SLIDES: Arizona Contributions to Address Lake Mead's Structural Deficit

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Arizona Contributions to Address Lake Mead’s Structural Deficit

2016 Martz Summer Conference | June 9, 2016

Amy McCoy, Director
Aylward + McCoy & Pilz Consulting LLC
Lower Basin Allocations from Lake Mead

California 4.4 maf
+ 
Arizona 2.8 maf
+ 
Mexico 1.4 maf
+ 
Nevada 0.3 maf

Lower Basin ~9.0 maf

Map Source:
www.newyorker.com/magazine/2015/05/25/the-disappearing-river
Lake Mead Structural Deficit

9.0 MAF Annual inflows to Lake Mead from Lake Powell and side channels

0.6 MAF Evaporation

9.6 MAF Annual Lower Basin diversions

Account Balance

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Inflow</td>
<td>9.0</td>
</tr>
<tr>
<td>Outflow</td>
<td>-(9.6)</td>
</tr>
<tr>
<td>Evaporation</td>
<td>-(0.6)</td>
</tr>
<tr>
<td><strong>1.2 MAF “Structural Deficit”</strong></td>
<td>~12 Feet of elevation loss/yr</td>
</tr>
</tbody>
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Response to Structural Deficit

2007
Shortage Sharing Agreement
Priority-based and volunteer curtailments at specified elevations

2012-2013
Broad recognition that 2007 Agreement insufficient to address water risks

2013
System Conservation Actions to reduce water shortage risks

2015-2016
BoR and Lower Basin States lead effort to “slow or arrest” Lake Mead decline
Proposed Lower Basin Drought Contingency Plan

Potential Shortage Sharing Among All Users

Figure Source: CAP Board Meeting, May 8, 2016
Implications for Arizona
Greatest volume of curtailments

Figure Source: CAP Board Meeting, May 8, 2016
2015 CAP Entitlements

- **Tribal Contracts**
  - 555 KAF
- **Non-Tribal M&I Contracts**
  - 621 MAF

**Priority Levels**
- **High Priority**
  - 1,600,000
  - 1,400,000
  - 1,200,000
  - 1,000,000
  - 800,000
  - 600,000
  - 400,000
  - 200,000
- **Low Priority**
  - 0

**Additional Contracted Water**
- 73 MAF

**Non-Contracted Water**
- 165 MAF

- 16% of CAP Entitlements
- 44% of CAP Entitlements
- 40% of CAP Entitlements

Total: 1,415,000 AF/year
2015 CAP Deliveries

- **Other Un-contracted Project Water**
  - NIA Priority & Apache Settlement Water
  - 165 MAF

- **Other Contracted Project Water**
  - NIA Priority
  - 73 MAF

- **Non-Tribal M&I Contracts**
  - 621 MAF

- **Tribal Contracts**
  - 555 KAF

- **Tribal Priority**
  - 318 KAF

- **M&I Priority**
  - 431 KAF

- **Priority 3**
  - 68 KAF

- **Total Deliveries**
  - 1,415,000 AF/year

- **Long-term Contract Water**
  - NIA Priority
  - 177 KAF

- **Tribal**
  - 318 KAF

- **M&I**
  - 431 KAF

- **Priority 3**
  - 68 KAF

- **Total Deliveries**
  - 1,526,000 AF/year
2007 Agreement +
Drought Contingency Plan

- **Lake Mead**
  - **Shortage Declaration**
    - **Tier 1**
      - 1,075 ft
    - **Tier 2**
      - 1,050 ft
      - 1,025 ft

  - **895’ Dead Pool**
    - (2.0 maf storage)

**CAP Curtailments**

- **2007 Agreement**
  - Other Excess
    - 132 KAF
  - Ag Settlement Pool
    - 400 KAF
  - NIA Priority
    - 177 KAF

- **Drought Plan**
  - Tribal Priority
    - 318 KAF
  - M&I Priority
    - 431 KAF
  - Priority 3 - 68 KAF
2007 Agreement + Drought Contingency Plan

Tier 1 Curtailments

- Shortage Declaration: Tier 1 Curtailments
  - 1,075 ft
  - 1,050 ft
  - 1,025 ft

- Tier 1: 300,000 AF Curtailment
- Tier 2

CAP Curtailments

- 2007 Agreement
  - Tier 1: 512,000 Curtailment
- Drought Plan
  - Tier 1: 300,000 AF Curtailment

- NIA Priority: 177 KAF
- Tribal Priority: 318 KAF
- M&I Priority: 431 KAF
- Priority 3: 68 KAF

895’ Dead Pool (2.0 maf storage)
2007 Agreement + Drought Contingency Plan

Tier 2 Curtailments

Tier 1
1,075 ft
Tier 2
1,050 ft
Shortage Declaration
1,025 ft

Lake Mead

Tier 2 Curtailments
Tier 2
400,000 AF Curtailment

CAP Curtailments

2007 Agreement

Drought Plan

Tier 2 From 592,000 AF
NIA Priority 177 KAF
720,000 AF

Tribal Priority 318 KAF
M&I Priority 431 KAF
Priority 3 - 68 KAF

895’ Dead Pool (2.0 maf storage)
How Can Arizona Absorb the Curtailments Outlined under the Drought Contingency Plan?

“There are opportunities to lessen those effects and, more importantly, to spread the consequences more equitably among agriculture, municipalities and tribes. To that end, I have begun to reach out to water managers in Arizona to explore a collective and voluntary *sharing of the impacts* and benefits of this potential new agreement.”

*Tom Buschatzke*

*Director of the Arizona Department of Water Resources, April 22 2016 in the Arizona Republic*
“Share the Burden”

- **Outer Circle**: Amount of CAP water currently delivered
- **Inner Circle**: Volume of water available during shortage

- **“Excess” Water**
- **Water Savings and Efficiencies**

- **Storage**
- **Agriculture**
- **Tribes**
- **M&I**
“Share the Remaining Water”

Reducing Demand Increases Flexibility

CAP Allocation

Before Conservation: Entire CAP allocation used

Municipality

After Conservation: Under current guidelines, unnecessary CAP supply can go to “Excess” pool or can be stored locally for future use
“Share the Remaining Water”

Increased Flexibility in Local Supplies

Excess "Producers"
- Tribes
- M&I

Excess "Consumers"
- Lake Mead ICS
- Ag Users
- Storage
- Exchanges
“Share the Remaining Water”

New Mechanisms for Moving Water Under Variable Conditions

Lake Mead

Agriculture

ICS Contribution

Water Sharing

CAP Entitlement Holder w/ “Excess”

Inter-AMA Firming

Water Exchange

Storage

Municipalities
"It's all a question of story. We are in trouble just now because we do not have a good story. We are in between stories. The old story, the account of how the system came to be and how we fit into it, is no longer effective. Yet we have not learned the new story.”

~ Thomas Berry ~