Proposed Modifications to the Water Authority’s Water Shortage and Drought Response Plan Supply Allocation Methodology

Water Planning Committee Workshop
February 9, 2012
Northern Sierra 8 Station Precipitation Index

Percent of Average for this Date: 51%

1982-1983 (wettest) 88.5
2005-2006 Daily Precip. 80.1
2010-2011 Daily Precip. 72.7
Average (1922-1998) 50.0
1923-1924 (driest) 19.0
1976-1977 (2nd driest & driest thru Aug) 17.1

Cumulative Daily/Monthly Precipitation (inches)

Current Daily Precip: 14.9

Water Year (October 1 - September 30)
Mammoth Pass Snowpack
February 8, 2012

Current Snowpack
8.3 inches
28% Average
Agenda

- Allocation methodology review process
- Basic description of allocation methodology
- Proposed modifications
- Next steps

Presentation Acronyms

**WSDRP** – Water Authority’s 2006 Water Shortage and Drought Response Plan (formally known as the Drought Management Plan)

**WSAP** – MWD’s 2008 Water Supply Allocation Plan
Allocation Methodology - Review Process

- Consensus that methodology worked as envisioned
- Review specific elements of allocation methodology
  - Wholesale changes not needed – maintain basic principles
- Identified seven issues to be addressed - based on:
  - Lessons learned during implementation
  - Alignment with MWD WSAP
  - Changed conditions since 2006 adoption
- Presented issues and potential modifications to member agencies for initial input
Member Agency Input

- Held “kick-off” meeting in May 2011
  - Discussion and support for elements to be reviewed
- Postponed additional meetings until MWD approved adjustments to WSAP in September 2011
- Met four times with agencies between October and December 2011
- Final meeting planned for end of February
  - Review Water Planning Committee input received today
  - Agencies to provide comments on draft report proposed modifications
Basic Description of Allocation Methodology
Allocation Methodology Developed Based on WSDRP Principles

- Use historic demands as basis for allocation
  - Establish base period demand for each agency
- Adjust base period to ensure equitable allocation
- Do not penalize agencies for developing local supplies and water conservation
- Provide incentive for local project development
- Avoid large uneven retail impacts
  - Protect economic health of entire region
  - Provide minimum level of retail reliability (“safety net”)
Key Challenge in Development of Allocation Methodology

Equity Balance

- Allocation Adjustments (local supplies)
- Retail Reliability
Basic Concept of Allocation Methodology

1. **Base Period**
   (Agency Historic Demands on Water Authority)

2. **Agency Adjusted Base Period**

3. **Agency Percent of Total Adjusted Base Period**

4. **Available Supplies**

5. **Agency Allocation**

6. **Regional Reliability Adjustment (if required)**

7. **Adjustments**
Proposed Modification Areas

1. Base Period Definition
2. Growth Adjustment
3. Loss of Local Supply Adjustment
4. Conservation Adjustment
5. Retail Reliability Adjustment
6. WSAP Alignment Adjustment
7. Carryover Storage Program Allocation
Base Period Definition
Base Period

**Background/Purpose**

- Allocation methodology is a needs-based approach that rewards agencies for local supply development
- Reflect agencies’ actual need for Water Authority supplies
- Consistent with WSDRP principles, utilize historic demands on Water Authority to calculate base period
## Issue

- Currently defined as most recently completed three fiscal years immediately preceding allocation year

- Base period could include year(s) of reduced demands due to shortages

- Provide additional clarification on type of years that should be used to derive historic base period
Proposed Modification
Clarify Base Period definition to include three consecutive most recently completed fiscal years prior to the activation of the WSDRP
**Base Period (cont.)**

<table>
<thead>
<tr>
<th>Basis for Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Base period would be more reflective of an agency’s demands</td>
</tr>
<tr>
<td>• Avoid penalizing agencies that have performed by reducing demands during a shortage period</td>
</tr>
<tr>
<td>• Eliminate potential for “gaming”</td>
</tr>
</tbody>
</table>
Growth Adjustment
Growth Adjustment

Background/ Purpose

• Several years could exist between the base period and allocation year

• Agencies may experience population and economic growth during this time frame

• Base period demands should reflect agencies’ needs during allocation years
Growth Adjustment (cont.)

**Issues**

- Current method uses new meters as indicator of growth
  - Link between new meters and growth is eliminated during levels of drought ordinance (meter moratoriums)
- Population can be used as indicator of growth, but it may not capture non-residential growth

Accurately capture growth between Base Period and Allocation Year
## Growth Adjustment (cont.)

### Proposed Modification

- **Adjustment based on member agency population increase**

- **Apply efficient GPCD factor to calculate demand increase**
  - Factor equals aggregated retail agencies’ GPCD SBX7-7 targets, or agencies’ base period GPCD, whichever is less
  - GPCD value includes residential and CII demands

- **If requested, also utilize new CII meter installations to capture non-residential growth**
  - Agencies with large CII development and no or minimal population increase
**Growth Adjustment (cont.)**

### Basis for Modification

- More accurately reflects an agency’s growth in demand
  - Able to capture both residential and non-residential growth
  - Reflects efficient water use

- Using population increase as indicator of growth is consistent with MWD WSAP adjustment
Loss of Local Supply Adjustment
Background/ Purpose

• Several agencies have invested heavily in local supplies, which provide regional benefit
  • Reducing reliance on imported supplies
  • Building surface water treatment capacity
  • Aid in diversification efforts

• Potential for these supplies to be limited during drought

• Recognize regional supply benefit and not penalize agencies with diminished local supplies in allocation year
Issue

• Current adjustment is set at 50% of the estimated local supply loss between base period and allocation year

• Adjustment level may not be adequate to avoid penalizing agencies for diminished local supplies during shortages
  • Actual local supply losses during recent shortage were greater than levels modeled in original methodology development

• Inconsistent with MWD WSAP
  • WSAP formula based on full loss of local supply
  • Should be consistent to ensure equitable allocation
  • Region may benefit at expense of single agency
Proposed Modification

- Adjustment would be based on full loss of local supply

- Supply loss would be reduced based on Water Authority percent cutback level from MWD

Example:

<table>
<thead>
<tr>
<th>Base Period Average</th>
<th>Allocation Year</th>
<th>Loss of Local Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>50,000AF</td>
<td>40,000AF</td>
<td>10,000AF</td>
</tr>
</tbody>
</table>

20% Cutback from MWD

Loss of Local Supply Adjustment: 8,000AF
Loss of Local Supply Adjustment (cont.)

Basis for Modification

• Ensures agencies that have made investments in local supplies are not penalized during allocation period

• Using full loss of local supply, less cutback, is consistent with MWD WSAP formula
Conservation Adjustment
Conservation Adjustment

Background/ Purpose

• Acknowledge regional benefit achieved from agencies’ long-term conservation efforts and demand hardening effect

• Agencies’ allocation should reflect conservation efforts
  • Avoid penalizing agencies for on-going demand management efforts

• Changed condition with passage of SBX7-7, required 20% reduction in water use by 2020
  • Revised method of tracking savings
  • Set conservation target
  • Revisit adjustment to reflect changed condition
Conservation Adjustment (cont.)

**Issues**

- Current method utilizes BMP device-based savings to adjust base period demands
- Under SBX 7-7, retail agencies now required to establish and meet GPCD based efficiency targets
- Device-based conservation also does not encompass entire spectrum of potential savings
Proposed Modification

• Implement GPCD-based efficiency compliance adjustment
  • Replaces Conservation Adjustment

• Applies only to agencies that fail to meet their SBX 7-7 efficiency targets over the base period

• Calculated as the difference between historic weather normalized GPCD and SBX 7-7 targets over base period

• Compliance shortfall deducted from agency’s Base Period demand
  • Five percent performance variance allowance (from SBX 7-7 target)
# GPCD Compliance Adjustment Example

<table>
<thead>
<tr>
<th>Year</th>
<th>Base Period GPCD (weather normalized)</th>
<th>SBX 7-7 GPCD Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>165</td>
<td>158</td>
</tr>
<tr>
<td>2006</td>
<td>166</td>
<td>156</td>
</tr>
<tr>
<td>2007</td>
<td>164</td>
<td>154</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>165</strong></td>
<td><strong>156</strong></td>
</tr>
</tbody>
</table>

## Performance Variance Allowance

<table>
<thead>
<tr>
<th>GPCD Variance Check</th>
<th>Base Period Demand Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>156 * 1.05 = 163.8 (allowance)</td>
<td>-1.2 * 25,000 (people) = 30,000 gal/day or 33.6 AF reduction in base period demand</td>
</tr>
</tbody>
</table>
| 163.8 - 165 = - 1.2 (gpcd target shortfall) | }
Conservation Adjustment (cont.)

Basis for Modification

- Acknowledges importance of meeting SBX 7-7 targets
- Consistent with new GPCD-based approach to quantifying conservation
Retail Reliability Adjustment
Retail Reliability Adjustment

Background/ Purpose

- Consistent with WSDRP principle, adjustments should not lead to large uneven retail reliability impacts
  - Balance between rewarding local supply development and regional economic health

- Create “safety net” for agencies through shortage sharing at more severe shortages
  - Trigger currently set at 30%
Example: Regional Reliability Adjustment

Level of Service: Ratio of total supplies available to projected M&I demands

Not to Scale

Agency A (63.3%)

Agency B (59.8%)

Agency C (68.4%)

Agency D (64.4%)

Agency E (71.8%)

Regional M&I Level of Service
68%

Reliability Floor
63%
### Example: Regional Reliability Adjustment

**Level of Service After Reliability Adjustment**

<table>
<thead>
<tr>
<th>Agency</th>
<th>Level of Service After Reliability Adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency A</td>
<td>(63.3%)</td>
</tr>
<tr>
<td>Agency B</td>
<td>(63.0%)</td>
</tr>
<tr>
<td>Agency C</td>
<td>(68.3%)</td>
</tr>
<tr>
<td>Agency D</td>
<td>(64.4%)</td>
</tr>
<tr>
<td>Agency E</td>
<td>(71.4%)</td>
</tr>
</tbody>
</table>

**Regional M&I**

- Level of Service: 68%
- Reliability Floor: 63%

---

Not to Scale
Retail Reliability Adjustment (cont.)

Issues

• Based on MWD and Water Authority storage and supply actions, a 30% shortage is unlikely.

• At lesser shortage levels, member agencies could experience large disparity between levels of service:
  • Could lead to substantial inequities in retail impacts.

• Achieving reductions may become more difficult due to demand hardening.
**Proposed Modification**

Decrease adjustment trigger to take affect at a 20% or greater net cutback to total Water Authority supplies.

**Basis for Modification**

- Consistent with “safety net” intent of adjustment
- Maintain balance between rewarding local supply development and avoiding uneven impacts to retail agency reliability
Questions on Suggested Modifications?
MWD WSAP Alignment Adjustment
WSAP Alignment Adjustment

Background/ Purpose

• Water Authority receives supply allocation from MWD derived through WSAP
  • Water Authority allocates available MWD and Water Authority supplies to member agencies

• Specific member agency action could influence Water Authority allocation from MWD

• Alignment is necessary to ensure impact to Water Authority allocation is passed on to member agency responsible for change
WSAP Alignment Adjustment (cont.)

Issues

• MWD recently approved a WSAP adjustment dealing with recycled water developed after the base period

• Water Authority allocation methodology does not currently align with recently approved adjustment

• WSAP recycled water adjustment could reduce Water Authority’s allocation from MWD
### Proposed Modification

- Pass on net reduction to Water Authority allocation from MWD to agencies adding local recycled water projects after the base period.

- Similar to alignment adjustment approved by Board in 2008:
  - Dealt with development of additional local supplies during consecutive allocation years.

- Agency reliability still improved for having developed recycled water supply.
WSAP Alignment Adjustment (cont.)

Basis for Modification

Ensure equitable allocation to Water Authority member agencies - taking into account member agency actions that could impact the Water Authority’s allocation from MWD
Carryover Storage Program (CSP) Allocation
CSP Allocation

Background/ Purpose

• Under Special Agricultural Water Rate (SAWR), customers exempt from Water Authority storage charge

• In return, SAWR customers receive no CSP deliveries during shortage period
  • During WSDRP Supply Augmentation and Mandatory Cutback Stages

• Methodology needed to allocate CSP supplies to Municipal and Industrial (M&I) customers
## CSP Allocation (cont.)

<table>
<thead>
<tr>
<th>WSDRP Stage</th>
<th>Scenario</th>
<th>Proposed Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 2</td>
<td>• MWD is allocating supplies (cutback minimal)</td>
<td>Establish SAWR supply allocation based on Water Authority shortage level without utilization of CSP supplies</td>
</tr>
<tr>
<td>Supply Augmentation</td>
<td>• Water Authority avoids M&amp;I shortage through use of CSP supplies</td>
<td></td>
</tr>
</tbody>
</table>

### Example:

<table>
<thead>
<tr>
<th>Agencies SAWR Base Period Demands</th>
<th>Water Authority cutback level (excluding CSP supplies)</th>
<th>Agency SAWR Annual Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>50,000AF</td>
<td>5%</td>
<td>47,500AF</td>
</tr>
</tbody>
</table>
## CSP Allocation (cont.)

<table>
<thead>
<tr>
<th>WSDRP Stage</th>
<th>Scenario</th>
<th>Proposed Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 3 Mandatory Cutbacks</td>
<td>• MWD and Water Authority are allocating supplies</td>
<td>• For M&amp;I customers, establish allocation of CSP supplies</td>
</tr>
<tr>
<td></td>
<td>• Water Authority lessens M&amp;I shortage through use of CSP supplies</td>
<td>• Agency’s total M&amp;I wholesale allocation equal to supply allocation (MWD and QSA supplies) and CSP allocation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• SAWR only receives supply allocation</td>
</tr>
</tbody>
</table>
Summary – Derivation Total Allocation When Utilizing CSP Supplies

Supply Allocation (SAWR and M&I) + CSP Allocation (M&I) = Total Allocation

Note: December 2011 Water Authority Board Action requires Member Agencies to confirm that both cost benefits and associated service limitations of SAWR are allocated by member agency to participating agricultural water users.
## Review Schedule – Next Steps

<table>
<thead>
<tr>
<th>Date</th>
<th>Proposed Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb 9, 2012</td>
<td><em>Water Planning Committee Workshop to review proposed modifications developed to address the issues and get policy input</em></td>
</tr>
<tr>
<td>Mid-Feb</td>
<td>Distribute draft report on proposed modifications to member agencies for comment</td>
</tr>
<tr>
<td>End-Feb</td>
<td>Hold member agency meeting to get final input</td>
</tr>
<tr>
<td>March 22</td>
<td>Seek Board approval of modifications for incorporation into WSDRP</td>
</tr>
</tbody>
</table>
2012 Regional Water Facilities Optimization and Master Plan Update

February 9, 2012

Water Planning Committee Workshop: Meeting 1
Presentation Outline

- Project Background/Planning Perspective
- Review UWMP Supply and Demand Projections
- Master Planning Process
  - Scenario Development
  - Supply/Facility Alternatives
  - Evaluation Criteria
- Overview of Programmatic EIR and Climate Action Plan
- Schedule for Remaining Work
System Overview – Conveyance
In–System Storage

- Olivenhain Reservoir
  - 24,000 AF held for emergency storage
- Local Reservoirs
  - Currently 20,000 AF held in member agency reservoirs for drought carryover
- ESP/CSP
  - Hodges – 20,000 AF for emergency storage (2013)
  - San Vicente – 150,000 AF for emergency and carryover (2013)
System Overview – Treatment Facilities – Owned and Contracted

Twin Oaks Valley (SDCWA)

David C. McCollom (OMWD)
(member agency agreement)

R. M. Levy (Helix)
(member agency agreement)
## San Diego Regional Treatment Capacity (MGD)

<table>
<thead>
<tr>
<th>Water Treatment Plant</th>
<th>Capacity (MGD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Regional Water Treatment Plant Capacity</strong></td>
<td><strong>866</strong></td>
</tr>
<tr>
<td>Miramar City of San Diego</td>
<td>215</td>
</tr>
<tr>
<td>Alvarado City of San Diego</td>
<td>200</td>
</tr>
<tr>
<td>Levy Helix Water District</td>
<td>106</td>
</tr>
<tr>
<td>Twin Oaks Valley San Diego County Water Authority</td>
<td>100</td>
</tr>
<tr>
<td>Escondido-Vista City of Escondido</td>
<td>62</td>
</tr>
<tr>
<td>Badger San Dieguito Water District/Santa Fe Irrigation Districts</td>
<td>36</td>
</tr>
<tr>
<td>Olivenhain Olivenhain Municipal Water District</td>
<td>34</td>
</tr>
<tr>
<td>Otay City of San Diego</td>
<td>36</td>
</tr>
<tr>
<td>Perdue Sweetwater Authority</td>
<td>28</td>
</tr>
<tr>
<td>Berglund City of Poway</td>
<td>24</td>
</tr>
<tr>
<td>Weese City of Oceanside</td>
<td>25</td>
</tr>
</tbody>
</table>

- Untreated Conveyance Capacity 500 MGD
- Untreated/Treated Split 70%/30% (2011)
Planning Perspective
Aqueduct System: pre-1990s

- North to south gravity flow pipeline system
- Reliance on MWD / SDCWA to supplement local water
- Local WTPs in place to primarily treat local supplies
- System improvements for added imported water capacity
- Identified a need for new storage facilities

1991
Local Supplies 5%
MWD 95%
1989 Water Distribution Plan
- Increase system capacity and reliability
- 10 projects
- $530 million CIP budget

1993 Water Resource Plan

1995 Urban Water Management Plan

1997 Water Resource Plan
- Add IID water transfer

Emergency Storage Project
- Add 92 kaf of emergency storage
- Add $730 million to CIP
- $1.594 billion CIP budget

2000 Urban Water Management Plan

2002 Water Facilities Master Plan
- Preferred alternative “supply from the west”
- Add up to 89 kaf of regional desalination
- Add 100 kaf of carryover storage
- Add 50-100 MGD of treatment capacity
- $3.229 billion CIP budget

2003 Quantification Settlement Agreement
- IID water transfer, 35-yr take or pay, 4.88 maf
  - $1.45 billion
- Canal linings, 110 yrs, 4.32 maf
  - $175 million

2005 Urban Water Management Plan
- Add 56kaf desalination

2006 Comprehensive Reliability and Cost Assessment “CRACA”
- Analyze cost/reliability of CIP
- Validate storage decisions
- Carlsbad desal is local project

2009 CRACA “lite”
- Validate CIP scope/cost
- Drought mgmt impacts

2007 Water Facilities Master Plan

2008 Comprehensive Reliability and Cost Assessment “CRACA”

89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11
Options Considered in 2002 Master Plan

- Conveyance from the North
- Supply from the West
- Conveyance from the East
Develop up to 80 MGD of seawater desal (supply from the west)

Develop 50 to 100 MGD of new WTP capacity
  - New treatment needed to maintain regional reliability
2002 Master Plan Outcomes

- Develop 100,000 AF carryover pool to manage seasonal peaks and drought conditions
- Implement internal system improvements
- Reaffirmed local supply development
- If all the above is achieved, Pipeline 6 may be postponed for several years
Current Planning Perspectives

- Reduced demands/increased conservation
- Supply uncertainties
- Increased supply diversification
- Water rates and increasing price sensitivity

![Graph showing water demand trends](chart.png)

- **1990-2011 Historic Demand**
- **2005 UWMP Projected Demand (with BMP based conservation)**
- **2010 UWMP Projected Demand (after SBX7-7 retail compliance)**
2012 Master Plan Update

- Member Agency Facility Plans
- 2002 Master Plan
- 2010 UWMP
- Current CIP
- Asset Management Program
2010 UWMP Plan Main Elements

- **Demand Forecast**
  - Econometric Model utilizing SANDAG Regional Growth Forecast

- **Water Use Efficiency Target**
  - Retail Compliance with SBX7-7: 20% savings by 2020

- **Water Supplies**
  - Water Authority and member agency verifiable supplies

- **Water Resource Mix**
  - Resource mix to meet demands in normal and dry water years

- **Scenario Planning**
  - Process to manage supply uncertainties associated with resource mix
Normal Water Year Assessment (Actual vs. Projected Resource Mix)

2011 Actual Fiscal Year:
- 155 TAF
- 110 TAF
- 262 TAF

2035 Projected Normal Year:
- 336 TAF
- 280 TAF
- 126 TAF
- 56 TAF

Legend:
- MWD
- Regional Seawater Desalination (Carlsbad)
- Member Agency Local Supplies
- QSA Transfer Supplies
Key Challenges for the 2012 Master Plan Update

- Manage untreated and treated water supplies
- Maximize use of existing assets
- Integration of desalination supplies
- Treatment plant utilization
- Cost–effective facility implementation
- Optimize utilization of regional water resources
- Coordination with member agency facility plans
- Characterization of member agency demands
Additional Planning Considerations for the 2012 Master Plan

- Strategic long range plan for surface water storage
- Characterization of local supply development
- Energy use and renewable energy opportunities
- Prioritization of ongoing/new CIP projects
- Facility cost/rate implications
Facilities Evaluation

1. Pipeline 6/P3/P4 switch
2. Camp Pendleton Desalination
3. ESP North County Pump Station
4. Twin Oaks Valley WTP Expanded Service Area
5. Crossover Pipeline
7. Carlsbad Desalination integration
8. System Regulatory Storage
Master Plan Update Process

UWMP Scenarios
- Normal Demands
- Dry Year Demands
- High Demands

UWMP Scenarios Supplies
- Verifiable mix
- Additional Planned
- Conceptual

Lead Supply Alternatives
- Baseline
- Expanded Regional Desalination
- Maximize Storage
- Balanced Supply Options

Facility Requirements
- Current Water Authority CIP
- ESP Facilities
- Carlsbad Desal
- MA Verifiable Local Supply Mix
- Current Reservoir Operations

Facility Sensitivity analysis
- P6 versus P3/P4 conversion
- Camp Pendleton 50 MGD or more
- Additional Planned and Conceptual local
- Alternative Reservoir Operations
- Other Facilities to test for regional benefits
- Alternative Demand Paths
Master Plan Update Scenario Development

- **Build from UWMP scenarios**
  - Single/multiple dry years
  - Limited MWD Supplies
  - Local supply mix

- **Master Plan scenario considerations**
  - Daily demand patterns – peak season
  - Local supply variability
  - Hydrology
  - Climate impacts

- **Each scenario attempts to explore an aspect of supply and demand uncertainty**
Master Plan Update Facility/Supply Alternatives

- Identify alternatives to address performance gaps
  - Facility constraints
  - Supply constraints

- Initial strategies for crafting Alternatives:
  - Maximize imported water
  - Expanded regional desalination
  - Maximized storage options
  - Balanced supply options

- Test performance of baseline aqueduct system against Master Plan Scenarios
Master Plan Update Scenario Storylines

- **Scenario A – Current Trends**
  - Current estimates for supply and demand consistent with UWMP assumptions

- **Scenario B – Reduced Imported Supplies, Climate Change and Lower Local Supply Development**
  - Increased imported water uncertainty, especially in dry years, coupled with factors that may slow the reduction in demands or the development of local projects. Presents an important upper boundary bracketing scenario.

- **Scenario C – Enhanced Local Resource Management**
  - Local supply development and demand management is the focus. Presents an important lower boundary bracketing scenario.

- **Scenario D – Adjusted Local Supply Development**
  - A limited achievement level (50%) of local supply development and demand management. Presents a scenario positioned between Scenarios A and C.
Master Plan Analysis

**Scenarios**

- Scenario A
- Scenario B
- Scenario C
- Scenario D

**Alternatives**

- Existing Aqueduct System
- Alt 1 Imported Water Strategy
- Alt 2 Max Seawater Desalination
- Alt 3 Max Storage Operations
- Alt 4 Balanced Supply Option

Model Results Deterministic and Stochastic

Master Plan Analysis Model Results Deterministic and Stochastic

23
Alternative Evaluation Metrics

- System capacity
- Supply reliability
- Costs of capital improvement program
- Environmental impacts
- Energy use and production optimization
- Supports WA diversification goals
- Improves water quality
- Feasibility
- Minimizes rate impacts
- Maximizes use of existing facilities
An Adaptive Approach to Planning

Higher demands, slow member agency supply development or conservation measures

Early Actions

Mainline demand projections, verifiable member agency projects and conservation

Slower growth in demands, more rapid member agency supply development or conservation measures

Today

Scenario B1
Scenario B2
Scenario D
Scenario A2
Scenario A1
Scenario C

Adaptive Process
- Monitoring metrics
- Implementation timelines and phasing
- Risk-based and adaptive decision-making

Decision Timelines

Near-Term Actions
Mid-Term Actions
Long-Term Actions
With the 2010 UWMP expected demand forecasts and normal or wet cycle hydrology shortages are minimal

Carlsbad desalination production is important in managing shortages in all hydrological cycles

If demands exceed UWMP expected demand forecasts, developing local or imported supplies is important for continued reliability

In dry years – greater vulnerability until QSA supplies are ramped up

Pipeline 6 appears to be beyond the 2035 planning horizon
Upcoming Events and Activities

- Feb 2012: Board workshop
- Spring 2012: Second board workshop
- Summer 2012: Release draft report to member agencies
- Oct 2012: Release Draft Program EIR
- Mar 2013: Board Certify Program EIR and Accept Final Master Plan Update