A New Era of Limits:
California Agriculture and Water Supply

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Western Growers
Fresh produce from our families to yours
Mother Nature’s Blessings

California’s Average Annual Water Supply and Use

<table>
<thead>
<tr>
<th>Million-Acre Feet (MAF)</th>
<th>Urban/Industrial (8.9 MAF)</th>
<th>Agricultural (34.2 MAF)</th>
<th>Environmental (39.4 MAF)</th>
<th>Undeveloped (117.5 MAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed (82.5 MAF)</td>
<td>8.9</td>
<td>34.2</td>
<td>39.4</td>
<td>-</td>
</tr>
<tr>
<td>CA Water (200.0 MAF)</td>
<td>8.9</td>
<td>34.2</td>
<td>39.4</td>
<td>117.5</td>
</tr>
<tr>
<td>Developed (%)</td>
<td>10.8%</td>
<td>41.5%</td>
<td>47.8%</td>
<td>-</td>
</tr>
<tr>
<td>CA Water (%)</td>
<td>4.5%</td>
<td>17.1%</td>
<td>19.7%</td>
<td>58.8%</td>
</tr>
</tbody>
</table>
Water Projects: Then and Now

For the Benefit of Irrigation
- Central Valley Project
- State Water Project
- Local/regional surface water projects

For the Benefit of Environmental Needs
- ESA
- NEPA/CEQA
- CVPIA and related legislative repurposing
Lost Water: SAC-SJ Delta Operations
Rebalancing Conveyance & “Flows”

Long Term Average, CVP S. of Delta Ag Service Contract Allocation

- State Water Resources Control Board Decision 1485 (Implemented 1978)
- Endangered Species Act - Winter Run Salmon Temperature Control
- Central Valley Project Improvement Act - Refuge Supply Increase (Level 2) / Refuge Supply Shortage Provision
- Endangered Species Act - Delta Smelt Biological Opinion
- Water Quality Control Plan (Adopted as D1641 in 2000) / Clean Water Act
- Anadromous Fish Restoration Program - CVPIA B2
- Trinity River Restoration Plan
- Delta Smelt Biological Opinion
- Salmon Biological Opinion

* Allocation projections derived from pre-2007 CalSim studies and more recent CalSim studies associated with the 2008 OCAP BA and Biological Opinions
Delta Flows from February 1, 2014 through September 21, 2015

Delta Flows 2/1/14 to 9/21/15
Total Inflows to Delta = 13,705,200 AF

Sacramento River + Tributaries @ Freeport
12,038,000 AF

Net Outflow Index = 8,441,300 AF
61.6% of Inflow

To OCEAN

SWP Banks Pumps = 1,723,100 AF
CVP Jones Pumps = 1,300,900 AF

Net In-Delta Consumption = 2,069,200 AF

San Joaquin River @ Vernalis
809,500 AF

East Side Streams
367,200 AF

Sac Regional Treatment Plant
212,800 AF

Stockton
And More Recently, More Lost Opportunity
Uses of Reclaimed Water

- Agricultural Irrigation: 244,500 acre-feet (37%)
- Landscape Irrigation: 112,600 acre-feet (17%)
- Industrial: 47,100 acre-feet (7%)
- Geothermal Energy Production: 14,900 acre-feet (2%)
- Seawater Intrusion Barrier: 49,000 acre-feet (7%)
- Recreational Impoundment: 25,800 acre-feet (4%)
- Natural System Restoration, Wetlands, Wildlife Habitat: 29,600 acre-feet (4%)
- Other: 15,800 acre-feet (2%)

Beneficial Uses of Municipal Recycled Water in the 2009 Survey

*units in acre-feet
2009 total: 669,000 acre-feet*
Stretching Water Supplies

Potential Water Supply Benefits by 2030

- Ocean and Brackish Desalination
  - High Estimate: 0.3
  - Low Estimate: 0.2

- Agricultural Water Use Efficiency (Net)
  - High Estimate: 0.9
  - Low Estimate: 0.8

- Recycled Municipal Water
  - High Estimate: 1.4
  - Low Estimate: 1.2

- Urban Water Use Efficiency (Applied)
  - High Estimate: 3.1
  - Low Estimate: 1.2

Source: California Department of Water Resources
Source Diversification is the Future

- Transparency, environmental concerns, and social contract have changed the equation
- Economic diversity and ag’s disconnect from urban population feed perception of supply imbalance
- Making “new” water supplies economically feasible is CA’s challenge now
- In time, perhaps a leveling of playing field in other states
What Future for California Agriculture?

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