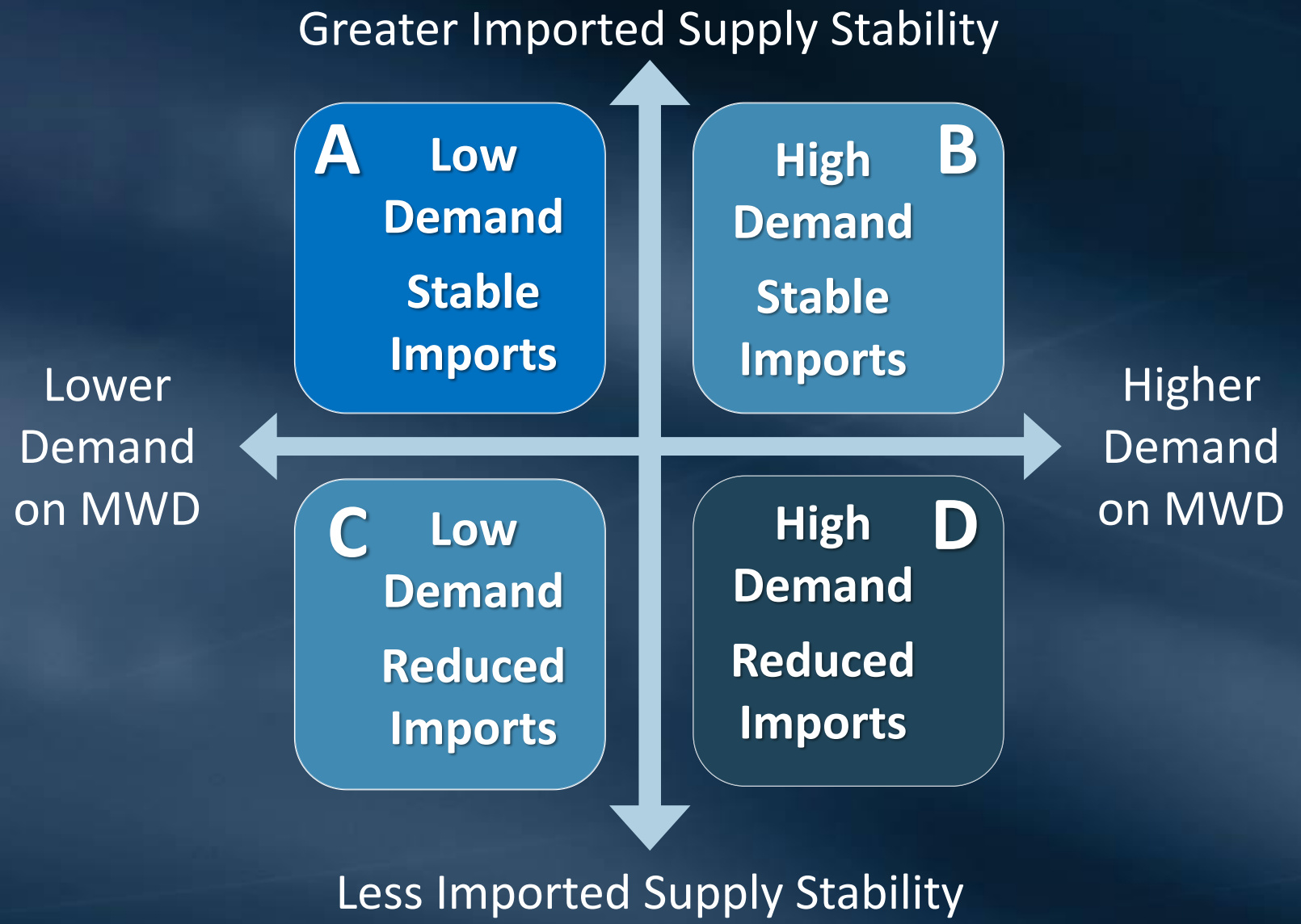
Approach for Developing IRP Scenario-Based Portfolios

Integrated Resources Plan Special Committee
Item 6a
July 27, 2021

Outline

- Building on February Policy Discussion
- Portfolio Planning Approach
- Discussion
- Next Steps

IRP Scenario Recap



Key Scenario Assumption Refinements

PRELIMINARY

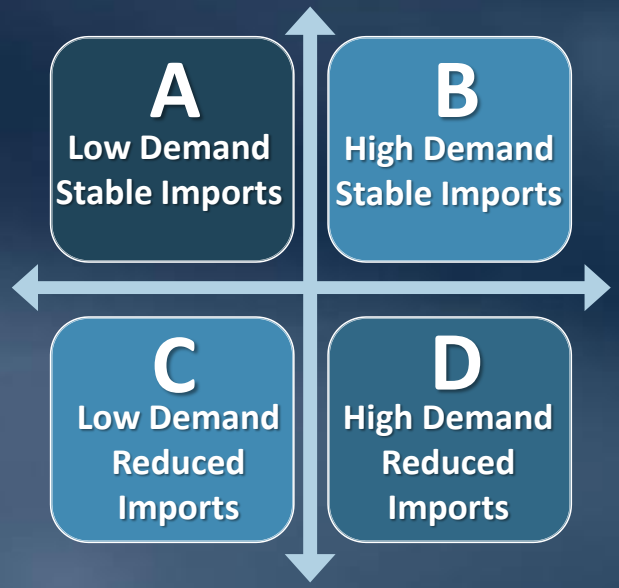
- Climate migration support for high growth
- Generalized rebound assumptions
- Approximated scenario driver impacts to local supplies using economic conditions and professional judgement
- Imported supply assumptions used recent USBR/DWR modeling with scenario considerations

REFINED

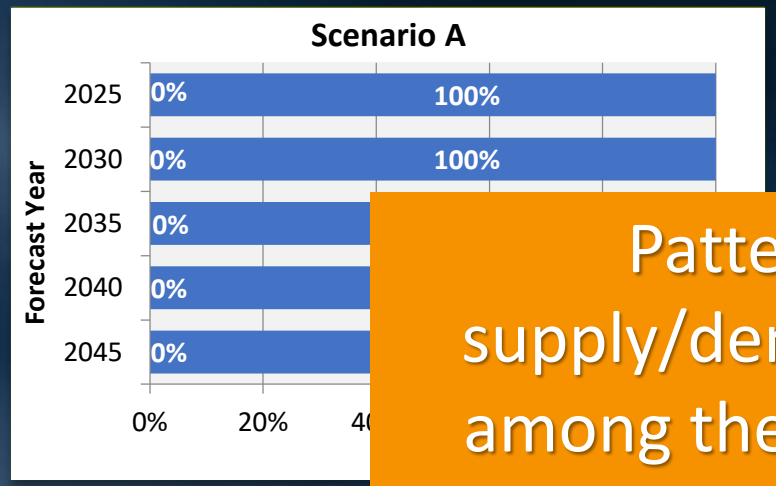
- CCSCE's demographic forecasts
- Rebound is a result of driver impacts: structural and behavioral
- Incorporated feedback from climate change experts and member agency engagement groups for local supplies
- Utilized expert input to identify climate impacts on imported watersheds

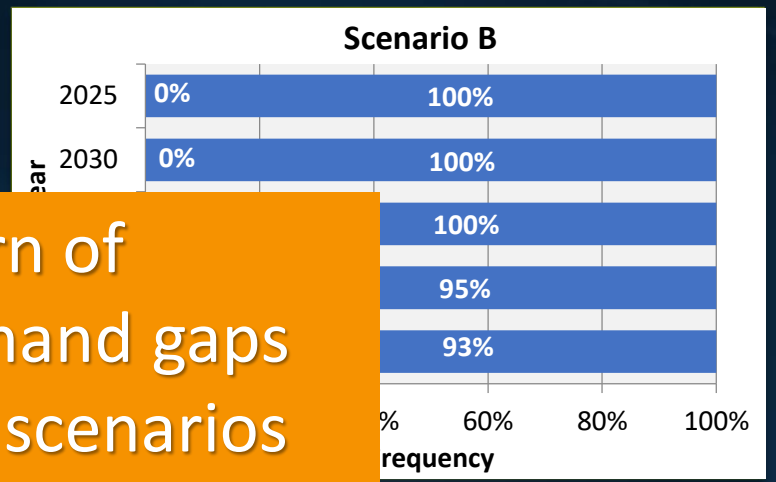
Results of the Refined "Gap" Analysis

When to expect a gap and how often it occurs

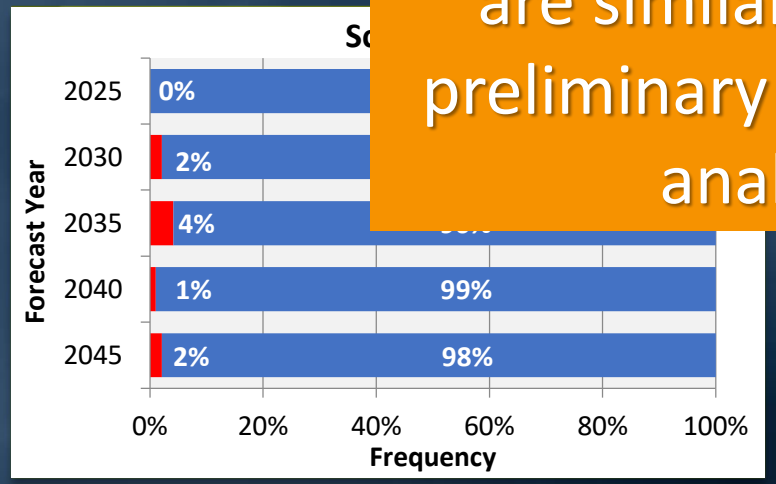


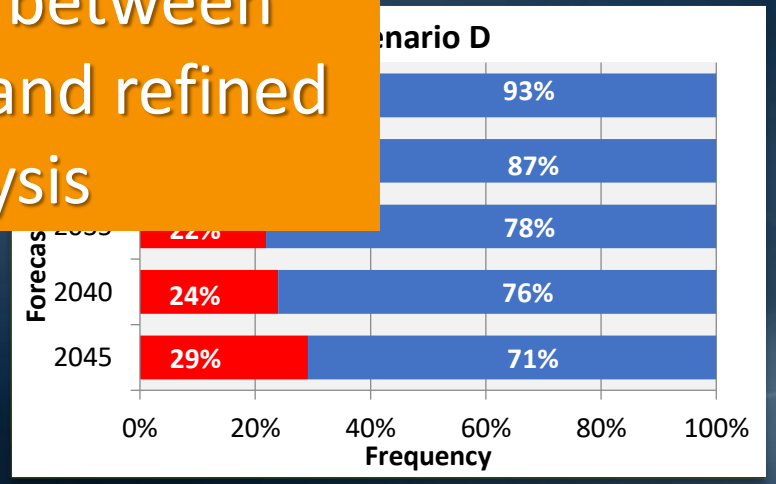
Shortage: running out of accessible water somewhere in MWD's service area





Pattern of supply/demand gaps among the scenarios are similar between preliminary and refined analysis





Transition to Identifying Portfolio Actions

- Metropolitan's working goal is to have 100% reliability (no shortages) for the entire region under all IRP scenario conditions
- Gap analyses for Scenarios B, C, D indicate that achieving 100% reliability will involve additional water management actions to avoid risk of shortages
- Threats to future reliability include not only potential for increased demands but also potential for losses in existing local and imported supplies
- As annual SWP supplies become more at risk, the scenarios reveal that the region's reliability goal is particularly challenged in meeting demands in areas not readily serviced by Colorado River water (SWP exclusive areas)

What Does an IRP Portfolio Do?

IRP Portfolio is not:

- A Capital Improvement Plan (CIP)
  - Does not authorize specific projects
- A Rate Structure Refinement
  - Does not resolve how to allocate costs
- A Rates or Budget Setting Process
  - Does not determine amount of cost to be recovered
- Regional Program Design

IRP Portfolio does:

- Identify potential courses of action
  - Provides framework for moving toward a preferred course of action
- Identify common and unique actions among scenarios
- Provide high level cost information
  - Does not provide detailed rate projections
- Give a sense of value of opportunities when they arise
- Provide a basis for development of an adaptive management strategy

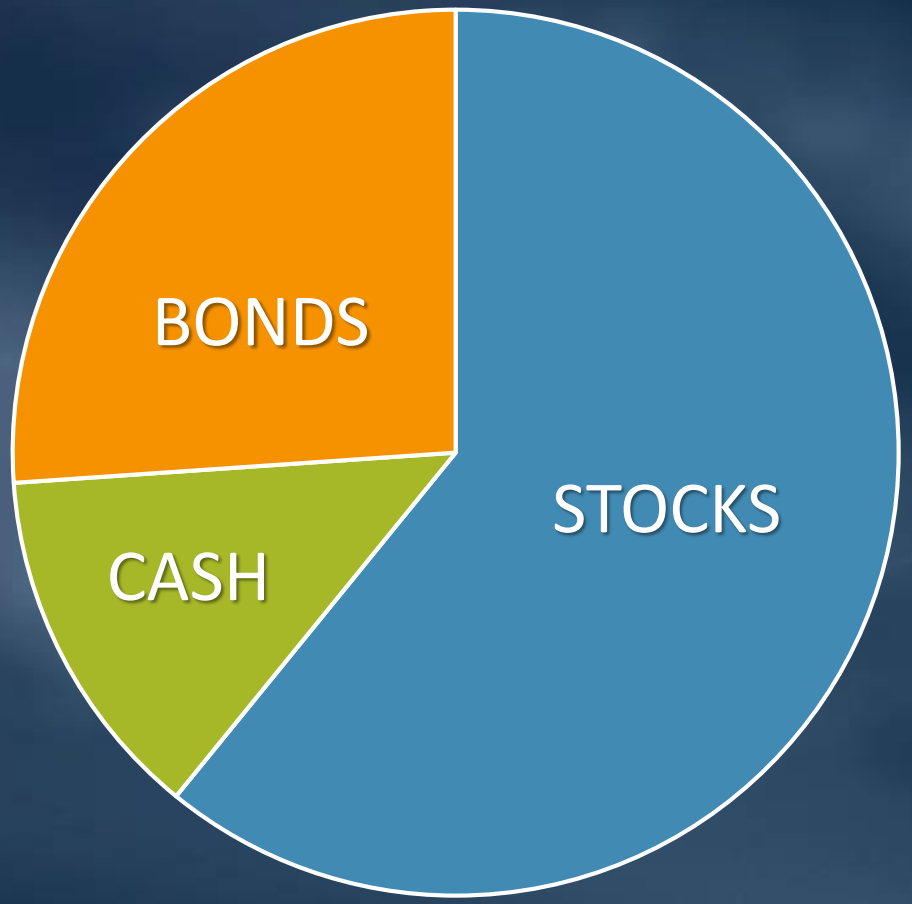
IRP Provides Justification for Programs & Specific Projects

Examples

IRP Sets Framework/Targets	PROGRAM/APPROACH Designed to Reach Targets	IMPLEMENTATION Specific Projects
Local Supply Target	Local Resource Program	Groundwater Replenishment System
Conservation Target	Conservation Credit Program	Residential Toilet Rebates
Future Supply Actions	FSA Funding Program	LA Stormwater Capture Master Plan
CRA Supply Target	PVID/MWD Fallowing Program	Fallowing Calls

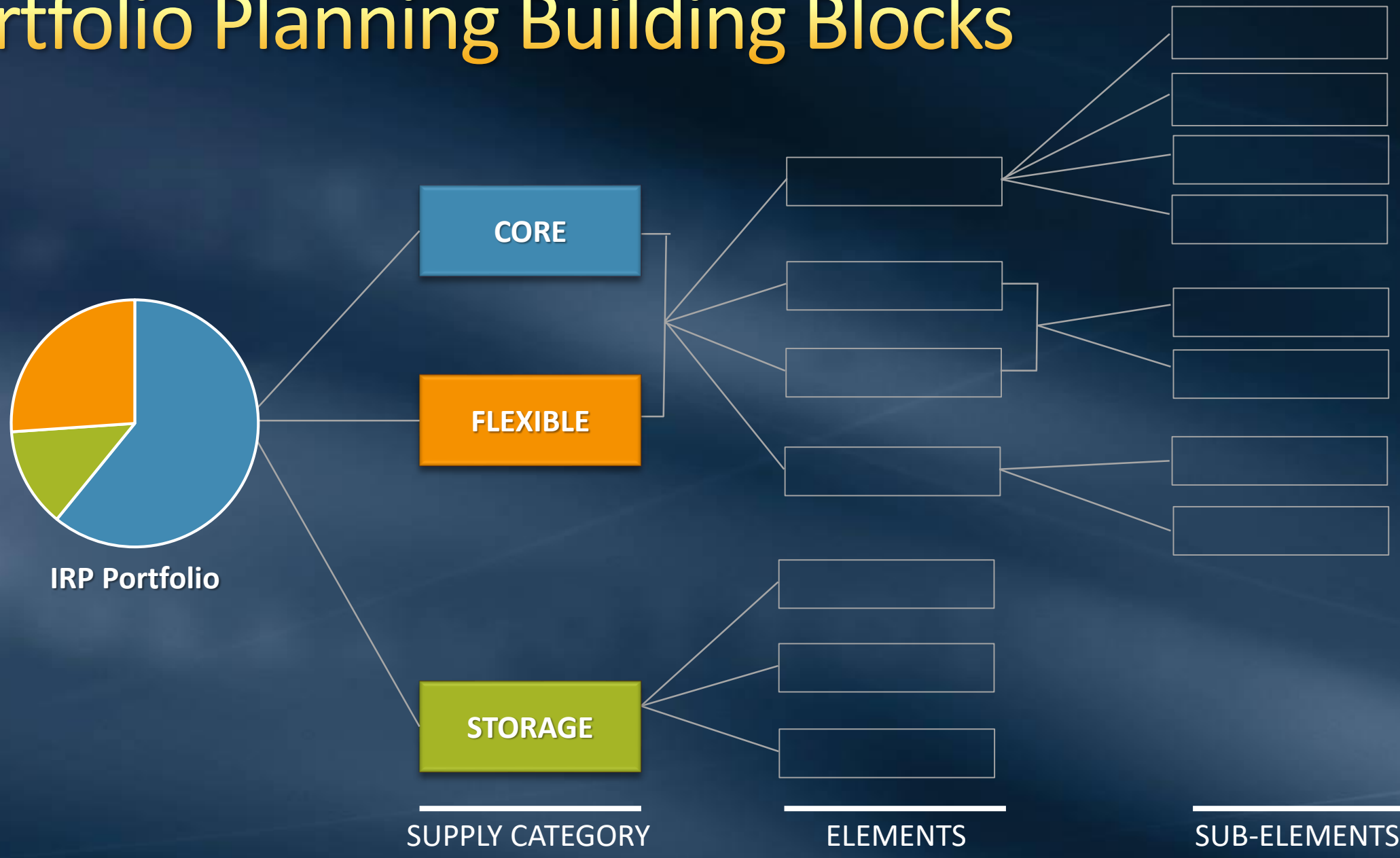
Portfolio Planning Approach

Think of IRP Portfolio Planning Like Investment Portfolio Planning



- A first step in portfolio planning is to assess categories of investments at a high level
- A portfolio is the result of a set of investments and actions to meet given objectives over a period of time.
- It consists of existing supplies and programs, and future investments and actions.
- For the 2020 IRP, water reliability has been identified as a primary goal, and the time frame is 25 years to 2045.

Portfolio Planning Building Blocks



Portfolio Planning Category Definitions

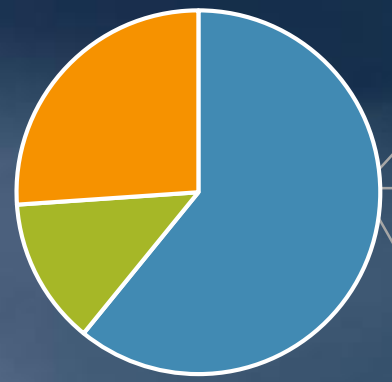
- Core Supply
  - *A supply that is generally available and used every year to meet demands under normal conditions*

  High reliability and value if used often. Expensive otherwise.
- Flexible Supply
  - *A supply that is implemented on an as-needed basis and may or may not be available for use each year*

  Expensive if used too much or too often. Better value if used occasionally.
- Storage
  - *The capability to save water supply to meet demands at a later time*

  Converts Core Supply into Flexible Supply. Evens out variability in supply and demand

Portfolio Planning Building Blocks

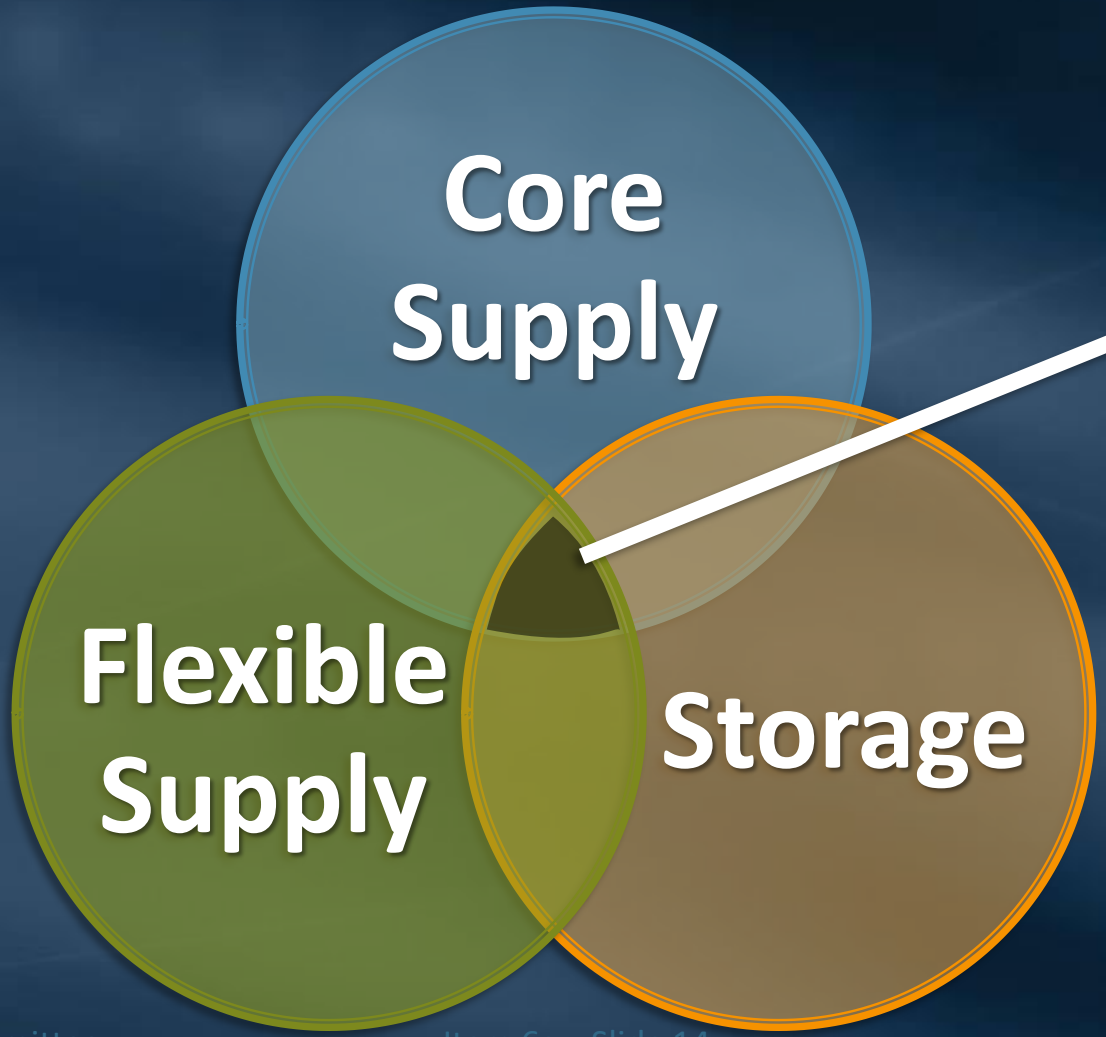


IRP Portfolio

- CORE
  - Local Supply
    - Desalination
    - Groundwater
    - Recycled water
    - Stormwater
  - Imported Supply
    - CRA
    - SWP
  - Water Transfers
    - CRA
    - SWP
  - Water Use Efficiency
    - Behavioral
    - Structural
- FLEXIBLE
  - Local Supply
    - Desalination
    - Groundwater
    - Recycled water
    - Stormwater
  - Imported Supply
    - CRA
    - SWP
  - Water Transfers
    - CRA
    - SWP
  - Water Use Efficiency
    - Behavioral
    - Structural
- STORAGE
  - GW/Surface
  - Out-of-Region
  - In-Region

SUPPLY CATEGORY | ELEMENTS | SUB-ELEMENTS

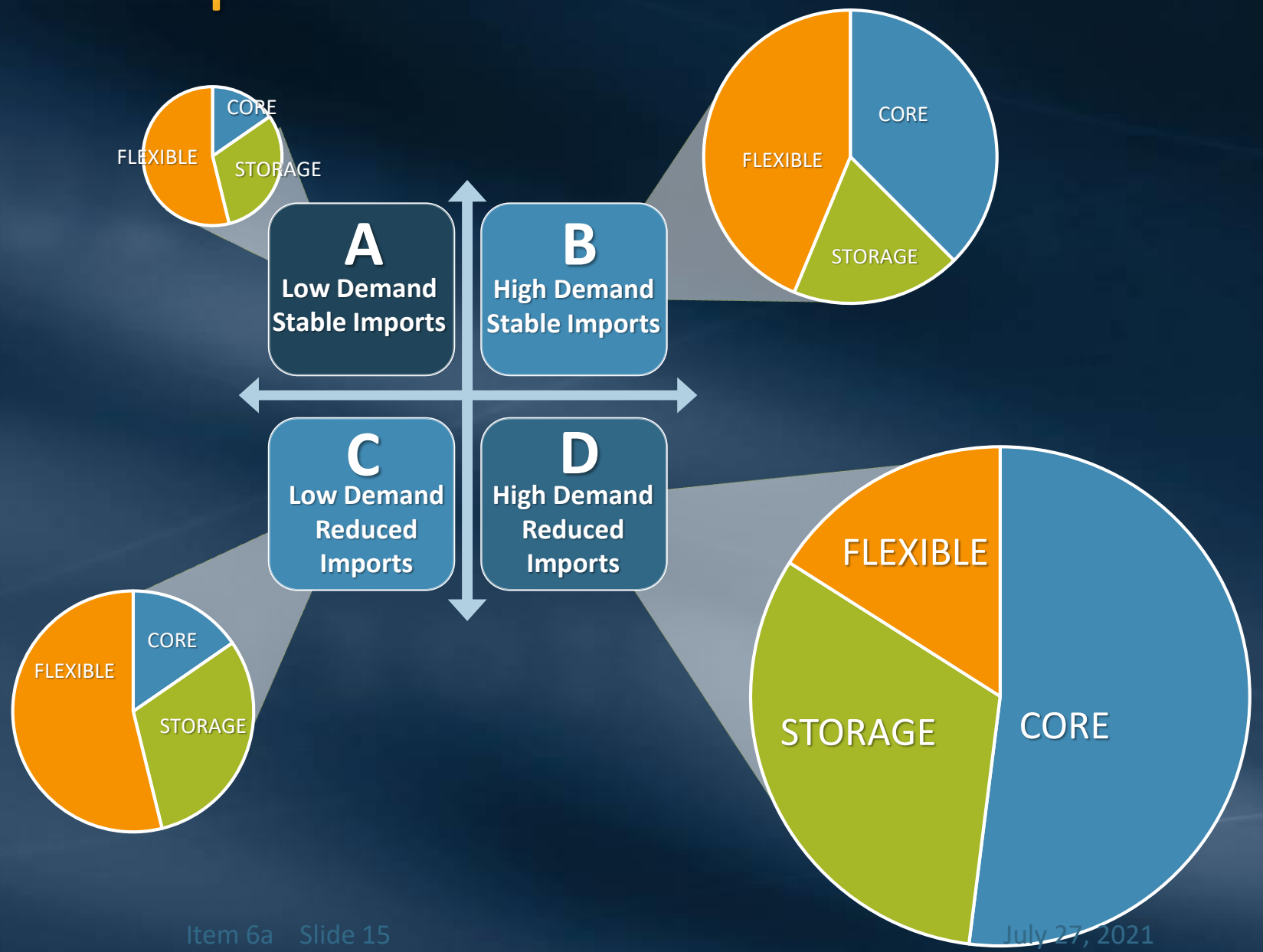
Successful Portfolios Will Address SWP Exclusive Area Challenges



SWP Exclusive Area challenges may be addressed by a combination of all categories

Portfolio Building Concept

- The size of the pie represents the total actions needed (existing and future)
- The Categories represent the proportion of the pie slices
- The Elements and Sub-Elements determine the ingredients of each slice

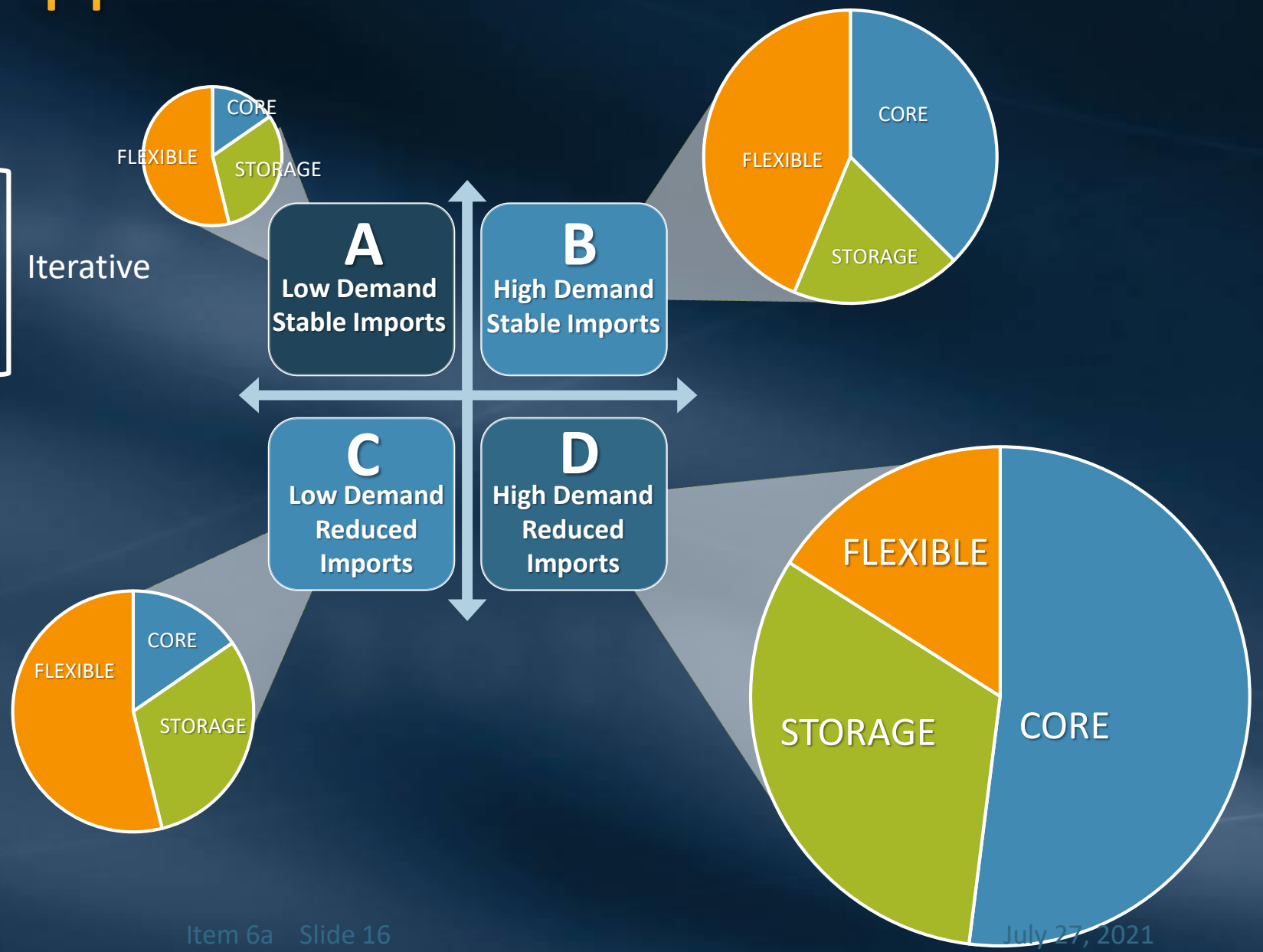


Portfolio Building Approach

1. Identify desired Supply Category mix for each scenario
2. Test Supply Category mix to confirm that it addresses reliability goal

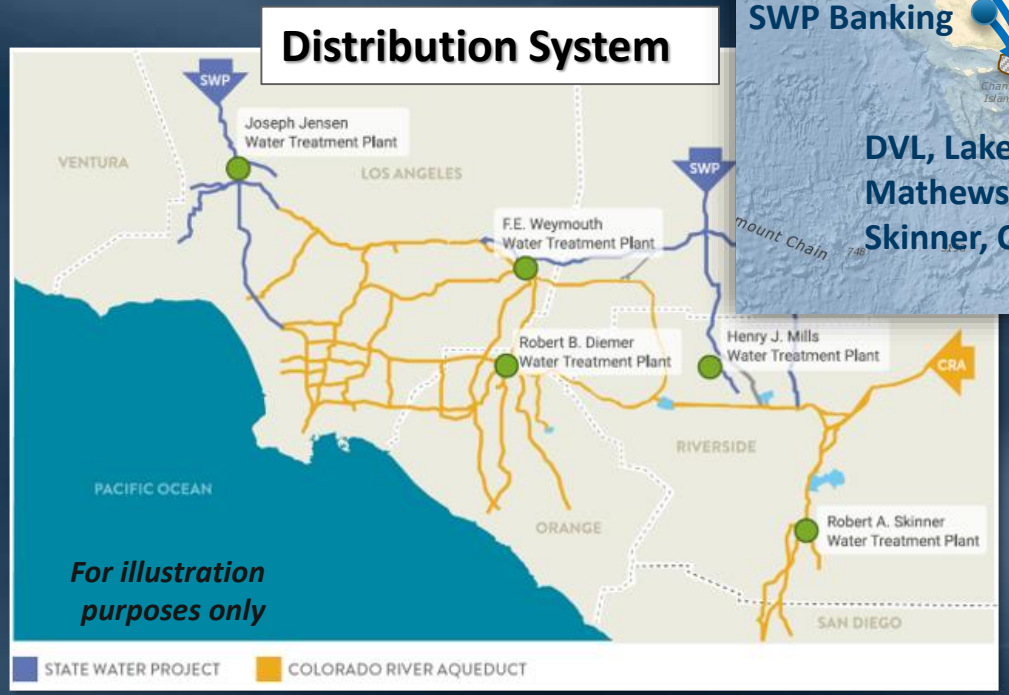
Iterative

3. Decide on Elements and Sub-Elements within each Supply Category
4. Evaluate Portfolios based on performance measures



Portfolio Modeling Incorporates WSDM Conditions

- Metropolitan's reliability modeling takes into account the programs, facilities, and operations that are reported to the Board on a routine basis
- Considerations include
  - WSDM actions
  - Put and take capabilities
  - Total storage capacities
  - Distribution system constraints (such as SWP exclusive areas)



Example Tests of Portfolio Categories

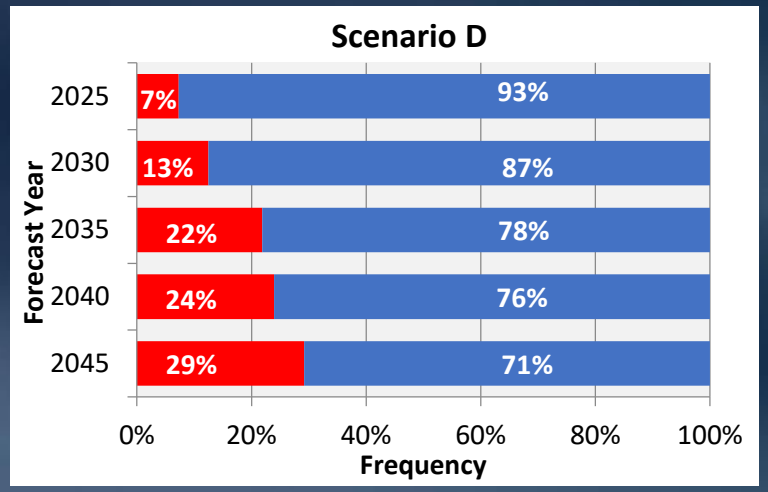
Four Examples of Technical Tests

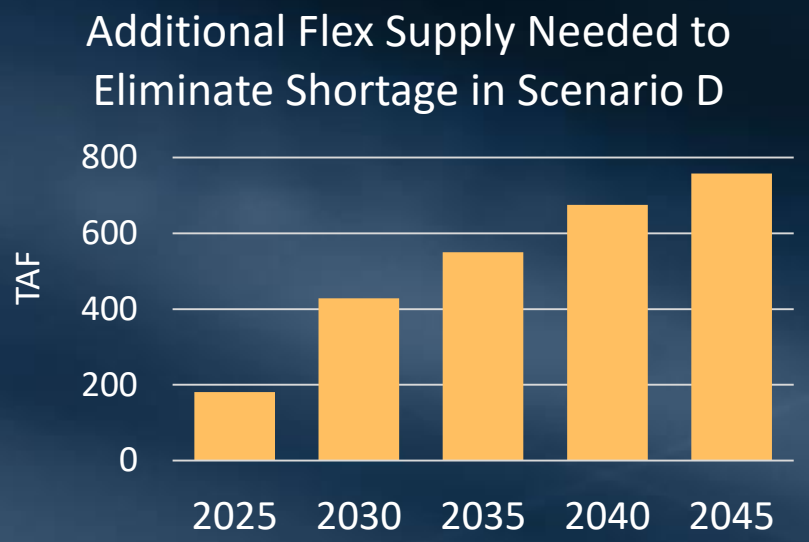
Testing Supply Categories for Scenario D

- What would it take to achieve our reliability goal if …
  - Test 1: Year-to-year gap satisfied through Flexible Supply development?
  - Test 2: All new actions made through Core Supply development?
  - Test 3: All new actions made through Storage development not accessible in SWP exclusive area?
  - Test 4: All new actions made through Storage development accessible by all areas?

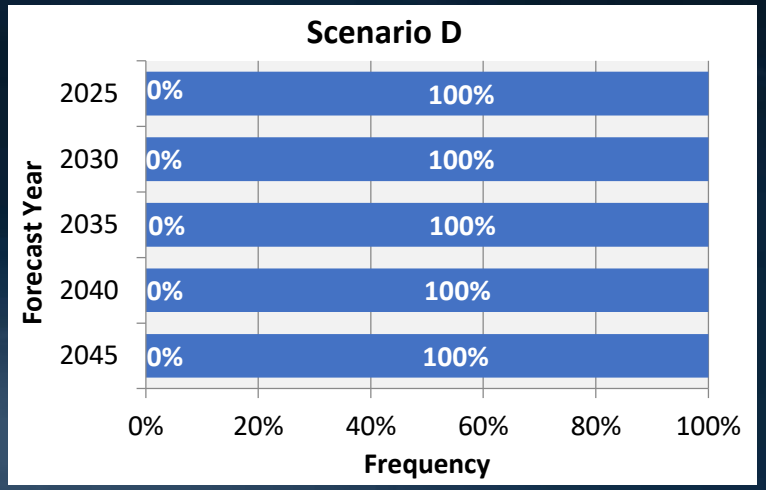
Test 1: How Much Flexible Supply is Needed?

Prior to test





Test results

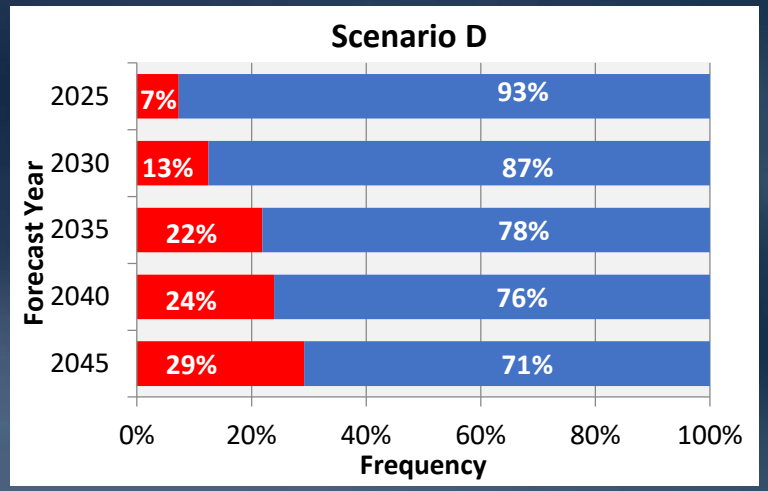


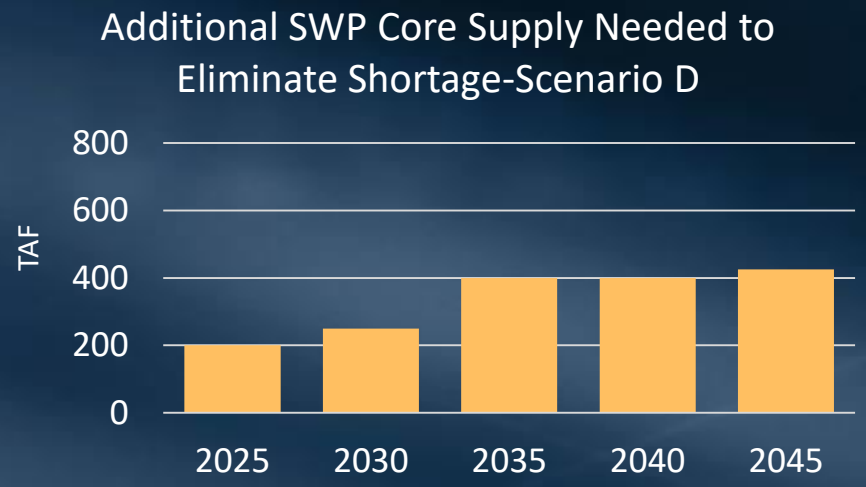
Assessment:

- A range of 181 TAF to 758 TAF of additional Flexible Supply on the SWP system would be needed
- Significant quantities at a high cost may not be practicable

Test 2: How Much Core Supply is Needed?

Prior to test





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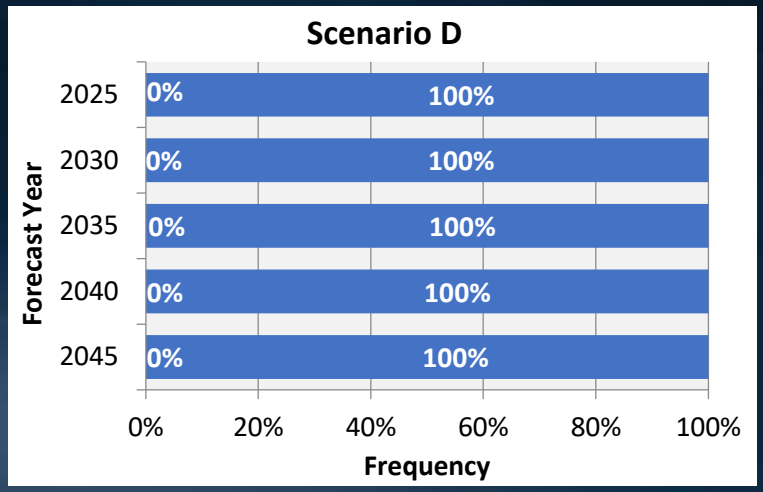


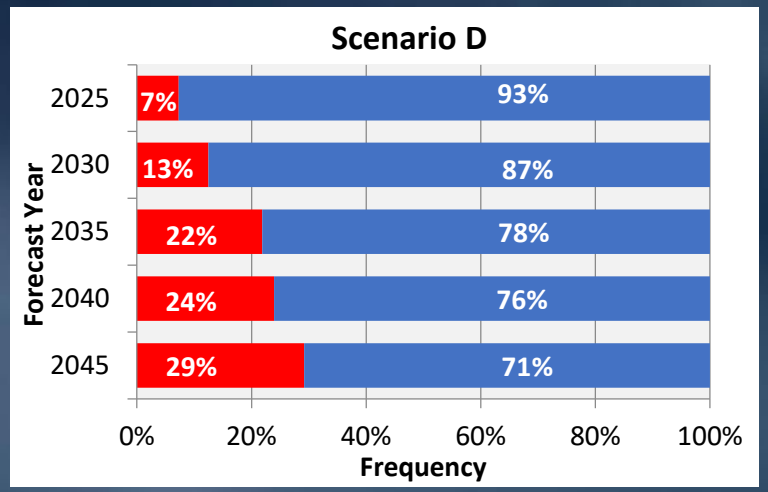
Assessment:

- A range of 200 TAF to 425 TAF of additional Core Supply on the SWP system would be needed
- The amount of core supply needed is less than the Flexible Supply test because Core Supply enhances opportunities to utilize existing storage
- Core supply development creates additional water surpluses
- Adding additional storage may offset quantity needed

Test 3: How Much Additional Storage is Needed?

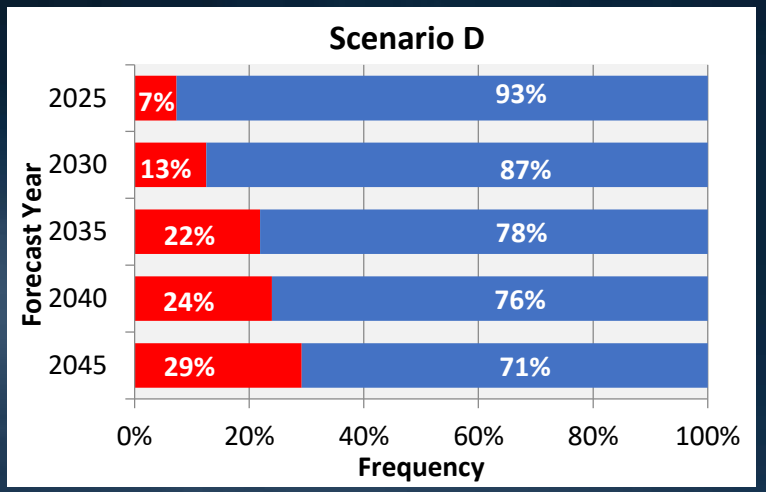
If new storage is not available to the Exclusive Area

Prior to test



- 1.5 MAF storage program capacity
- 750,000 put/take capacity

Test results



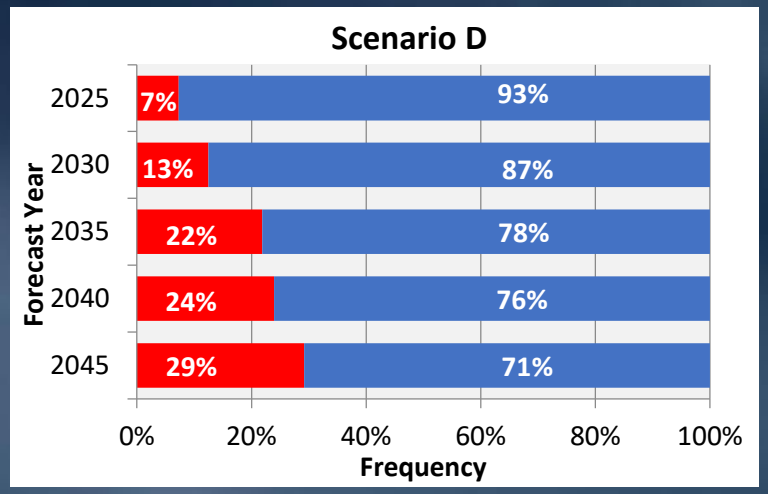
Assessment:

- No improvement in the "Gap" analysis suggests importance of spatial considerations

Test 4: How Much Additional Storage is Needed?

If new Storage is available to the Exclusive Area

Prior to test



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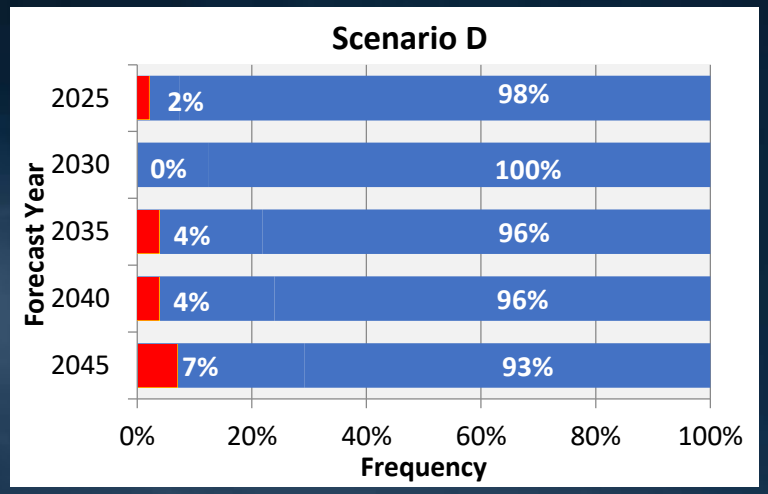
Test results



Assessment:

- Spatial considerations significantly improved reliability
- Storage improves reliability, but cannot alone eliminate shortages. Core and Flexible supplies also needed

How Do We Evaluate Potential Portfolios?

Performance Measures

Affordability

May include:

- Cost
- Rate Impact

Reliability

May include:

- Water Quantity
- Frequency of shortage
- Depth of shortage
- Timing/ease of implementation
- Diversification
- Resiliency to climate change

Equity

May include:

- Shortage shared across regions
- Water quality
- System flexibility /redundancy (SWP Exclusive Area)
- Disadvantaged Communities

Water Quality

May include:

- Salinity
- Shocks to water quality

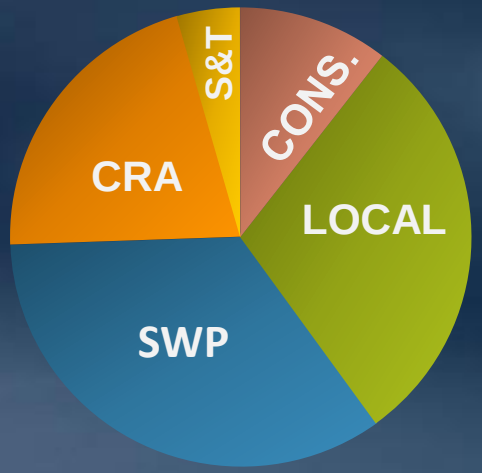
Environmental

May include:

- Continued flows to ecosystems
- Habitat impacts
- Energy intensity

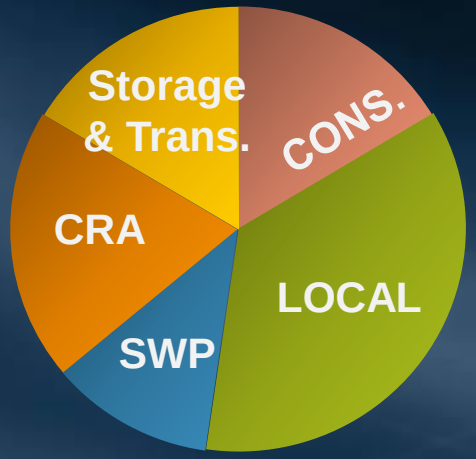
- Performance measures can pertain to evaluating portfolios and future specific actions

Previous IRP Portfolios



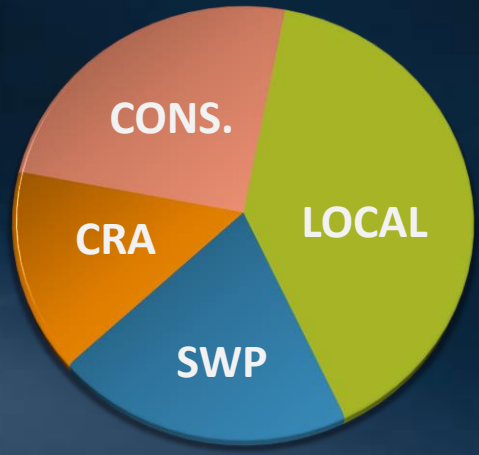
Prior to the IRP

Heavy dependence on Imported Supply



1996 IRP

Less than half of the region's water is imported



2015 IRP Update

Emphasis on Conservation, Local Supplies, and Storage & Transfers

Based on an Average-Year Portfolio

Categories of Discussion

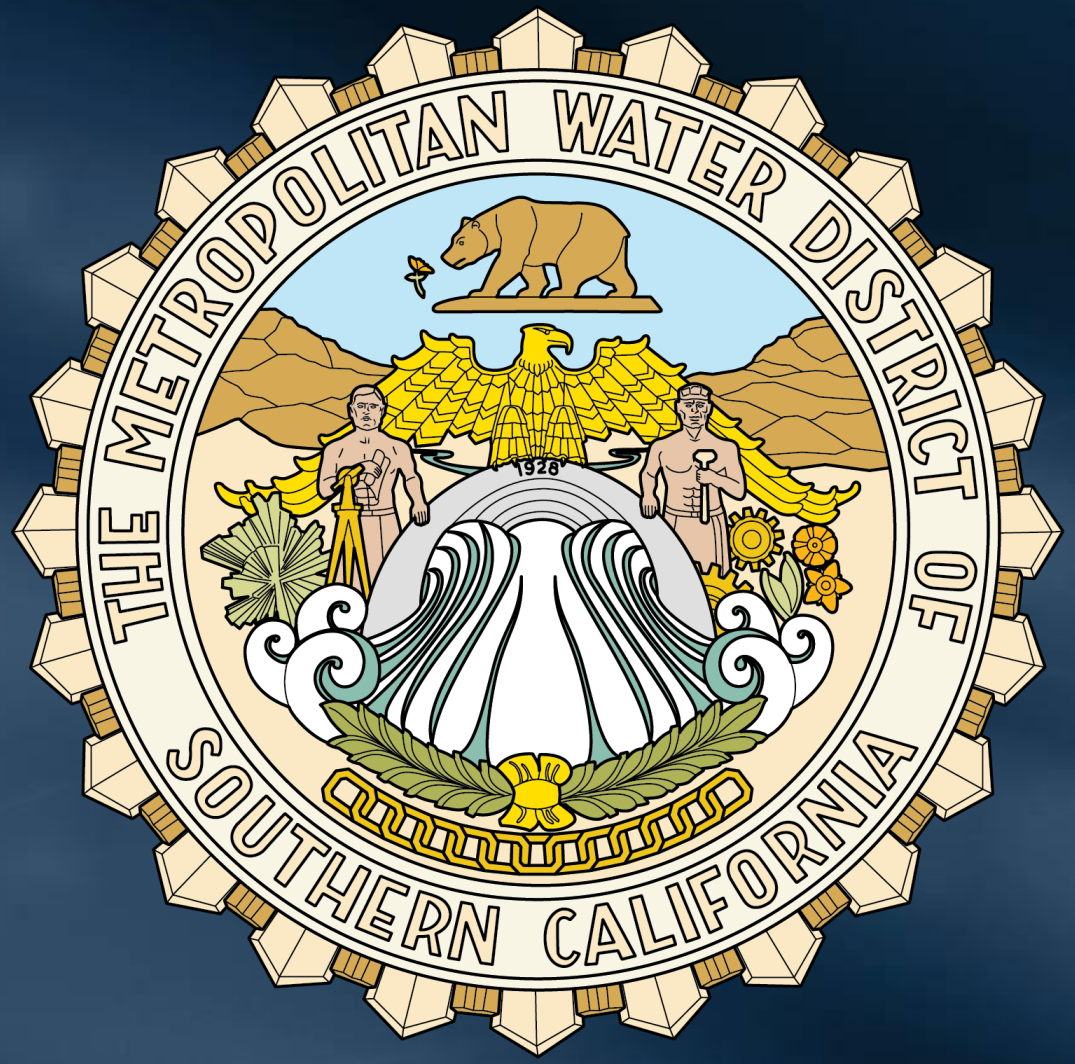
- Planning Approach
  - Understanding where we are heading
- Performance Measures
  - Measures to evaluate preferred actions
- SWP Exclusive Area
  - Recognition of challenges in light of supply/demand imbalances

Proposed Schedule

Month	Member Agency Collaboration	IRP Board Committee
JUL	• **Portfolio Approach**	• **Portfolio Approach**
AUG	• **Determine Portfolio Actions** Mix of Supply Categories and Elements • **Identify Signposts** Adaptive Management Strategy	
SEP	• **Draft Adaptive Management Plan** Mix of Supply Categories and Elements	• **Portfolio Recommendation** Discuss Policy implications • **Review of Adaptive Management Strategy** Feedback on approach
	Public Workshop – Focus on Portfolios	
OCT	• **Follow-up Items** As needed	• **Finalize Portfolios and Adaptive Management Strategy**
NOV	• **Review Draft IRP**	• **Review Draft IRP**
DEC		• **Adopt IRP**

Next Steps

- Metropolitan Staff will work with Member Agencies to develop portfolio action options
- We will bring proposed portfolios (Supply Categories and Elements) and a draft Adaptive Management Plan for Board feedback in September
- Board feedback and policy discussions will refine the portfolio actions and Adaptive Management Plan


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
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