

Integrated Resources Planning Committee
Item #4a

Subject: IRP Technical Process Draft Results

Purpose: the purpose of this presentation is to provide an overview of draft results developed in the IRP technical process.

IRP Committee/September 29, 2015

Integrated Resources Planning Committee

Item #4a

Review of review of potential risks to the approach water balance, strategies for ensuring adequate storage and technical process findings.



IRP Update Technical Process Draft Results

Integrated Resources Planning Committee
Item 4a
September 29, 2015

Recap of Last Month's Committee Meeting



Four Key Framing Questions

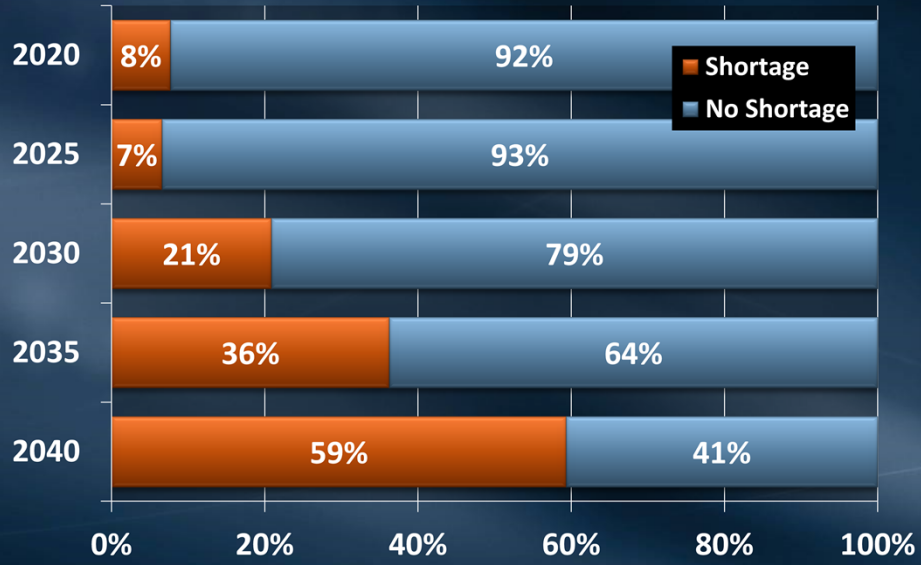
- What is our current outlook on supplies and demands?
- What happens if we do nothing?
- What happens if we continue developing the current 2010 IRP targets?
- What potential changes to the current 2010 IRP targets are needed?

Summary Of Major Changes (2035)

- Results are not final, but trends are emerging
 - Lower demands/conservation: + ~120 TAF
 - Lower groundwater yield: - ~200 TAF
 - Lower SWP yield: - ~300-400 TAF
- Figures are under average conditions, but give a sense of general impact
- Additional factors are also being accounted for

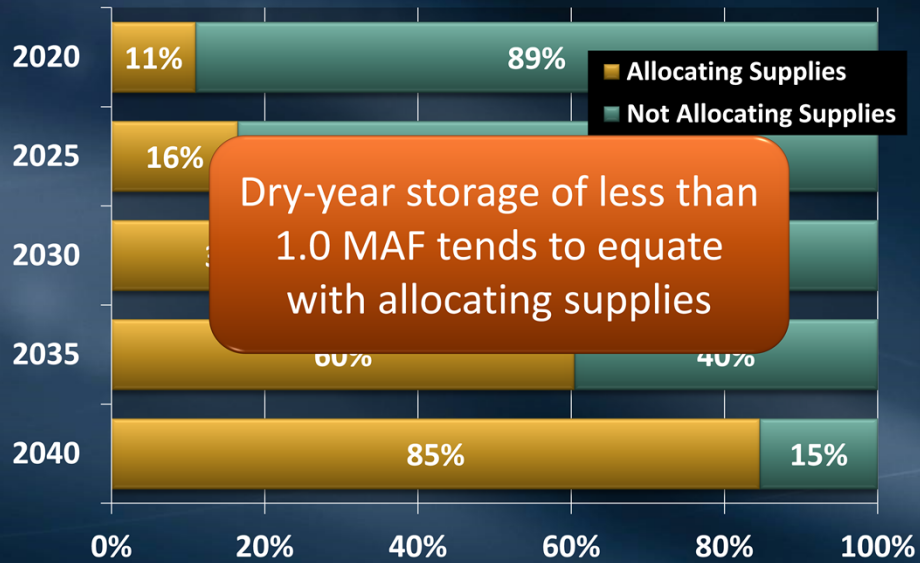
Summary of Shortage Probability

“Do Nothing” Case Draft Water Balance



Summary of Ending Dry-Year Storage

"Do Nothing" Case Draft Water Balance



Observations

“Do Nothing” Case Draft Water Balance

- The “do nothing” approach is not sustainable
- Shortage probability and size both increase over time
 - Total retail demands increase over time
 - Constant or decreasing local and imported supplies
- Storage quantity decreases over time
 - Less water to store
 - Higher needs for storage to balance supplies and demands
- Significant resource investments are needed

Four Key Framing Questions

- What is our current outlook on supplies and demands?
- What happens if we do nothing?
- What happens if we continue developing the current 2010 IRP targets?
- What potential changes to the current 2010 IRP targets are needed?

Current IRP Development Targets

Water Use Efficiency

- Achieve a 20% reduction in GPCD as a region by 2020

Local Resources

- Develop ~100 TAF through incentives and partnerships

SWP

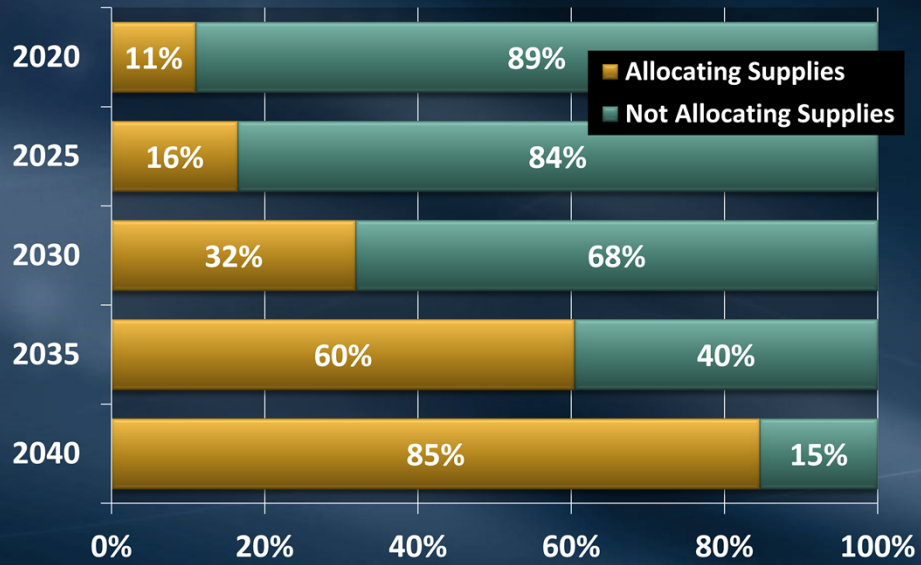
- Seek short, mid, and long-term Delta improvements

CRA

- Develop Dry-Year supply programs to fill the aqueduct when needed

Summary of Ending Dry-Year Storage

"Do Nothing" Case Draft Water Balance



Summary of Ending Dry-Year Storage

Current IRP Approach Draft Water Balance



Observations

Current IRP Approach Draft Water Balance

- Significant resource investments are needed to achieve the current IRP Targets
 - 150 TAF of additional efficiency or local supply
 - California Water Fix
- Existing supplies need to be maintained
 - Colorado River Aqueduct
 - Local supply production
- Compared to the “Do Nothing” Case
 - Reliability measures improve
 - Storage measures improve
 - Challenges still exist in the shorter term

Four Key Framing Questions

- What is our current outlook on supplies and demands?
- What happens if we do nothing?
- What happens if we continue developing the current 2010 IRP targets?
- What potential changes to the current 2010 IRP targets are needed?

Technical Follow-up From Last Month



Changes in Demographics Forecast

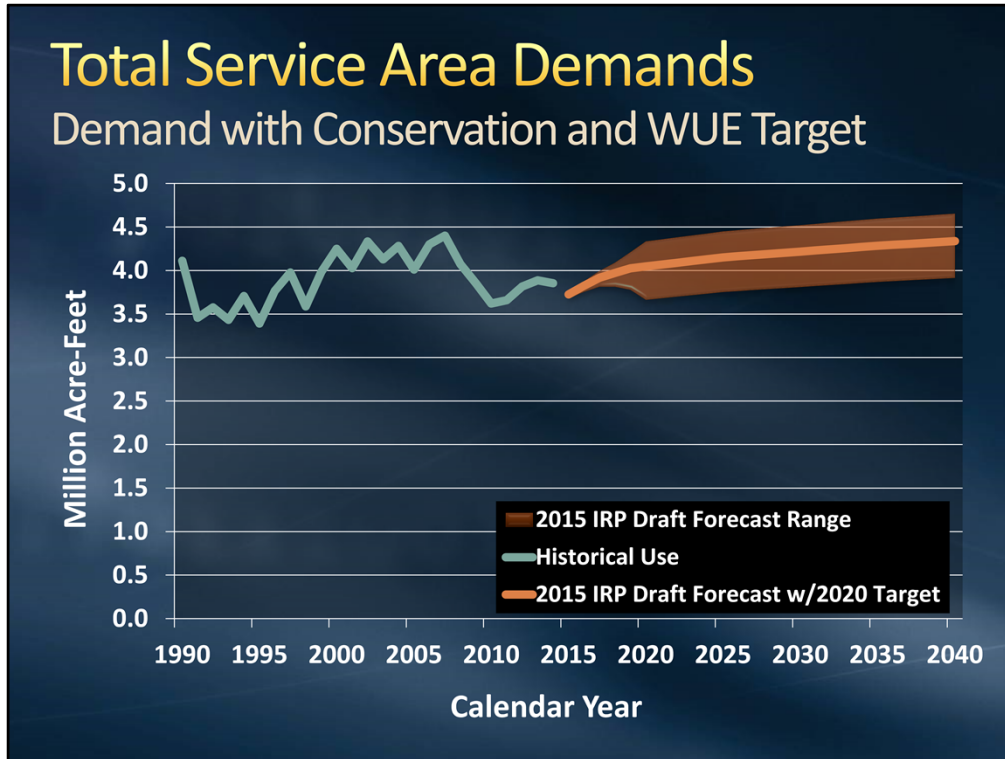
Demographic Projections Show Continued Growth in the Service Area

- Primary drivers of water demand increase nearly 20% from 2015 to 2040

Water Demand Driver	Change 2015-2040	% Change 2015-2040
Population	+3.1 M	+17%
Households	+1.2 M	+20%
Employment	+1.4M	+17%

- IRP Update projections are based on SCAG RTP-12 and SANDAG Series 13 forecasts

2015 IRP is SCAG RTP-12 & SANDAG Series 13



2015 IRP draft forecast includes adjustments to account for decline in water use due to the drought.

Includes conservation: active + passive + MELO (50% new home compliance)

2035:

2010 IRP Forecast: 4.51 MAF

2010 IRP Forecast with 20x2020 Target: 3.92 MAF

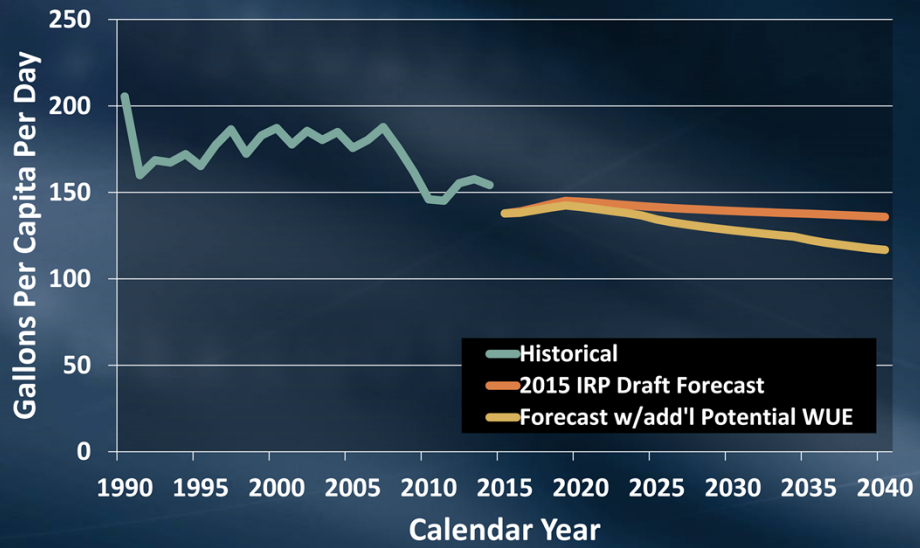
2015 IRP Forecast: 3.87 MAF

2015 IRP Forecast with 20x2020 Target: 3.76 MAF

About 600 TAF less demand in 2035

Service Area Potable Water Use

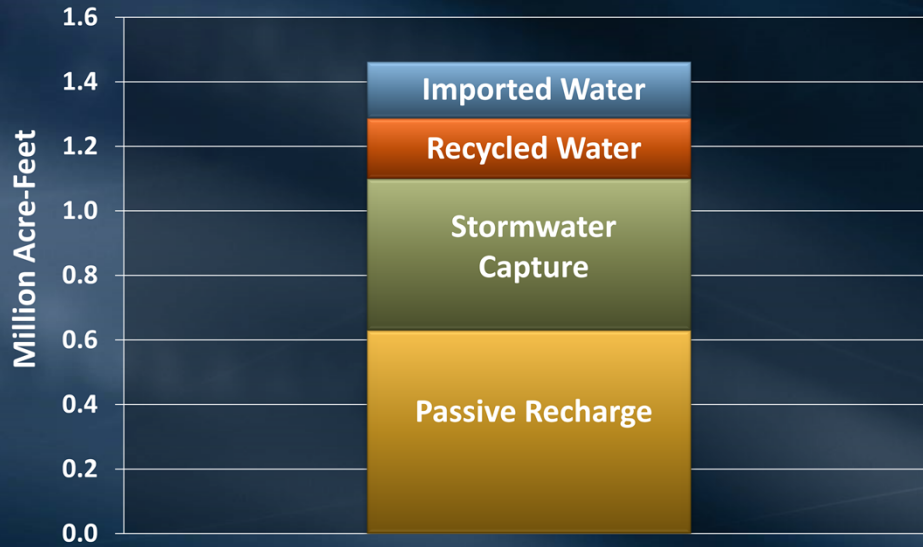
Gallons per Capita per Day



Replenishment Forecast Details

Sources of Groundwater Recharge

Ensuring Sustainable Management



Kathy Water Planning February 2015

Average amounts going forward

Passive – 630 (incidental, return flows, mountain-front, indirect stream discharge)

Stormwater – 470

Recycled – 190

Imported – 175

Seawater Barrier Recharge

Acre-Feet/ Year

- Alamos Barrier Project
 - ~4,900 recycled
 - ~1,600 imported
- Dominguez Gap Barrier Project
 - ~3,500 AF recycled
 - ~3,500 AF imported
- Talbert Seawater Intrusion Barrier
 - ~40,000 AF recycled
- West Coast Basin Barrier Project
 - ~7,500 AF recycled
 - ~11,000 AF imported

Total SWB – 70 TAF
Recycling – 55 TAF
Imported – 15 TAF

2015 IRP Target Analysis and Findings



What Potential Changes to the 2010 IRP Targets are Needed?

- Adjust targets to ensure sufficient storage levels
- Ensure an adequate supply buffer
- Adjust targets to address shorter term imbalances
- Refine and improve implementation approaches and policy to ensure development

Brings us to our final question. “What potential changes are needed to the 2010 IRP targets?”

Not going to answer this question today... look at this next month. Results provide some direction.

Need to look at strategies or adjustments in the approach to deal with shorter-term

Need Help Here!

Analysis of Alternative Scenarios

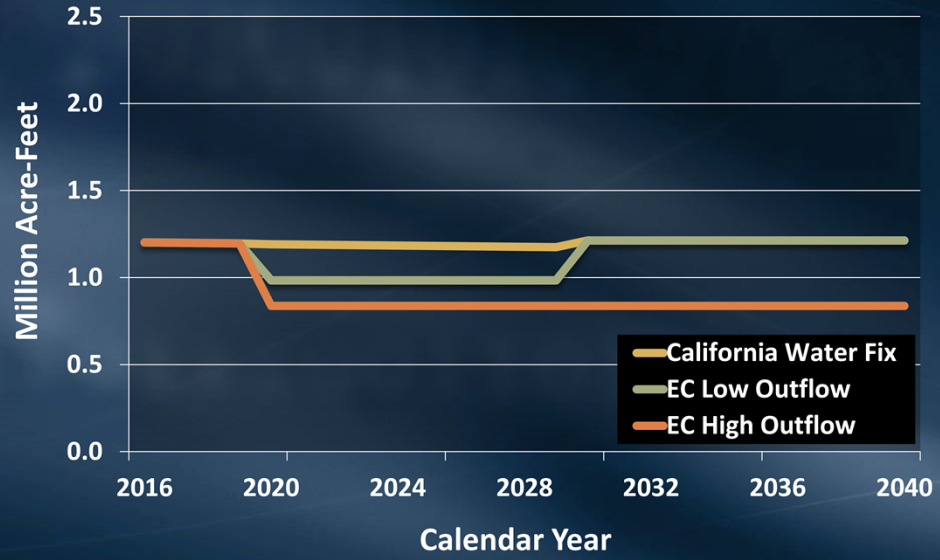
- Looked at reliability impacts of three risk scenarios
 - **Scenario 1:** More restrictive Delta regulatory framework in the near-term
 - **Scenario 2:** Local Resources production is lower than forecasted
 - **Scenario 3:** Scenario 1 and 2 combined
- Determined core supply development needed to mitigate risks
 - Added core supply in 50 TAF increments
 - Assumed additional supply available starting in 2020

Scenario 1

SWP Supplies Assuming Existing
Conveyance and Low Outflow
Requirements

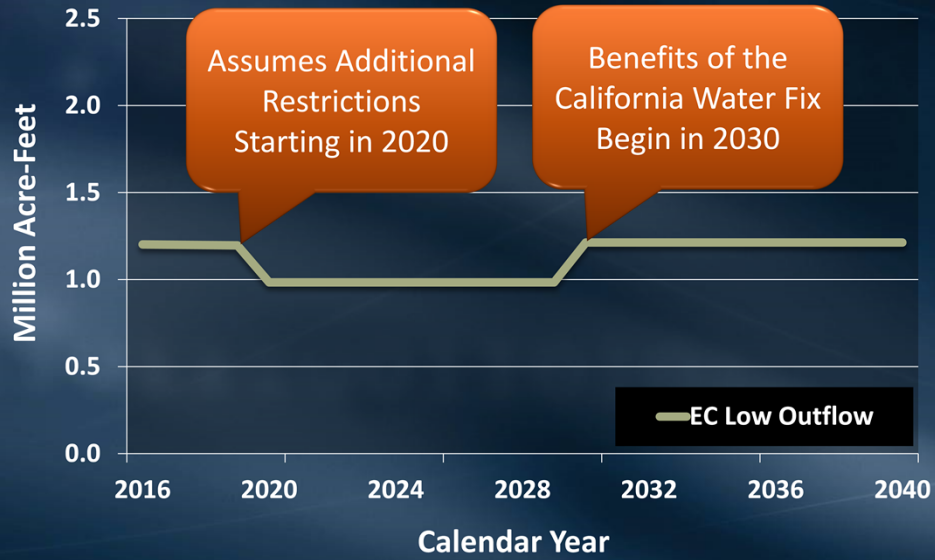
SWP EC Low Outflow Scenario

Average Table A + Article 21



SWP EC Low Outflow Scenario

Average Table A + Article 21



Risk Of Allocating Supplies is a Bit Higher Under Scenario 1



Huge reduction in storage below 1 MAF.

200 TAF of Core Supply Development Mitigates Allocation Risk

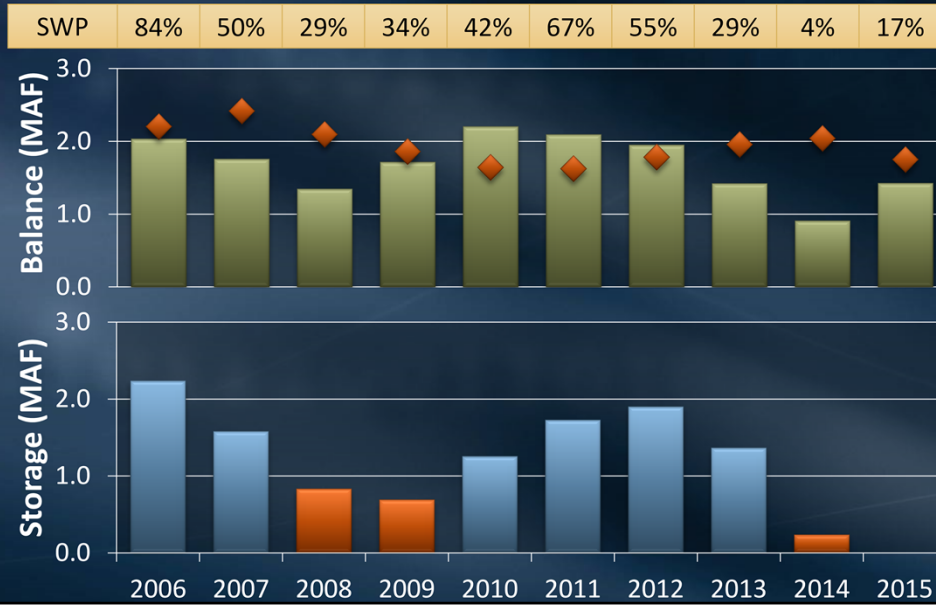


Huge reduction in storage below 1 MAF.

Example: Repeat of "Actual" Recent Conditions 2006-2015

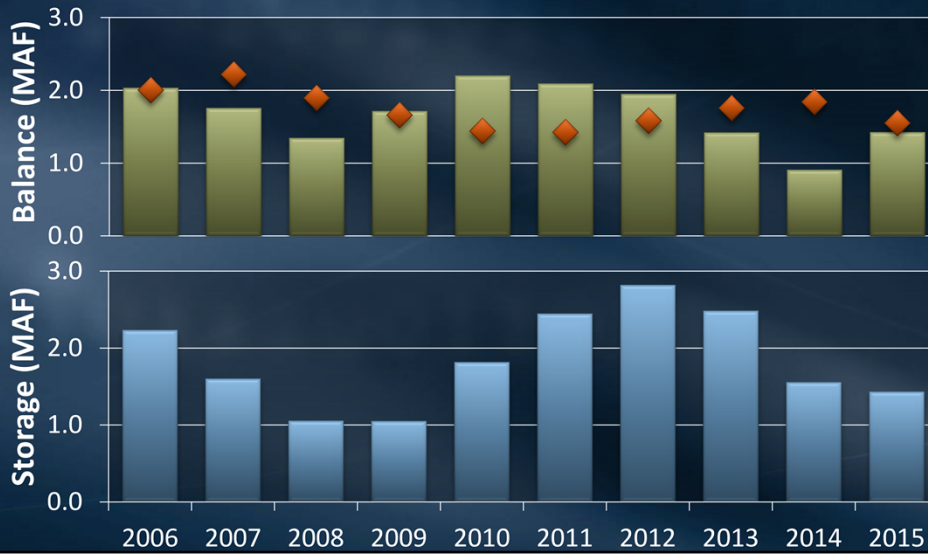


Example: Repeat of 2006-2015 with Additional SWP Restrictions (ECLO)



Example: 2006-2015 with ECLO SWP and 200 TAF Core Supply Development

SWP	84%	50%	29%	34%	42%	67%	55%	29%	4%	17%
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Scenario 2

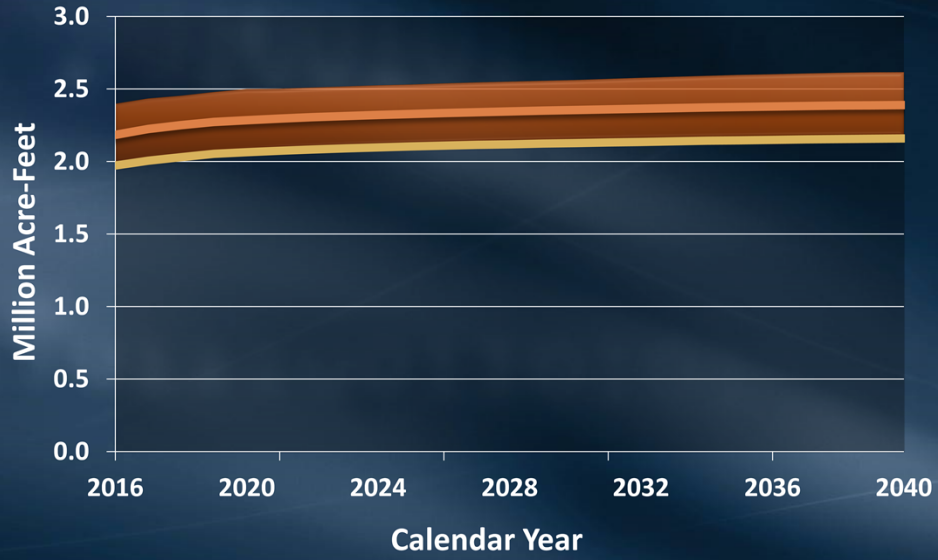
Reduced Local Supply Production

Potential Risks to Local Supplies

- Modeled as a 10% reduction in all local supply categories
- Represents potential reductions in supplies due to a number of factors:
 - Climate change impacts on groundwater recharge or surface supplies
 - Water quality impacts to groundwater or other supplies
 - Implementation risk to facility expansions
 - Infrastructure maintenance risks

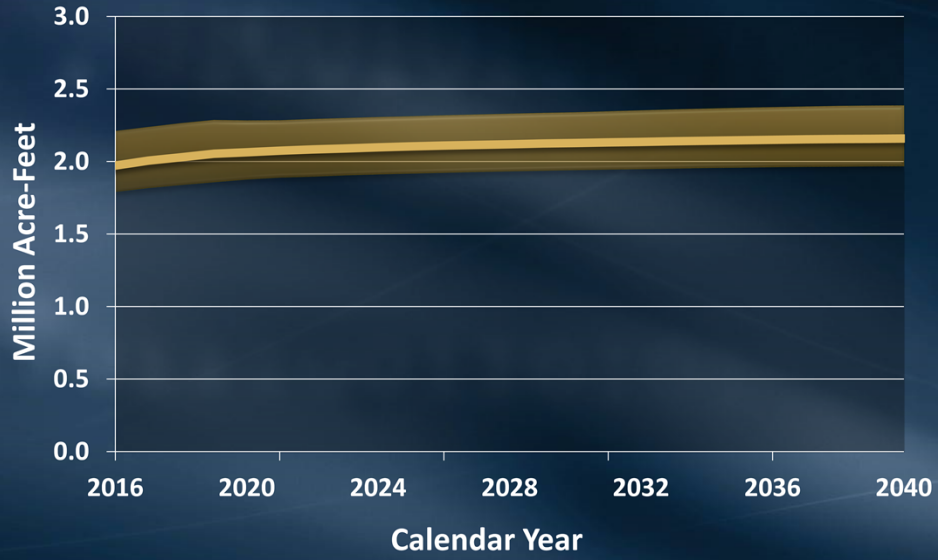
Total Range of Local Supplies

With a 10% Overall Reduction

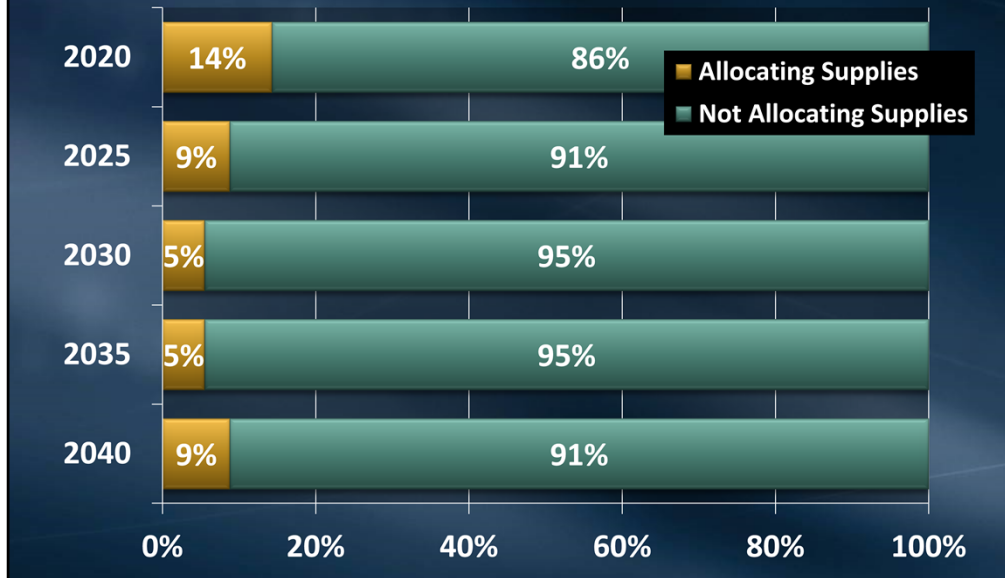


Total Range of Local Supplies

With a 10% Overall Reduction

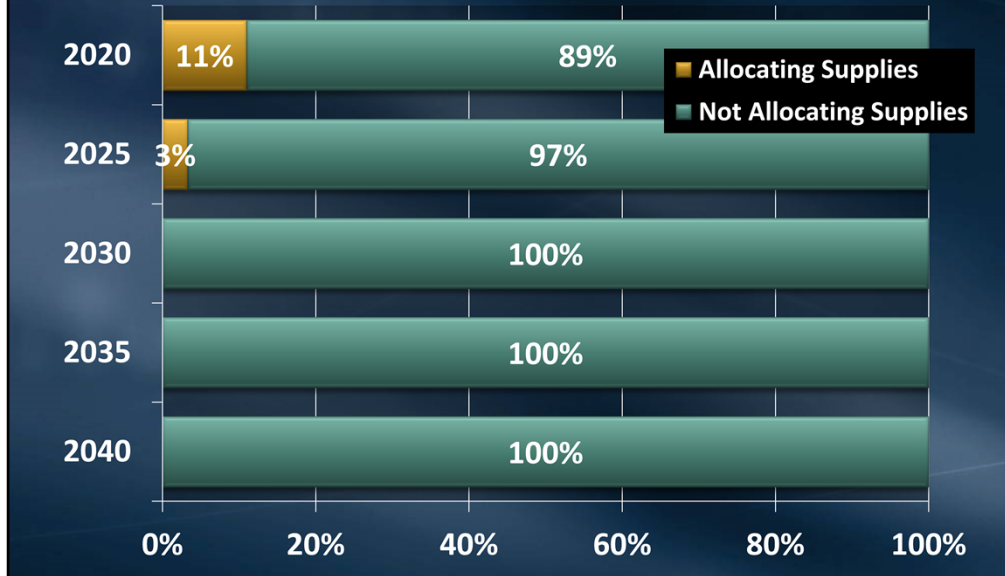


Allocation Risk is Higher if Local Supplies are Lower



Huge reduction in storage below 1 MAF.

350 TAF of Core Supply Development Mostly Mitigates Allocation Risk

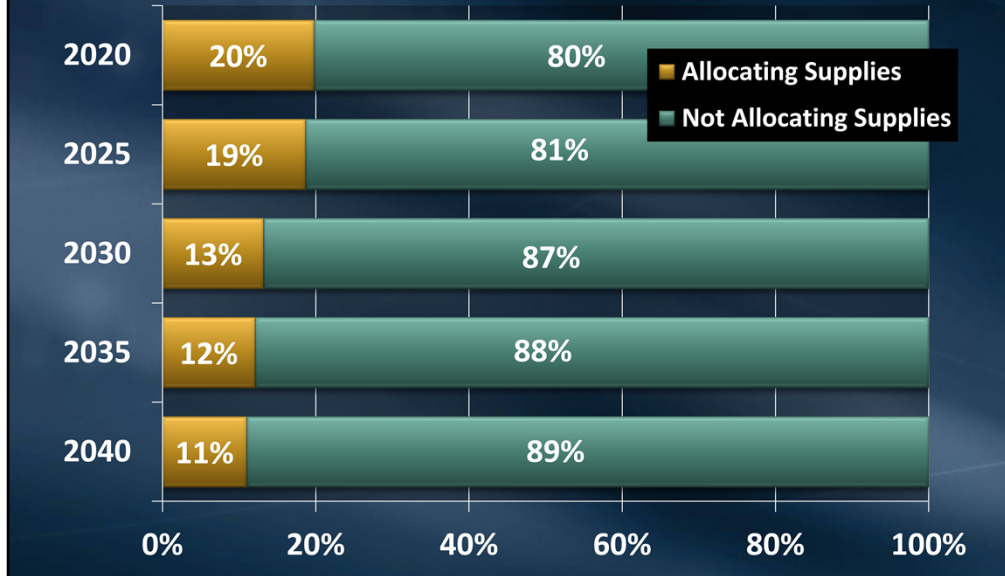


Huge reduction in storage below 1 MAF.

Scenario 3

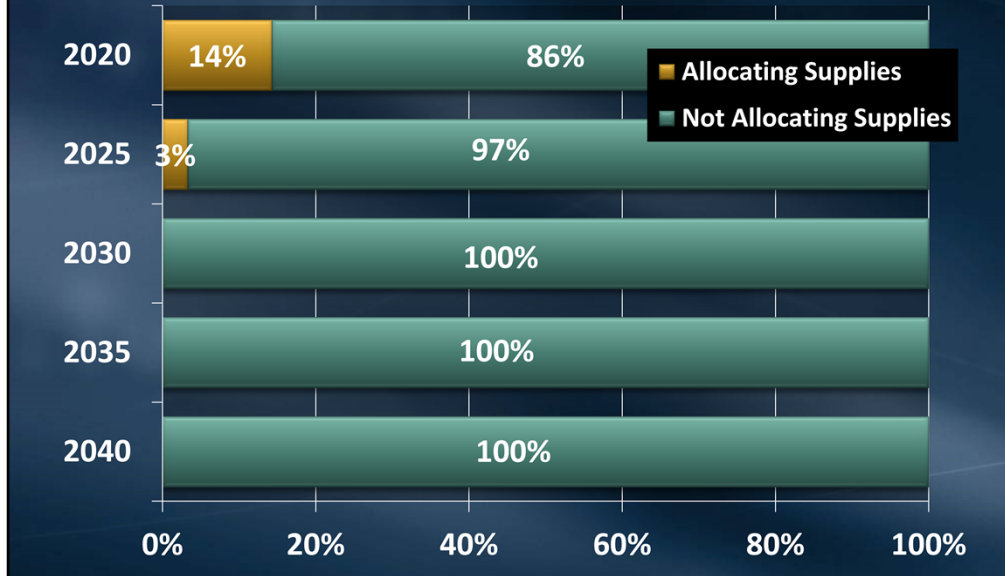
Impact of Scenarios 1 and 2
Combined

Low Local Supply and Low Outflow Scenario Produces 1 in 5 Allocation Risk



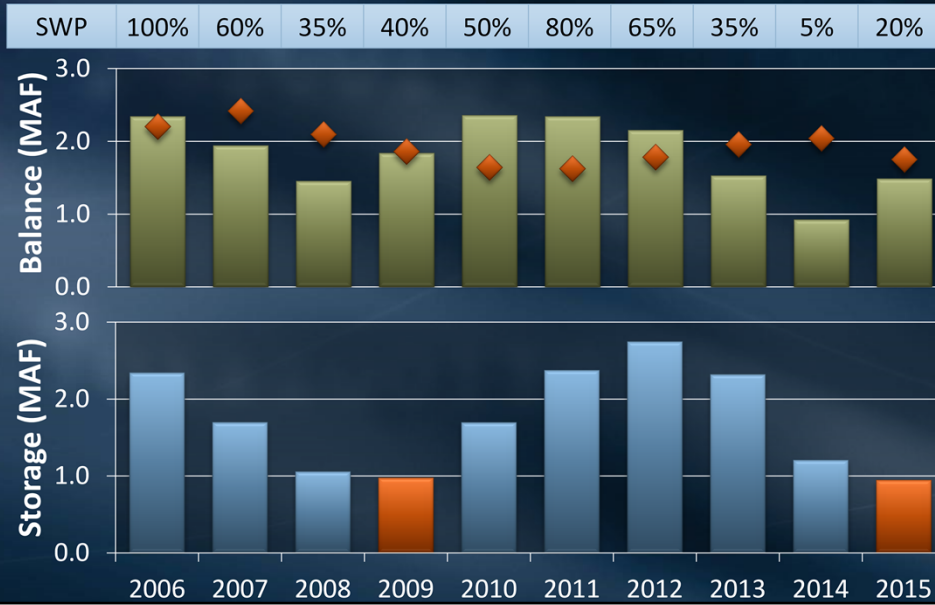
Huge reduction in storage below 1 MAF.

400 TAF of Core Supply Development Mostly Mitigates Allocation Risk

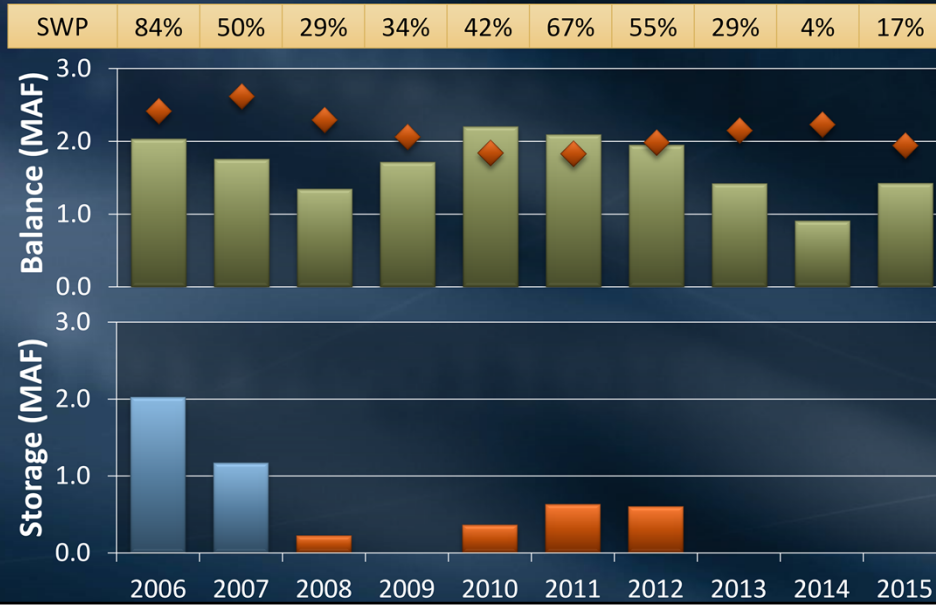


Huge reduction in storage below 1 MAF.

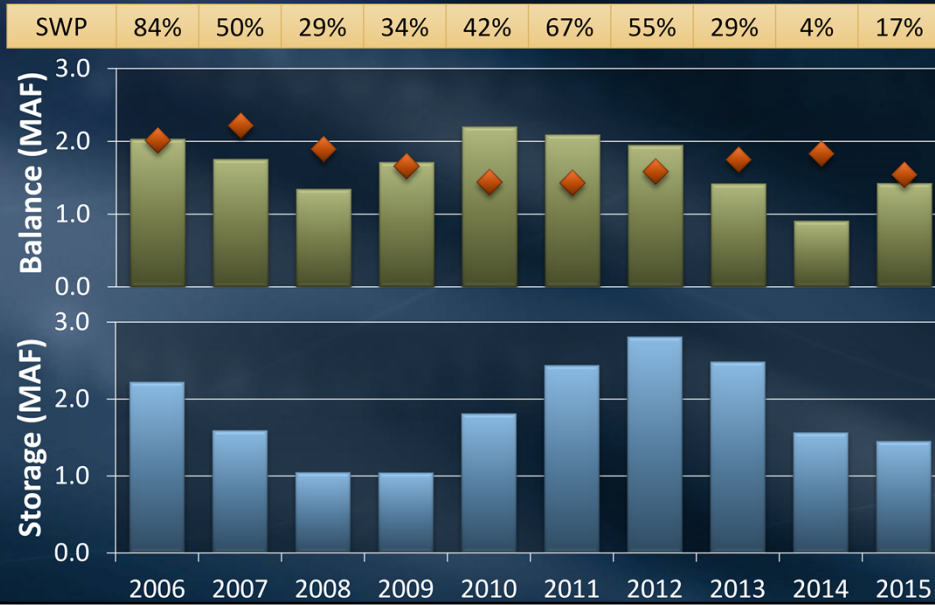
Example: Repeat of "Actual" Recent Conditions 2006-2015



Example: Repeat of 2006-2015 with Scenario 3



Example: 2006-2015 with Scenario 3 and 400 TAF Core Supply Development



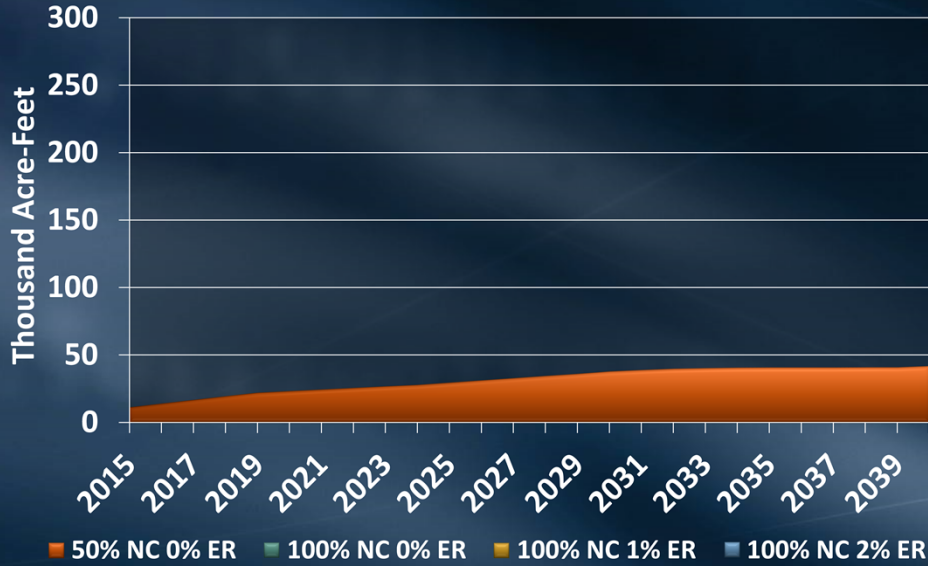
Summary of Risk/Storage Analysis

- The 2010 IRP Targets do not provide a sufficient buffer against the risks shown
 - Particularly if more than one of these risks occur at the same time
- Additional core supply needed to avoid allocating supplies:
 - 50 TAF to 250 TAF per year
- Total need including 150 TAF remaining 2010 IRP Target is:
 - 200 TAF to 400 TAF per year

Can These Additional Levels
of Development Be
Achieved?

Potential MWELO Savings*

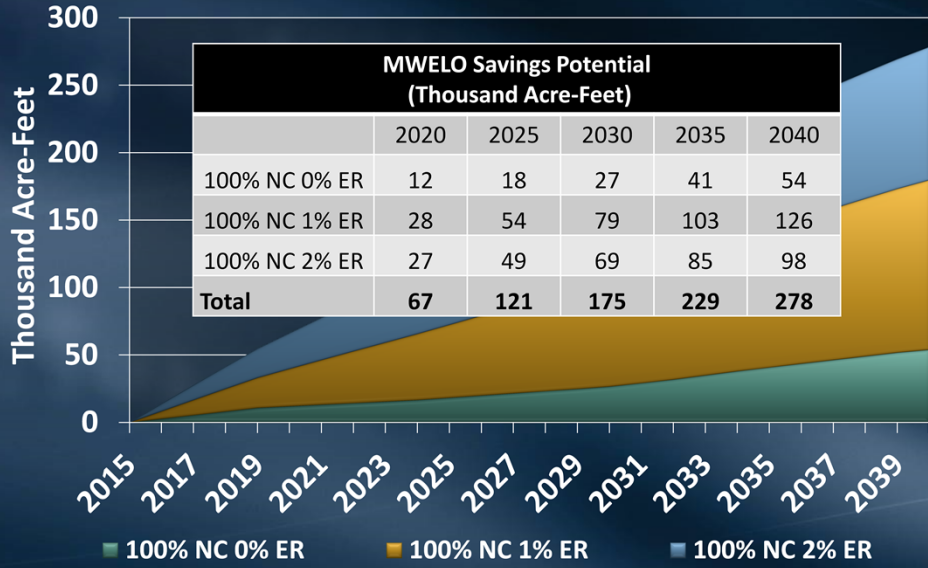
From New Construction and Existing Replacement



*50% Compliance for new construction is included in the base demand forecast

Potential MWELO Savings*

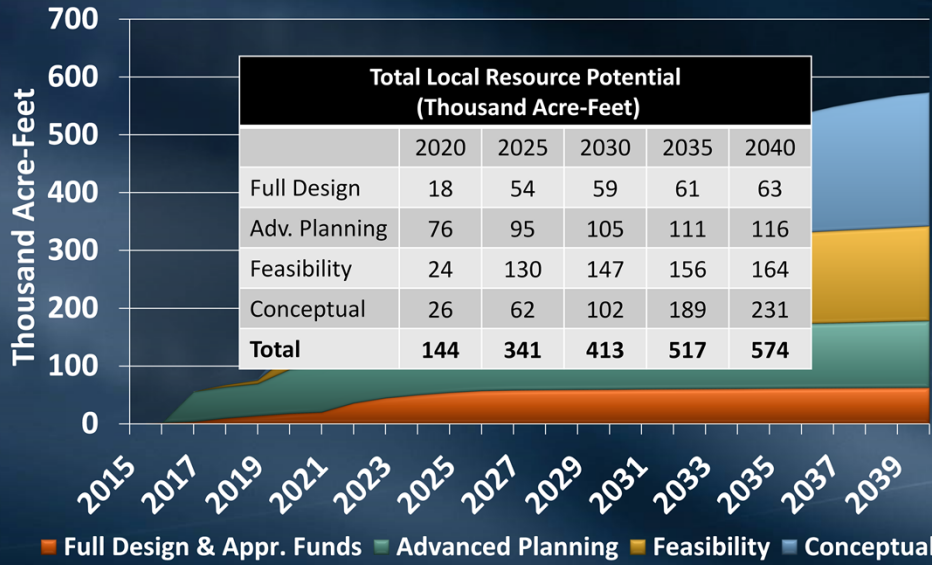
From New Construction and Existing Replacement



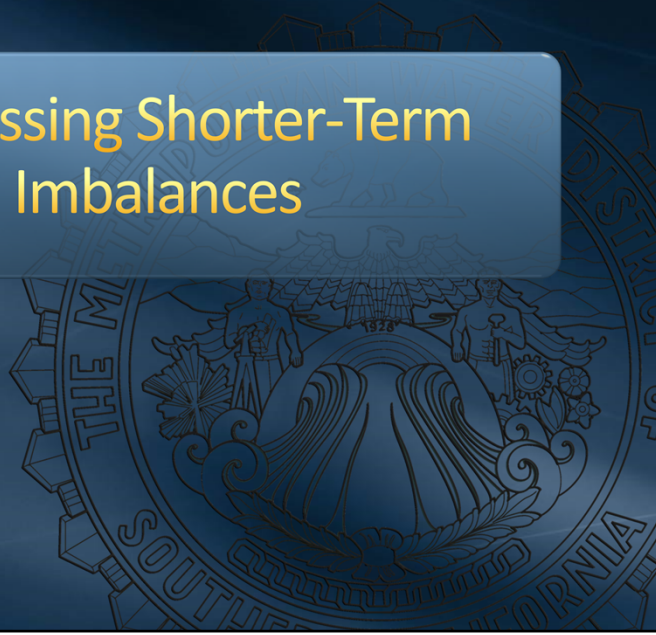
*50% Compliance for new construction is included in the base demand forecast

Total Local Resources Potential

All Future Local Projects



Addressing Shorter-Term Imbalances



A Transfers and Exchanges Strategy Can Help Address Near-Term Needs

- Dry Years
 - Continue to pursue purchases but recognize limitations
- Normal Years
 - Pursue North of Delta purchases when availability and export capacities are higher and price is lower
- Wet Years
 - Develop partnerships with South of Delta users for unbalanced exchanges
 - Leverage extensive storage resources

Key Technical Findings

Summary of Key Technical Findings

- Additional local supply and conservation development is needed to mitigate risk
- Maintaining imported supplies continues to be critical
 - Limited opportunities for additional development of imported supplies beyond targets
- A comprehensive water transfer approach can address shorter-term reliability challenges
- Implementation policy and approach to developing local supplies and conservation is key

IRP Key Technical Findings

Colorado River Aqueduct

- Stabilize CRA base supplies against risks from growing demands, drought, etc.
 - Develop 1.0 MAF of base supply programs
- Maintain flexibility in CRA dry-year programs and storage
 - Ensure access to 1.2 MAF of supplies in dry-years

IRP Key Technical Findings

State Water Project

- Manage flow and export regulations in the near-term
 - Continue to engage in collaborative science-based approaches
- Pursue a long-term Delta solution
 - Continue active participation in the California Water Fix and the California EcoRestore efforts

IRP Key Technical Findings

Conservation

- Meet regional 20x2020 GPCD reduction
- Pursue additional conservation in support of the State's Model Water Efficient Landscape Ordinance
 - Attain 100% compliance for new construction
 - Increase annual replacement rate for existing homes and businesses
- Continue device-based programs for residential, commercial and industrial

IRP Key Technical Findings

Local Resources

- Develop additional local supplies to meet growth and ensure adequate storage reserves
 - Pursue additional recycling, groundwater recovery, and seawater desalination
- Develop additional local supplies to reduce needs for imported replenishment
 - Expand opportunities for groundwater recharge from stormwater and recycling

IRP Key Technical Findings

Transfers and Exchanges

- Develop a comprehensive transfers and exchanges strategy
 - Focus on obtaining additional supplies in normal and wet years
- Ensure strategy works in conjunction with Metropolitan and local storage

Next Steps



IRP Technical Policy Issues to Date

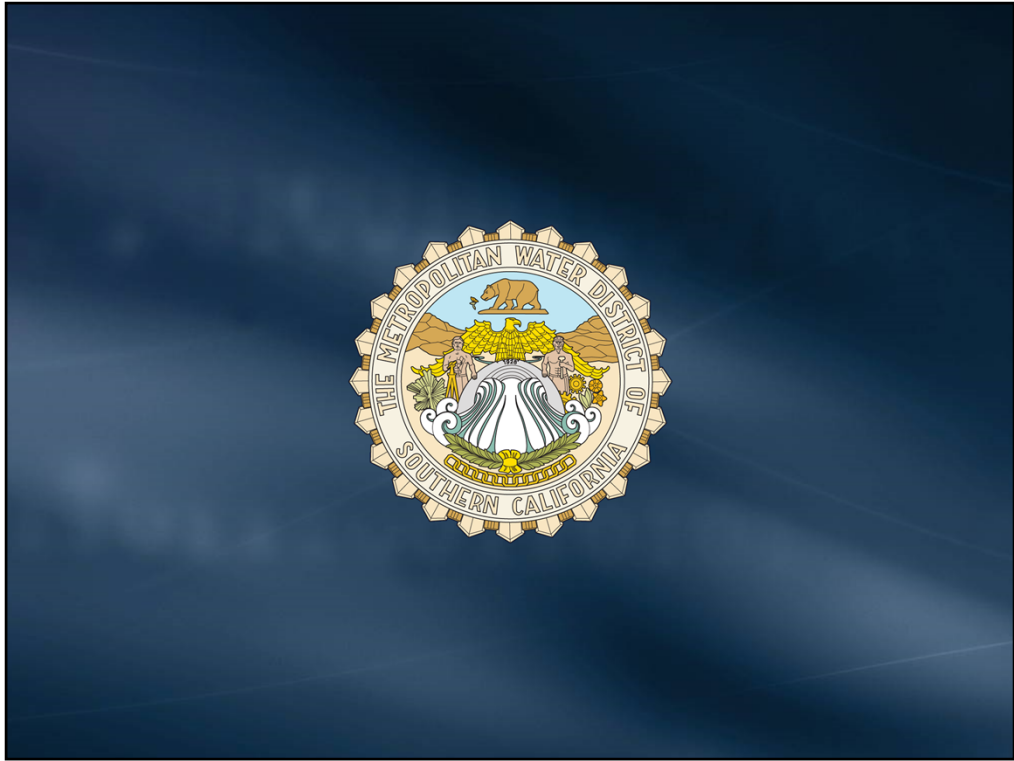
Issues to Be Addressed in Phase 2

- Developed through MA technical process, IRP Issue Paper review, and public outreach
- Issues fall into four broad categories
 - Metropolitan's role in local resource development
 - Governance and financial considerations
 - Groundwater as supply and storage
 - Conservation programming
- Staff will provide a more in-depth report next month
 - Full inventory will be posted on IRP website

Upcoming Technical Process Activities

October-December 2015

- Member Agency Workgroup - October 5th
- IRP Public Outreach Workshop - October 22nd
- IRP Committee Meeting - October 27th
 - Report on Public Outreach Workshop
 - Technical Process Results
 - IRP Issue Paper Addendum
 - Inventory of Policy Issues
- IRP Technical Workgroup Process - November
 - Report Drafting
- IRP Committee Meeting - December 8th
 - Consider 2015 IRP Technical Update Adoption



Backup Slides

Examples of Policy Comments

- Metropolitan's role in local resource development
 - MWD investment in R&D areas such as market transformation, sustainable GW needs, economic comparison of resources, etc.
 - Foundational Actions Funding Program as opportunity for partnerships and facilitating coastal land purchases
- Governance and financial considerations
 - Stranded investment risks
 - Some investments offset MWD sales
 - Financial policies may hinder or accelerate resource development

Significantly sophisticated...enabled us to maintained reliability

Examples of Policy Comments

- Groundwater as supply and storage
 - Reconsider discounted rates, capacity charge, and level of service policy for replenishment deliveries
 - Reevaluate WSDM priorities as come out of drought; refilling MWD regional storage vs. refilling local GW basins
- Conservation programming
 - Look at new ways to structure conservation programs (e.g. efficiency targets and monitoring of “most wasteful” users at the customer level)
 - Supplement conserving device programs with programs to develop tools for water budgeting

Stormwater Development Potential

- ~55 TAF per year of additional stormwater capture and recharge identified
- Based on the Southern California Water Committee Stormwater Project Database
- Project types
 - Improvements to existing centralized facilities
 - New centralized capture and recharge facilities
 - Sediment removal projects
 - Distributed projects

*calculations on capture and recharge may not be consistent across projects

23 projects

Total Capital costs (2008 \$) = \$240 M

Sediment removal 5954

channel improvement 654

distributed 1346

new centralized 5680

centralized improvement 28300

Total: 41933.5

15,000 AF/yr from Cable Creek Basin and Spreading Grounds (\$1,000,000 capital cost)?