California Water Plan Update 2009

Future Scenarios Overview and Statewide Summary

California Water Plan
Update 2009

Integrated Water Management

Bulletin 160-09 · Department of Water Resources

Volume 3
Regional Reports

Public Review Draft
January 2009
Water Plan Scenarios Used To Consider Future Uncertainty

- Three plausible yet very different conditions during 2050 planning horizon
- Explore key uncertainties facing water community
- Factors water community has little control over
- Not predictions ---- used to evaluate water management responses
Quantifying Future Scenarios for Update 2009

- Using WEAP analytical tool to quantify water demand and supplies for future scenarios and water management responses

- WEAP Hydrologic Region analysis being done for all regions --- high level, coarse representation

- WEAP Planning Area analysis for Sacramento and San Joaquin regions --- more physically based

- Each scenario evaluated with 12 climate sequences (climate change, multiple year droughts, wet years)
Hydrologic Region Analysis

- Monthly, climate-driven demands to 2050
  - reflect global climate change projections
  - Agriculture, Urban, and Environmental sectors

- Simple representation of supplies possible
Planning Area Analysis
Sacramento and San Joaquin River Regions

- Hydrologically-based water system simulation by month to 2050
  - reflect global climate change projections
- Estimate environmental flows, system operations, deliveries, and reliability
- More direct representation of response packages
3 Baseline Scenarios for 2050
Plausible Yet Different Futures

- **Current Trends**
  - Recent trends continue into the future for population, agricultural production, environmental water, and background water conservation

- **Blueprint Growth**
  - More coordinated planning & infill
  - Lower population growth
  - Lower reduction in agricultural production
  - New environment water -- High
  - More background water conservation

- **Expansive Growth**
  - Less coordinated planning, sprawl
  - Higher population growth
  - Higher reduction in agricultural production
  - New environment water -- Low
  - Less background water conservation
### Scenario Assumptions for Key Factors

#### Statewide Summary

<table>
<thead>
<tr>
<th>Scenario Factors Affecting Water Demand</th>
<th>Year 2005 Observed</th>
<th>2050 Current Trends</th>
<th>2050 Blueprint Growth</th>
<th>2050 Expansive Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (millions)</td>
<td>36.7</td>
<td>59.5</td>
<td>44.2</td>
<td>69.8</td>
</tr>
<tr>
<td>Irrigated Crop Area (thousand acre)</td>
<td>9245</td>
<td>8566</td>
<td>8999</td>
<td>8254</td>
</tr>
<tr>
<td>Environmental Water Instream flows &amp; refuges (maf)</td>
<td>2005 Level</td>
<td>+1.0</td>
<td>+1.5</td>
<td>+0.6</td>
</tr>
<tr>
<td>Background Water Conservation (% Incr.)</td>
<td>----</td>
<td>10%</td>
<td>15%</td>
<td>5%</td>
</tr>
</tbody>
</table>
Technical Outreach for Scenario Work

- December 2007 – Scenario proposal
- April 2008 – Shared Vision Planning
- June 2008 – Refinement of scenario proposal
  - Climate change
  - Environmental water
  - Flood management
  - Water quality
- February 2009 – Review of preliminary demands
- June 2009 – Review of revised results & graphics
Focus for the afternoon

- Hydrologic Region Scale Analysis – David Groves (RAND Corp.)
  - Statewide demands by sector and scenario
  - Regional demands by scenario

- Planning Area Scale Analysis for Sacramento and San Joaquin Hydrologic Regions – Brian Joyce (Stockholm Environment Institute)
  - Regional demands by sector and scenario
  - Regional baseline supplies by scenario