Cooke co-chairs
  – 38 Delegates to the Steering Committee
  – Representing: CAP Tribes, On-River Tribes, CAP M&I + Ag users, On-River Ag, Developers, Arizona Legislative Leaders, Mining, NGOs

• Steering Committee process
  – Open and transparent (posted meeting materials, recorded meetings)

• Steering Committee met from July 2018 – February 2019
  – 9 SC meetings
  – Numerous small group meetings
**Implementation Plan – 2 Components**

**Mitigation Component**

- DCP reductions will cause reductions to CAP deliveries
- Steering Committee agreed to mitigation for NIA and Ag water users for 2020-2025 timeframe
- NIA must be fully mitigated before Ag
- Amounts based on year and shortage tier

<table>
<thead>
<tr>
<th>Year</th>
<th>Ag Pool</th>
<th>NIA Pool</th>
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<tbody>
<tr>
<td>2020</td>
<td>105 KAF - Tier 1</td>
<td>100%</td>
</tr>
<tr>
<td>2021</td>
<td>70 KAF - Tiers 2a/2b</td>
<td></td>
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<tr>
<td>2022</td>
<td></td>
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<td>2023</td>
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<td>2025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2026</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- No CAP Wet Water Mitigation
- Groundwater Infrastructure Program 70 KAF / Yr
- NO Mitigation
- 2026 or Tier 3

* Until no supplies
Implementation Plan – 2 Components
Water Sources for Mitigation

- Wet water CAP Deliveries
- USF to GSF transfers to irrigation districts
- Funding for new infrastructure
- Payment for reductions (compensated conservation & compensated mitigation)
Arizona Coordination on LBDCP

• Legislative changes needed on water management policy and funding appropriation
• 24 contributors to the implementation
  – United States
  – CAWCD
  – State of Arizona
  – AWBA
  – 2 Indian Tribes
  – NGOs
  – CAP Ag Districts
  – CAP M&I Water Users
  – SRP
Costs and Benefits of DCP to AZ

• Costs
  – $/AF of CAP water will increase
  – DCP programs (mitigation and offset) will cost $200-$300 million
  – ~ 800 kaf of additional contributions

• Benefits
  – Reduced risk of Lake Mead declining to critically low elevations, valued in the hundreds of billions of dollars
  – More certainty in knowing triggers for deeper reductions
  – Contributions made to Lake Mead shared by all - Basin States, the United States, and Mexico
KNOW YOUR WATER

Questions?

CentralArizonaProject.com