



WATER  **TOMORROW**
2020 Integrated Resources Plan

Portfolio Planning Approach

IRP Technical Workgroup Meeting

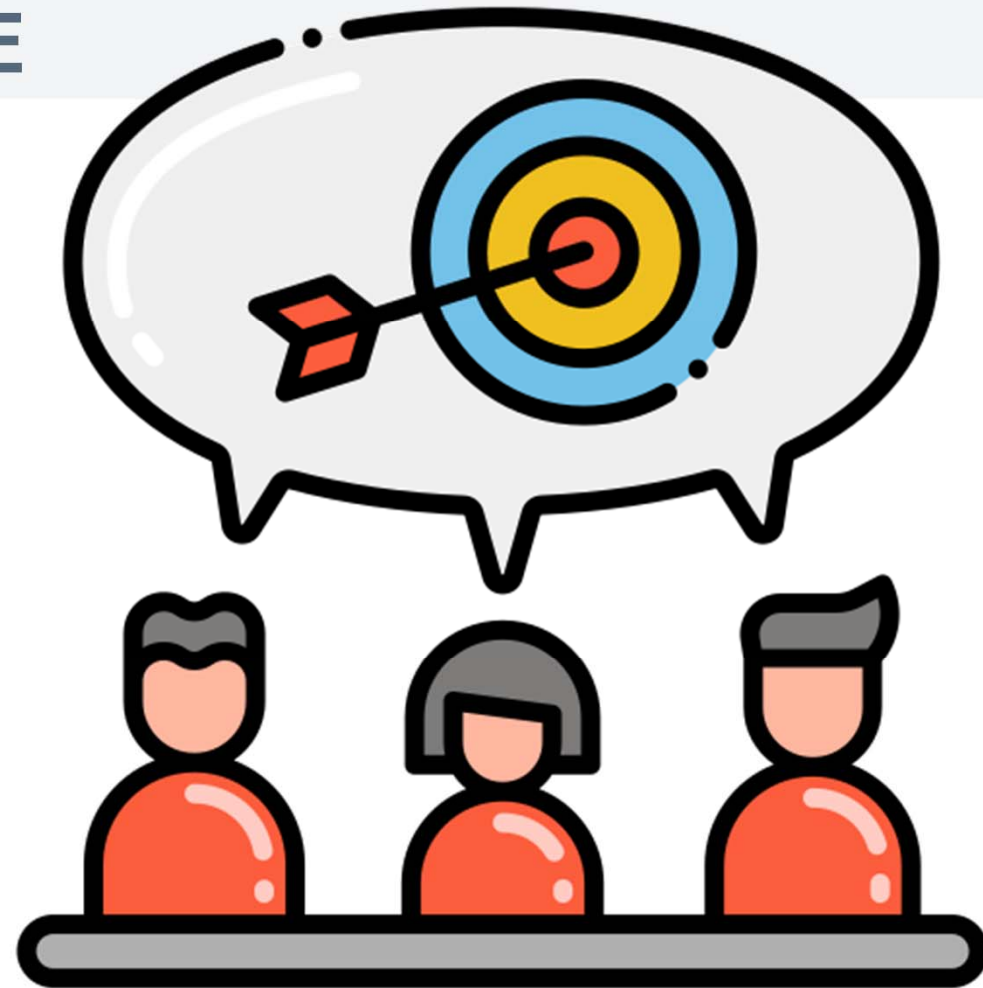
July 14, 2021

OVERVIEW

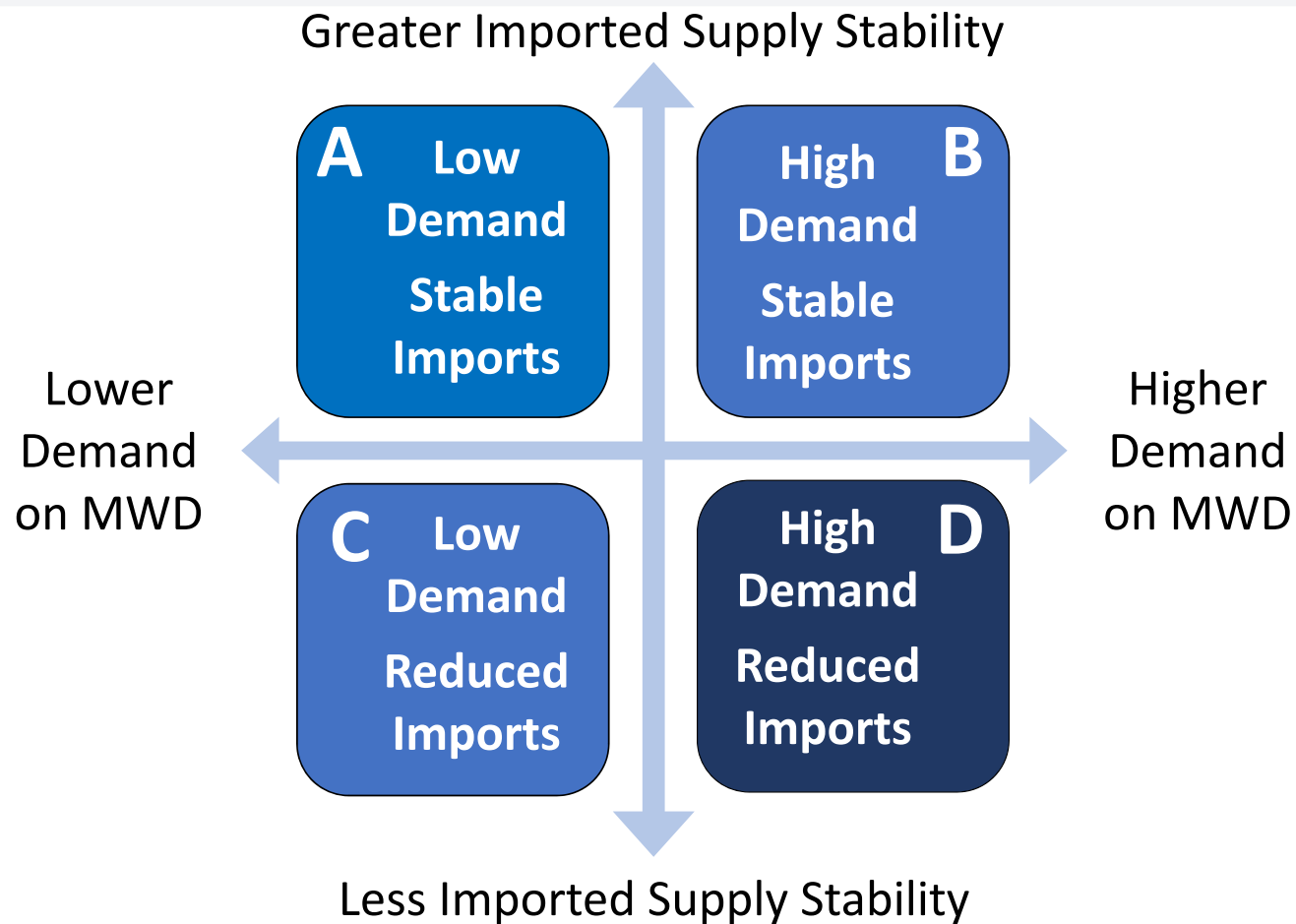
- Workshop Objective
- Review and Update Progress and Process
- IRP portfolio planning - concepts and definitions
- Group Discussion
- Next Steps

WORKSHOP OBJECTIVE

- Gather input and concurrence on portfolio planning terminology, definitions, and approach



IRP SCENARIO RECAP



EXAMPLES OF CHANGES BETWEEN ANALYSIS

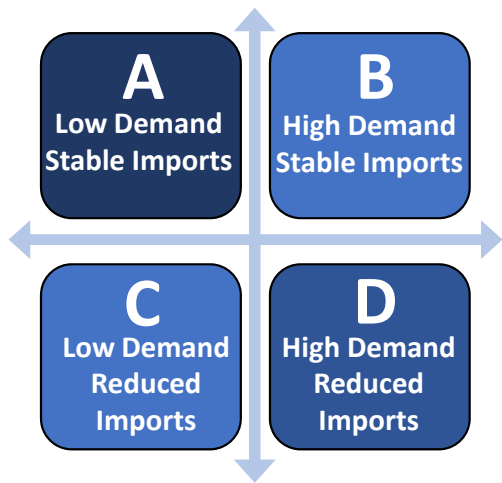
PRELIMINARY

- 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

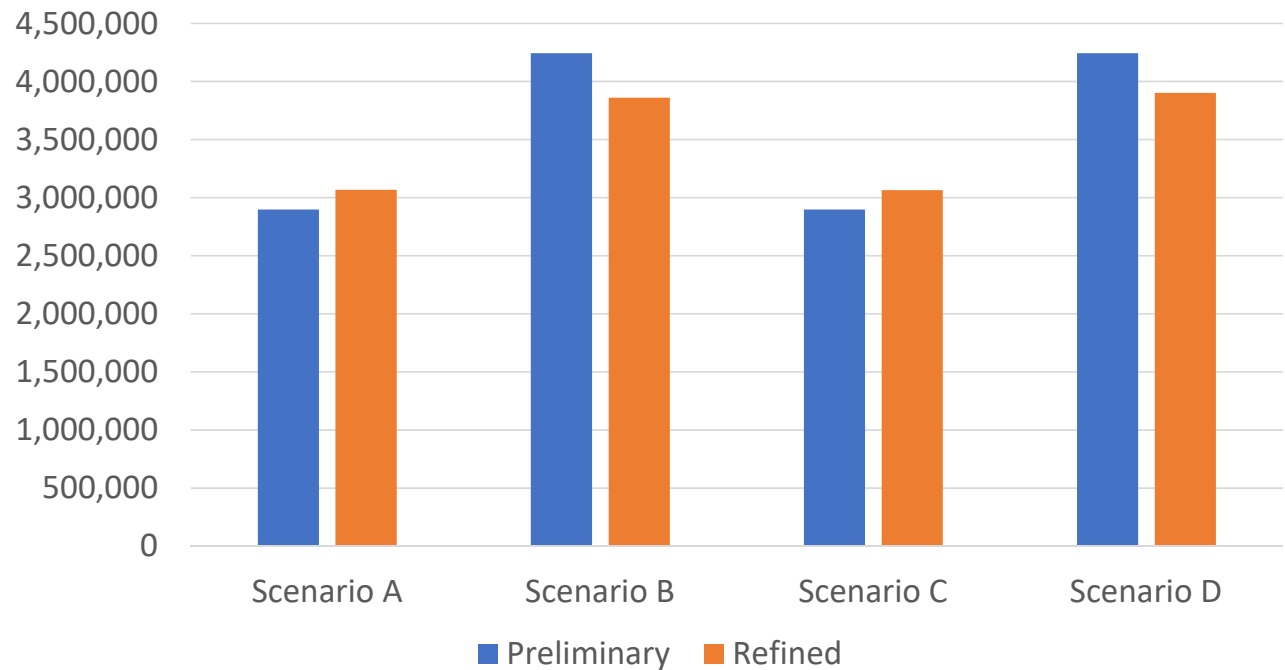
REFINED

- 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

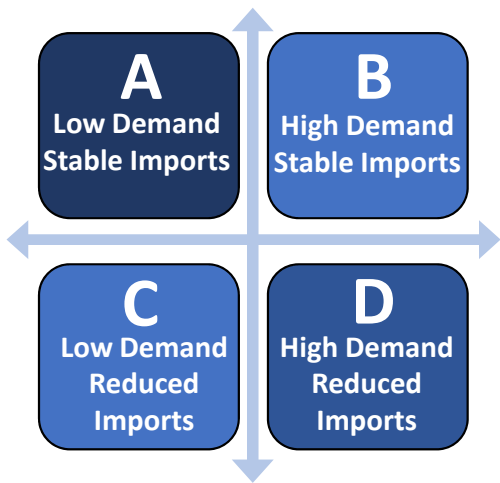
PRELIMINARY VS. REFINED ANALYSIS



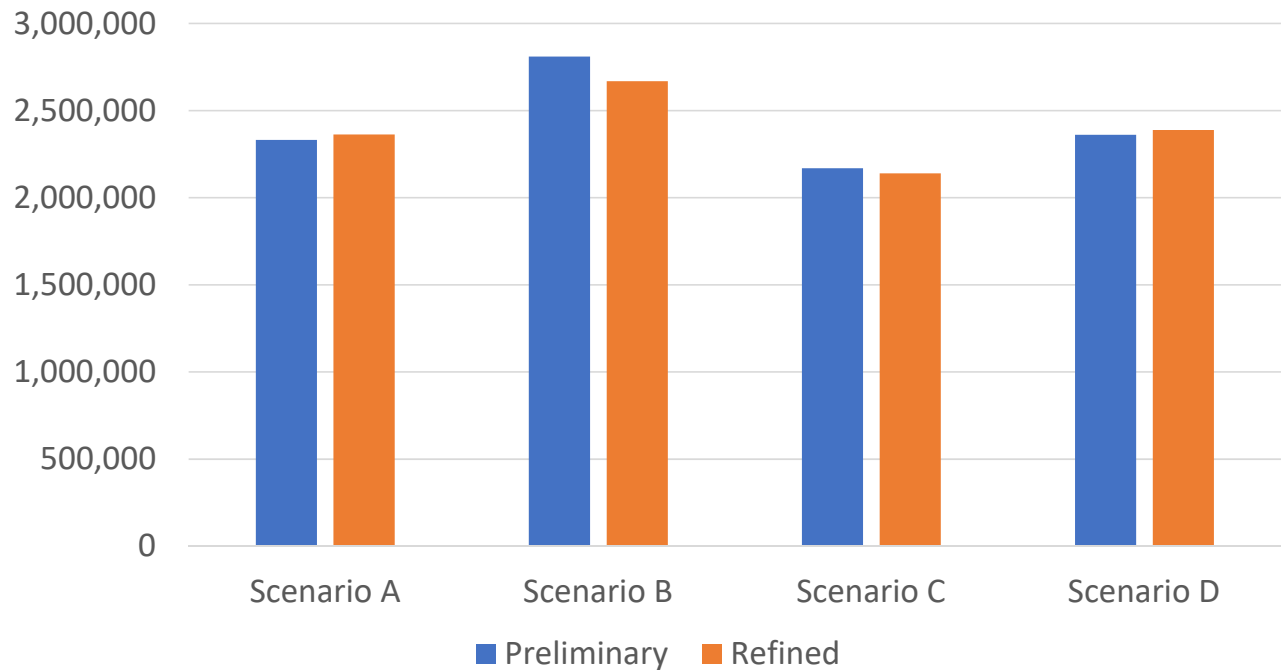
M&I Retail Demand (2045)



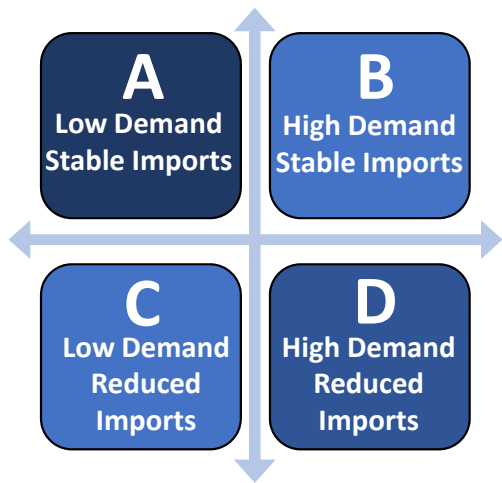
PRELIMINARY VS. REFINED ANALYSIS



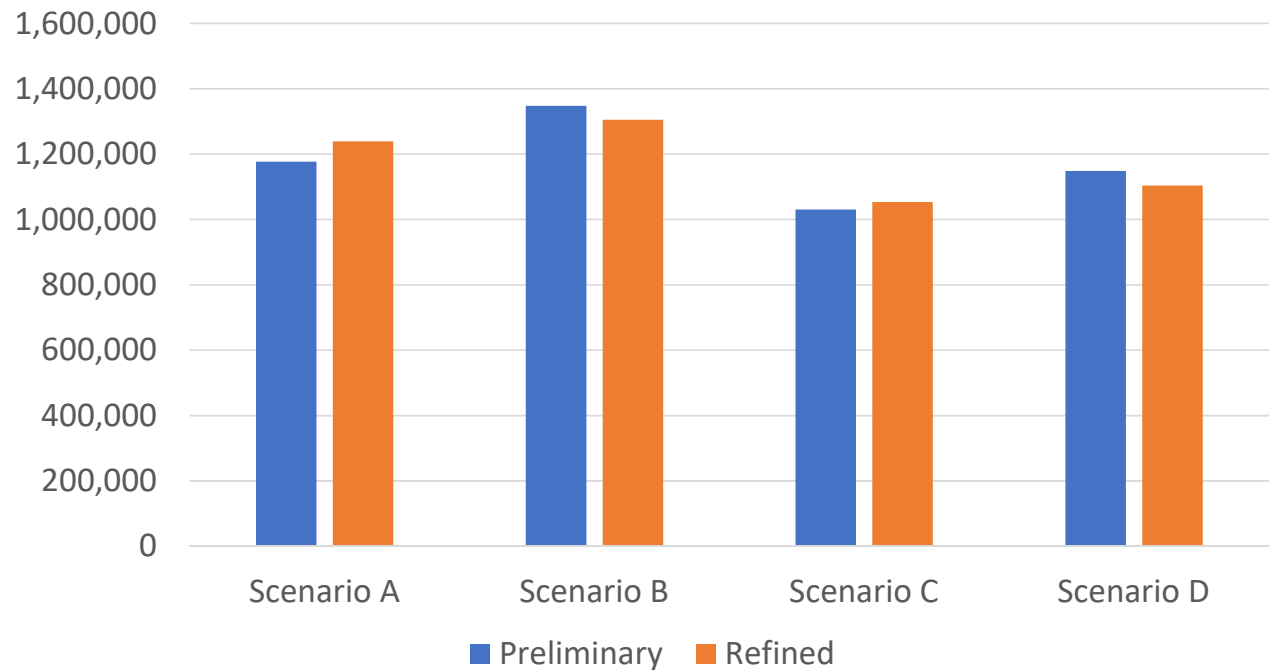
Total Local Supply Production (2045)



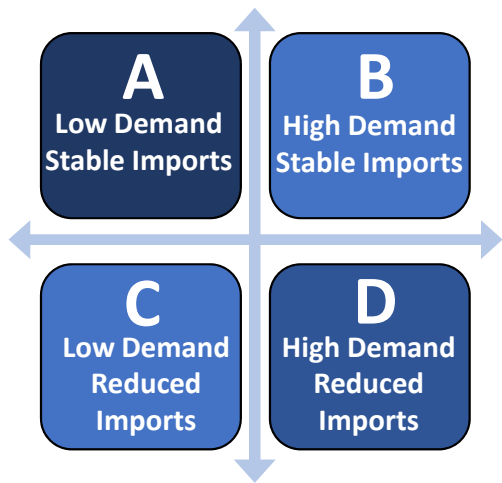
PRELIMINARY VS. REFINED ANALYSIS



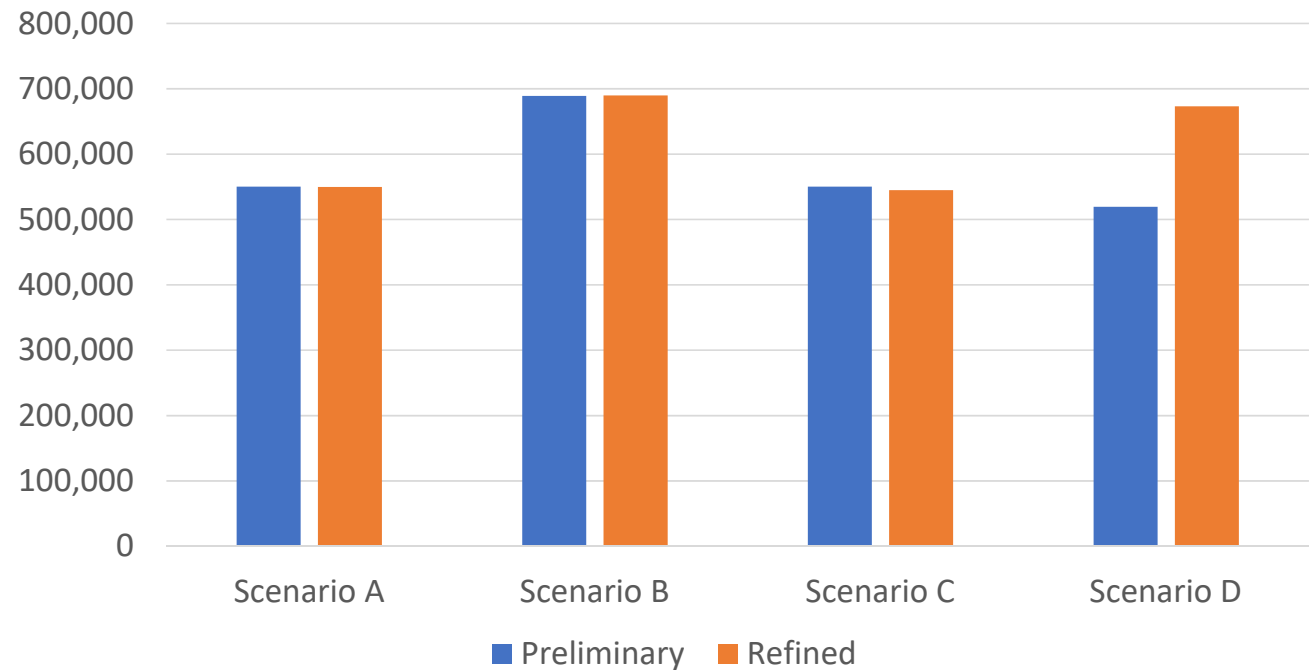
Groundwater Production (2045)



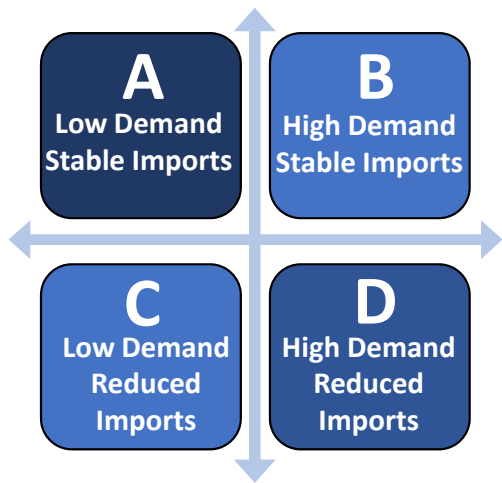
PRELIMINARY VS. REFINED ANALYSIS



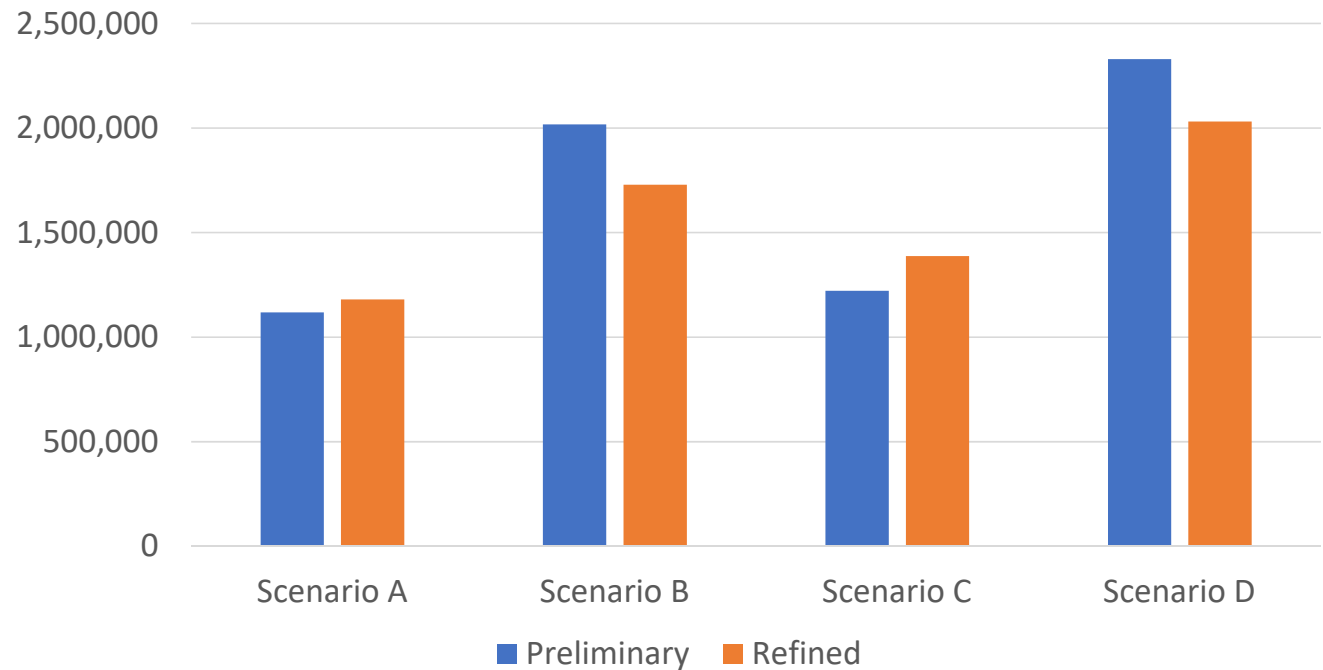
Total Recycling (2045)



PRELIMINARY VS. REFINED ANALYSIS

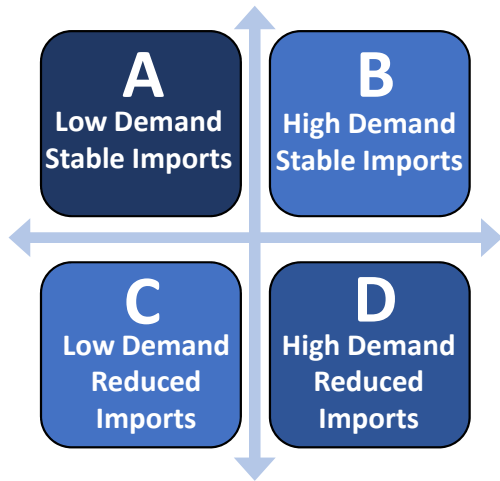


Total Demand on MWD (2045)

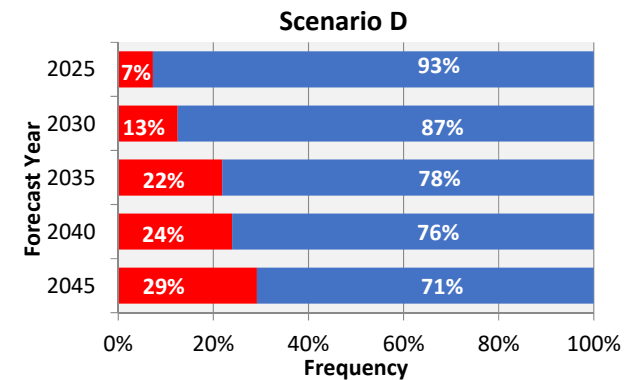
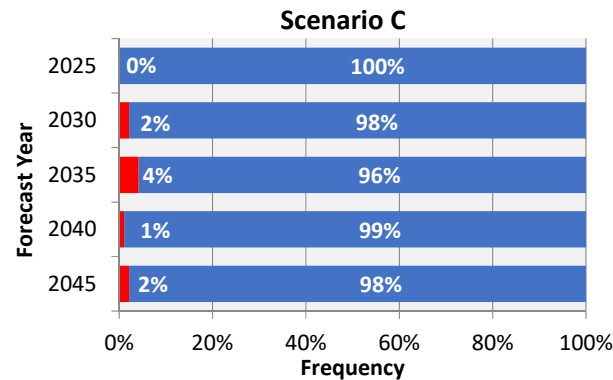
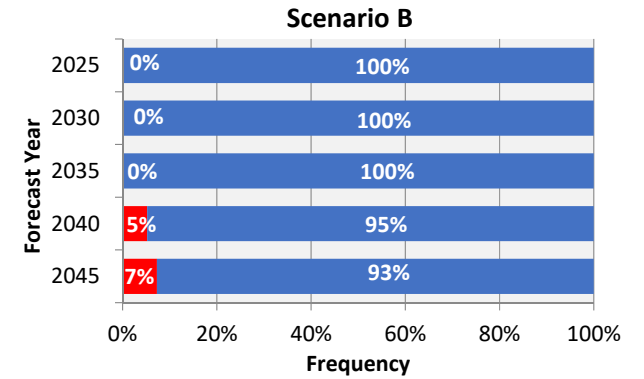
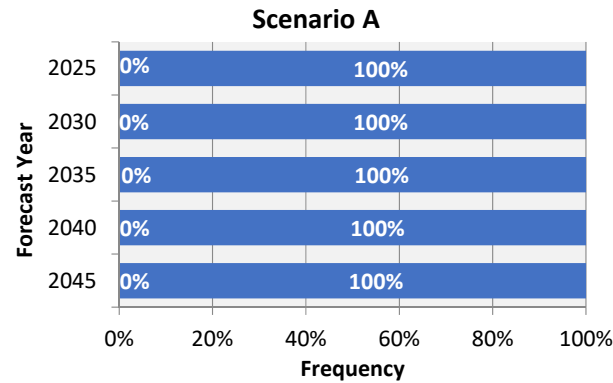


RESULTS OF THE REFINED “GAP” ANALYSIS

When to expect a gap and how often it occurs



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



PAUSE FOR CLARIFICATION





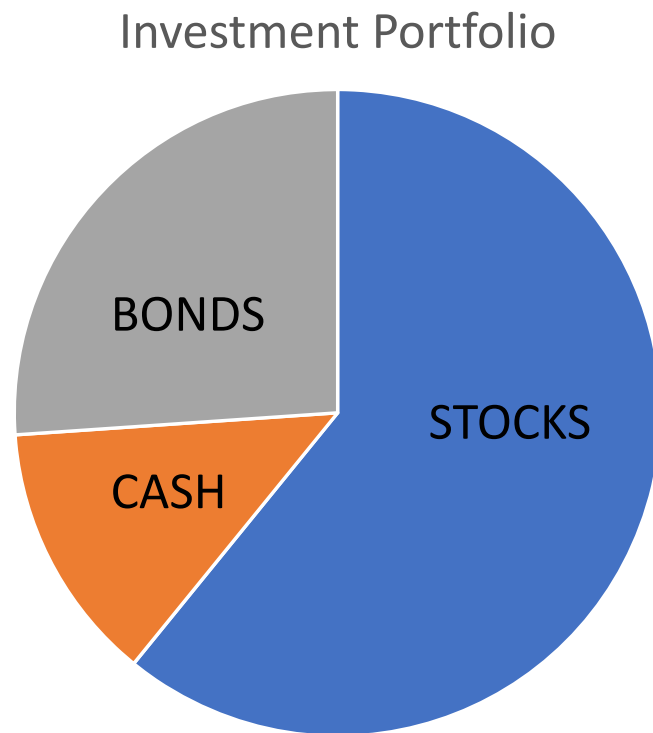
SHIFTING GEARS TO PORTFOLIO PLANNING

IRP PORTFOLIO CONCEPTS

- What is a portfolio?
- How do we plan for an IRP portfolio? (categories, elements, sub-elements)
- How do we test and evaluate if the portfolio (categories, elements, sub-elements) is appropriate for the given scenario?

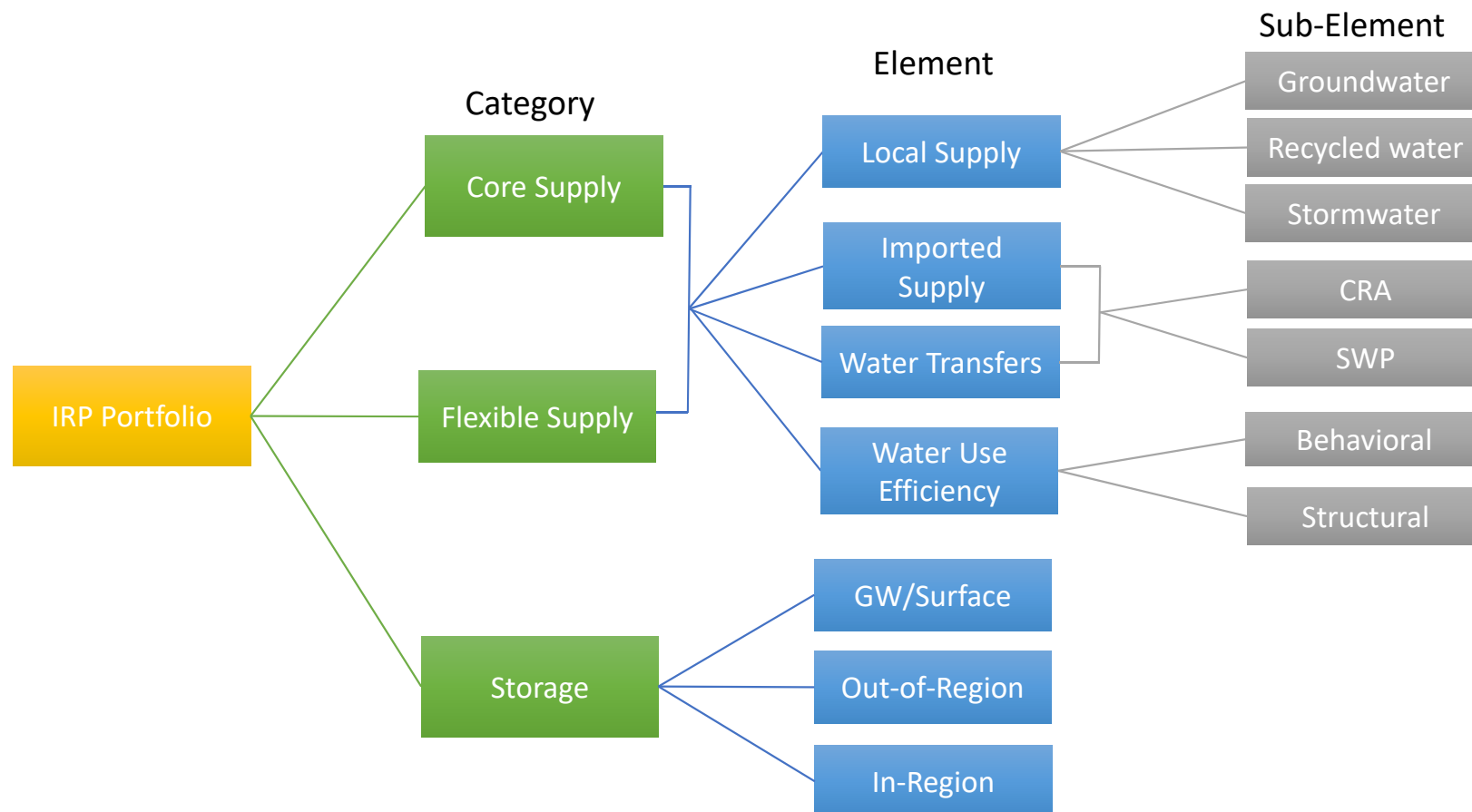


WHAT IS A PORTFOLIO?

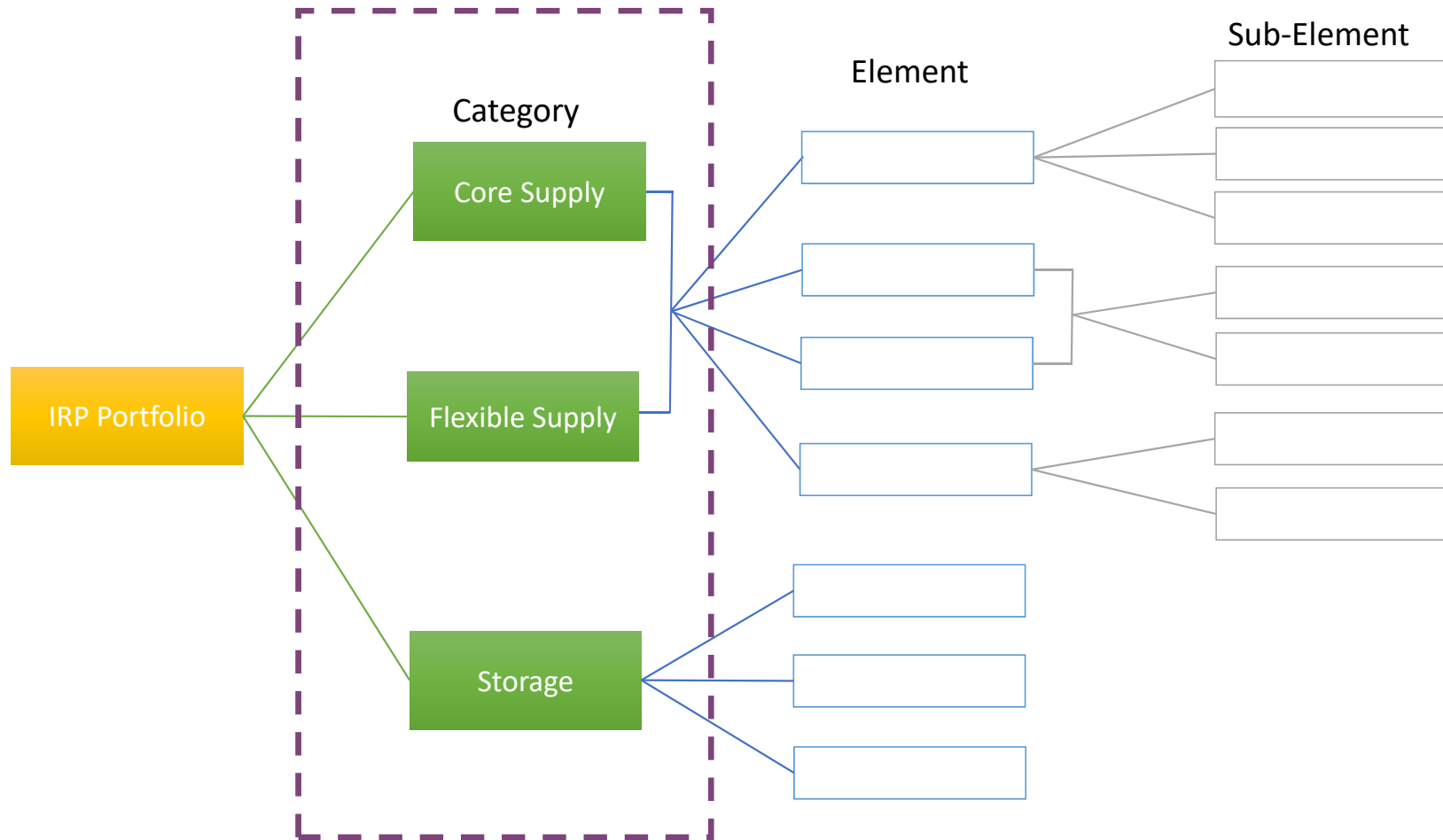


- A portfolio is a set of investments and actions to meet given objectives over a period of time.
- It consists of existing supplies and programs, and future investments and actions.
- Today we are focused on the process to develop future investments and actions needed for each scenario.
- For the 2020 IRP, water reliability has been identified as a primary goal, and the time frame is 25 years to 2045.

PORTFOLIO ACTION HIERARCHY



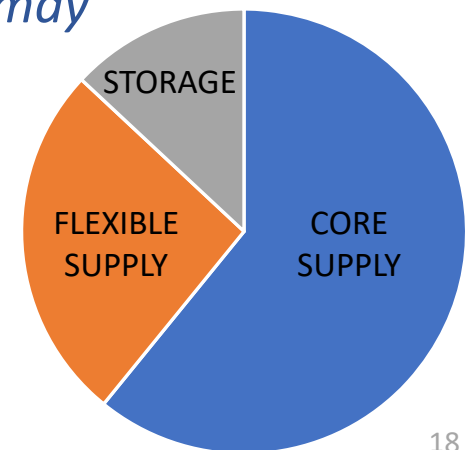
PORTFOLIO ACTION HIERARCHY



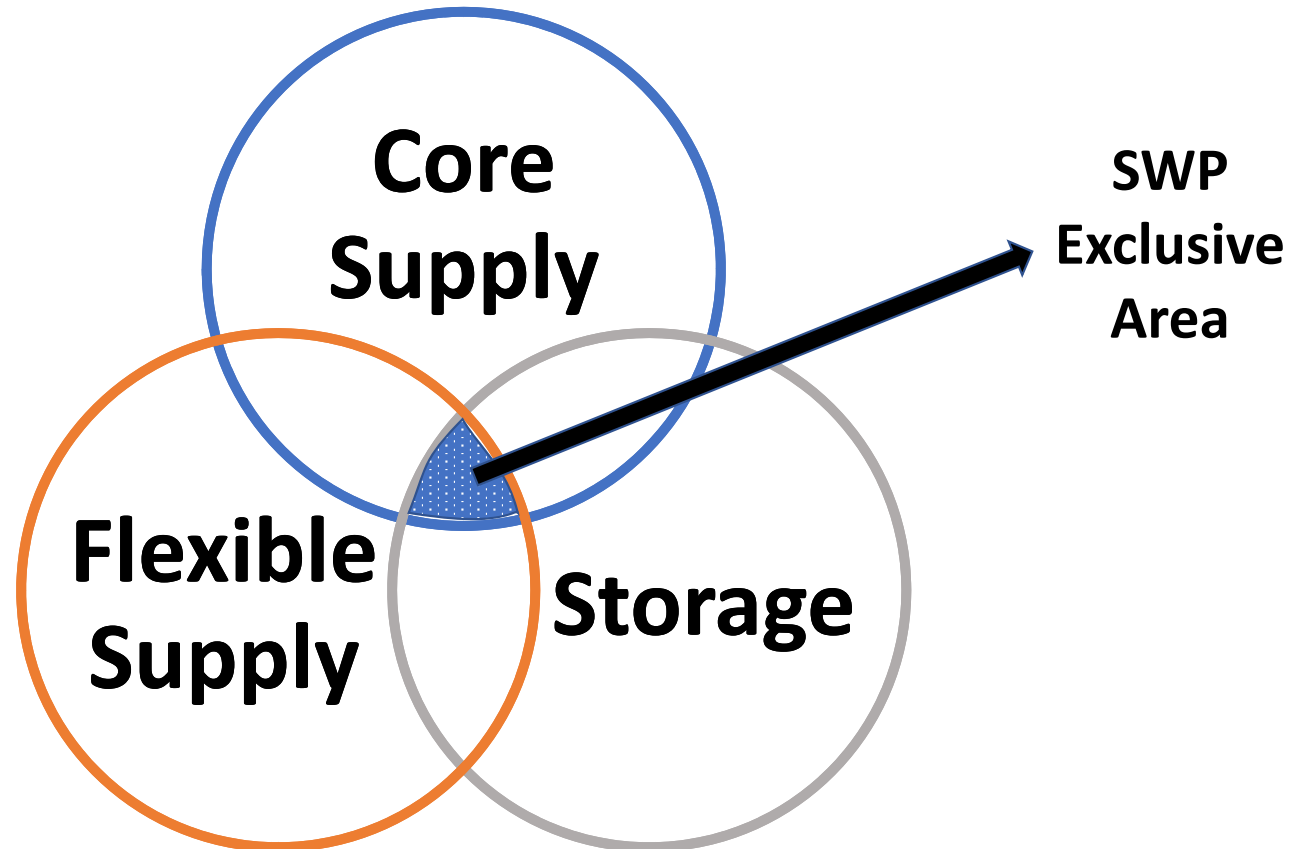
BUILDING BLOCKS OF PORTFOLIO PLANNING

Categories

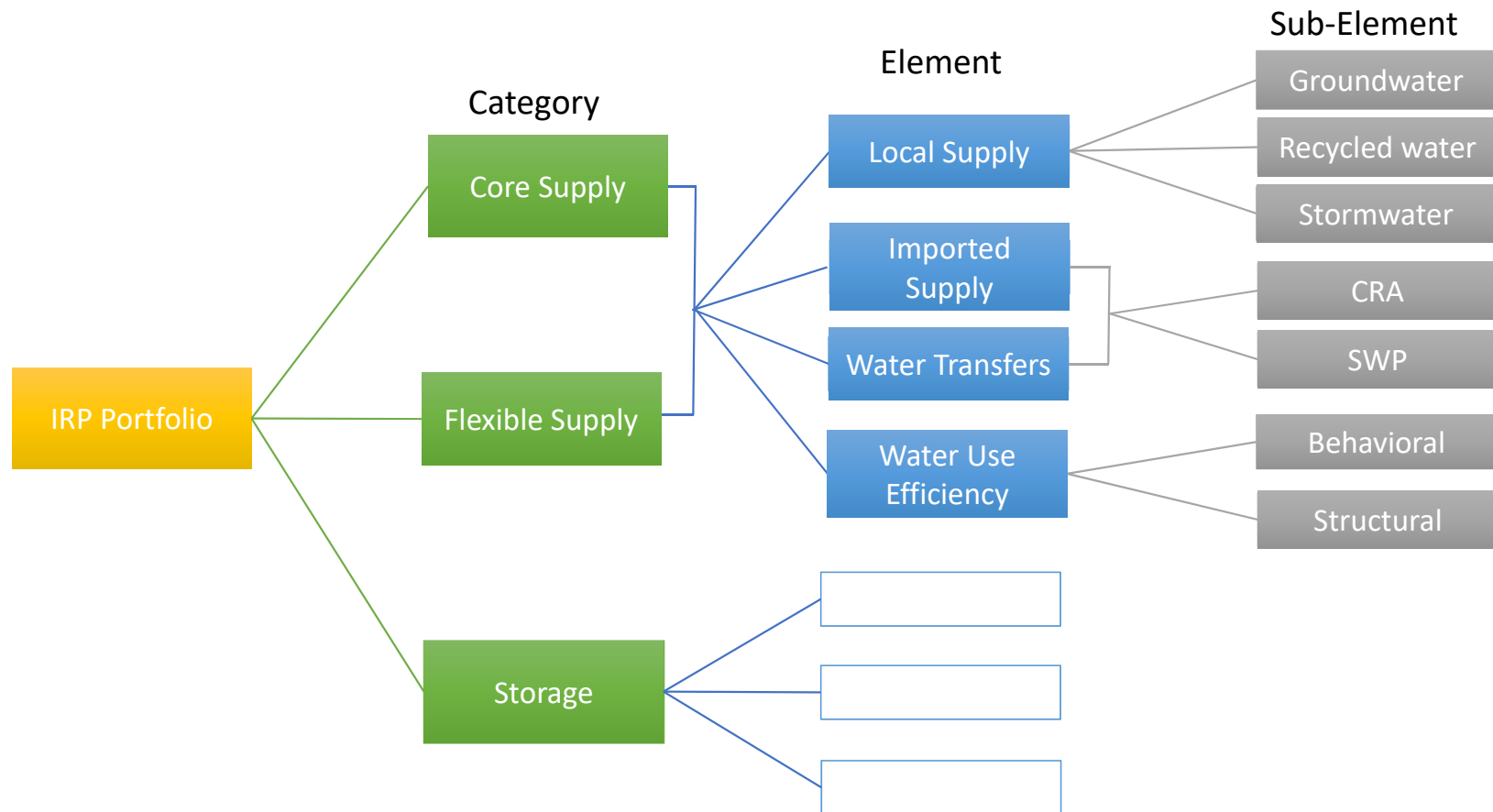
- **Core Supply**
 - *A supply that is generally available and used every year to meet demands under normal conditions*
- **Flexible Supply**
 - *A supply that is implemented on an as-needed basis and may or may not be available for use each year*
- **Storage**
 - *The capability to save water supply to meet demands at a later time*



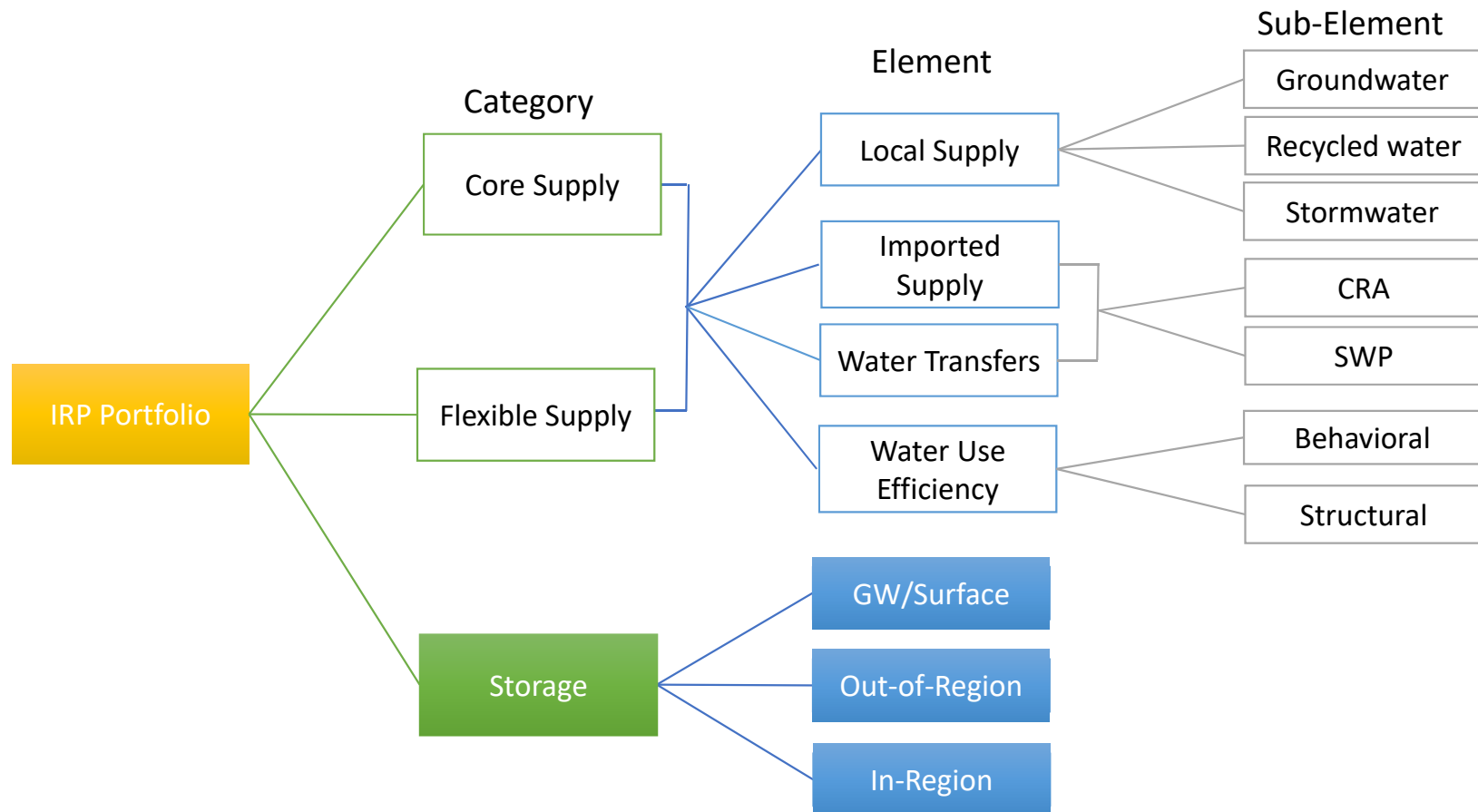
COMMON THEME: SWP EXCLUSIVE AREA CHALLENGES



PORTFOLIO ACTION HIERARCHY



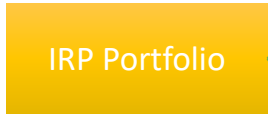
PORTFOLIO ACTION HIERARCHY



PORTFOLIO ACTION HIERARCHY

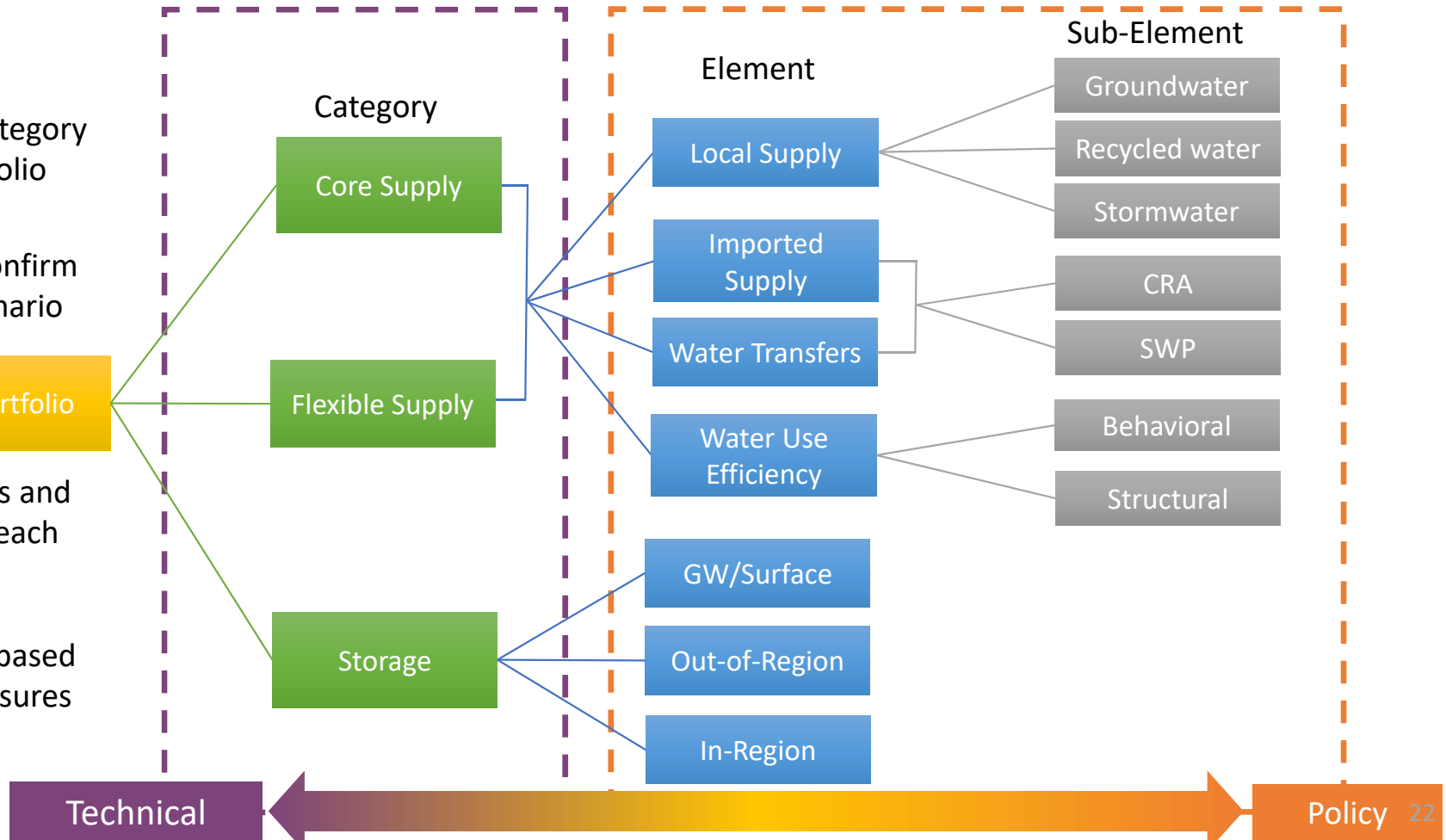
1. Identify desired category mix for a single portfolio

2. Test portfolio to confirm that it addresses scenario needs



3. Decide on elements and sub-elements within each category

4. Evaluate portfolio based on performance measures



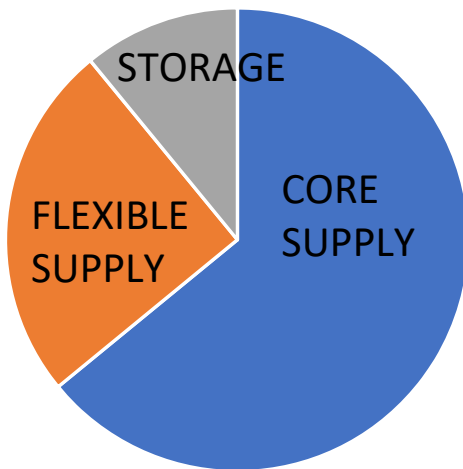
PAUSE FOR CLARIFICATION



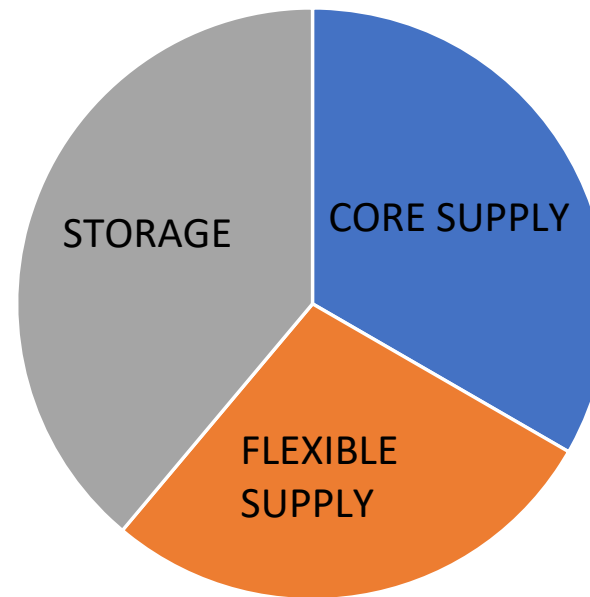
TECHNICAL ASPECTS OF PORTFOLIO CONSTRUCTION

- Scenarios show different problems with reliability that can be solved in different ways
- An effective portfolio must meet scenario reliability needs at highest category level (i.e. overall pie size and slices)
- Tests should be done at the highest category level before further consideration of lower-level elements and sub-elements
- Future opportunities to fit within the overall strategy (i.e. adaptive management)

Example Scenario X
(smaller supply-demand gap)



Example Scenario Y
(larger supply-demand gap)



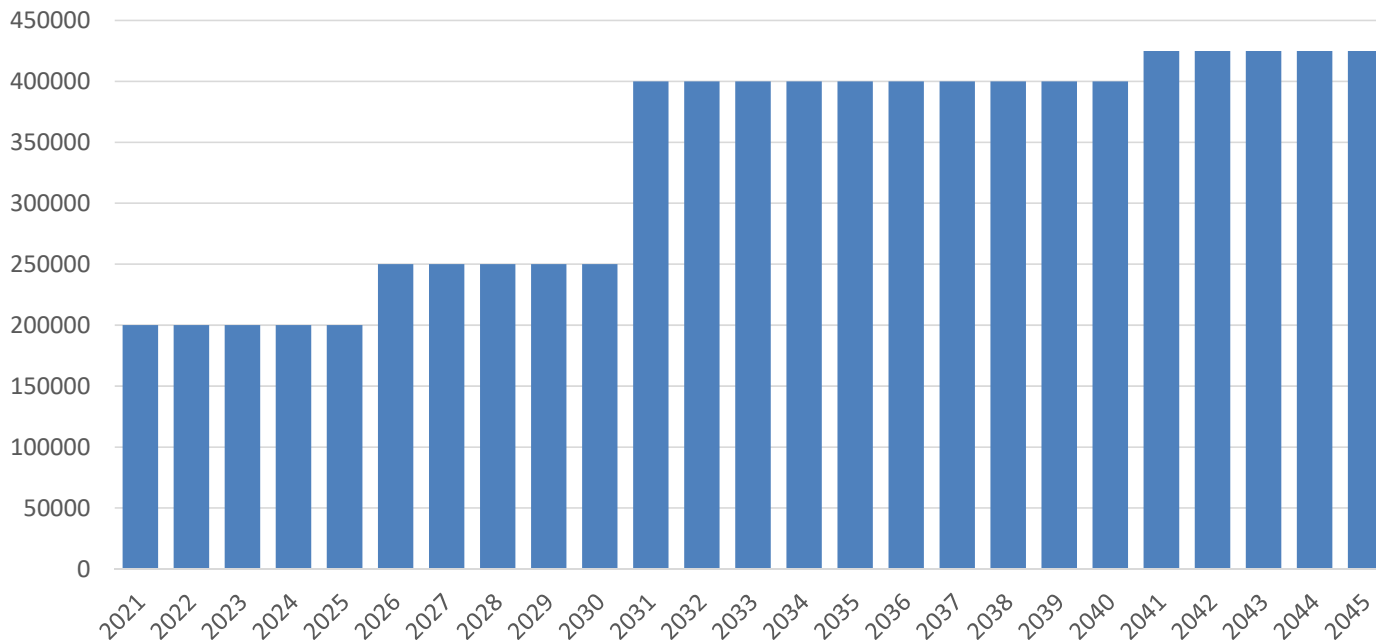
THREE EXAMPLES OF TECHNICAL TESTS

Tests performed on Scenario D

- What would it take to achieve our reliability goal if ...
 - Test 1: All new actions were made with Core Supply development?
 - Test 2: All new actions were made with Storage development?
 - Test 3: If you satisfied the year-to-year gap with Flexible Supply?

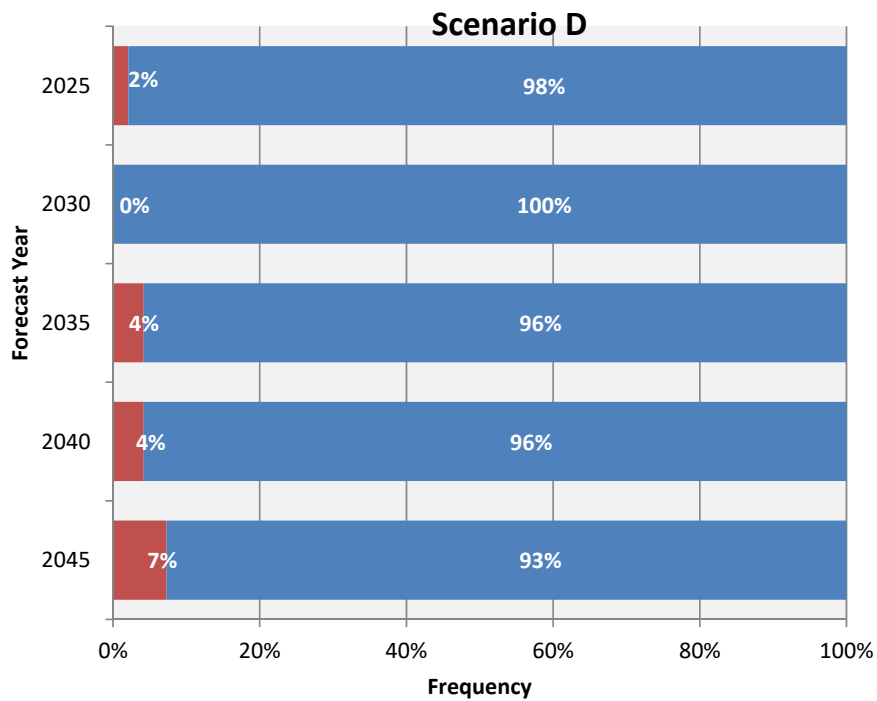
TEST 1: CORE SUPPLY

Additional SWP Core Supply Needed to Eliminate Shortage Scenario D



- A range of 200 TAF to 425 TAF of additional Core Supply on the SWP system would be needed

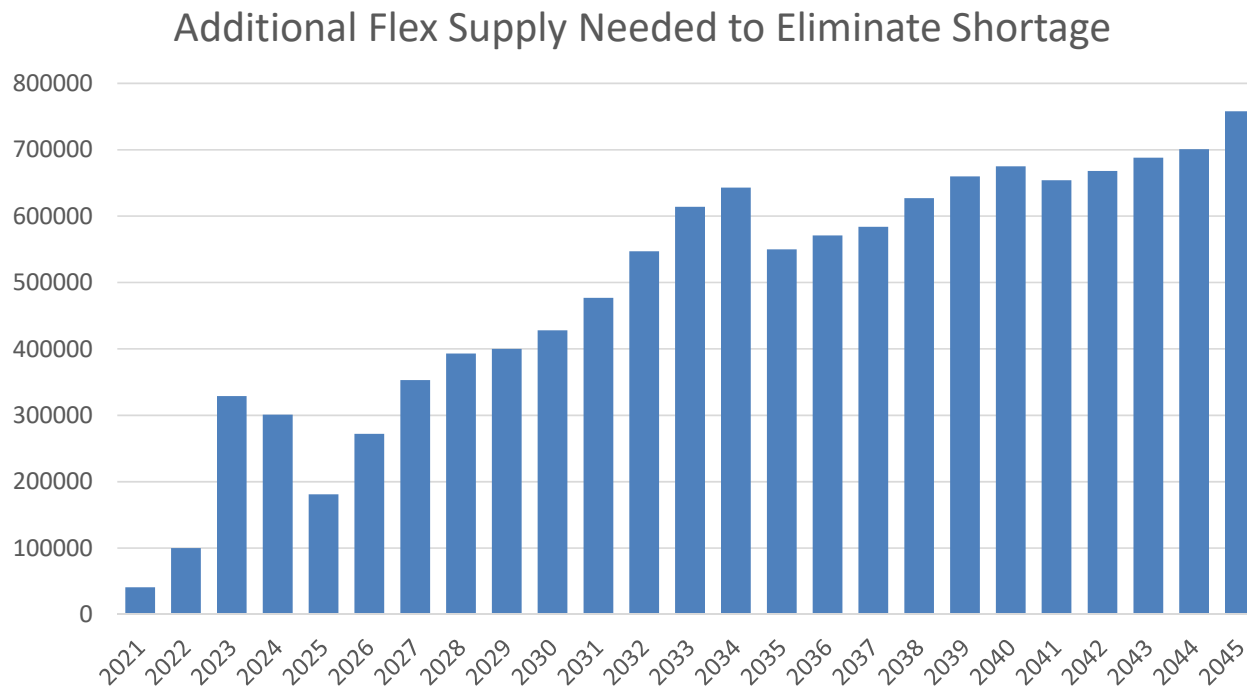
TEST 2: ADDITIONAL STORAGE



- 1.5 MAF program capacity
- 75,000 put/take capacity
- Not enough to eliminate shortages



TEST 3: ADDITIONAL FLEXIBLE SUPPLY NEEDED



- A range of 40 TAF to 758 TAF of additional Flexible Supply on the SWP system would be needed

HOW DO WE EVALUATE THE PORTFOLIO?

- Performance Measures:
 - *Cost*
 - *Water quantities*
 - *Water quality*
 - *Resiliency to climate change*
 - *Diversification*
 - *Capacity to move supply during wet year*
 - *Timing/Ease of Implementation*
 - *Enabling / enhancing effects (storage, conveyance)*
 - *System flexibility / redundancy (SWP Exclusive Areas)*

Some Performance Measures will be forward-looking and pertain to incremental Future Portfolio Actions/Investments.

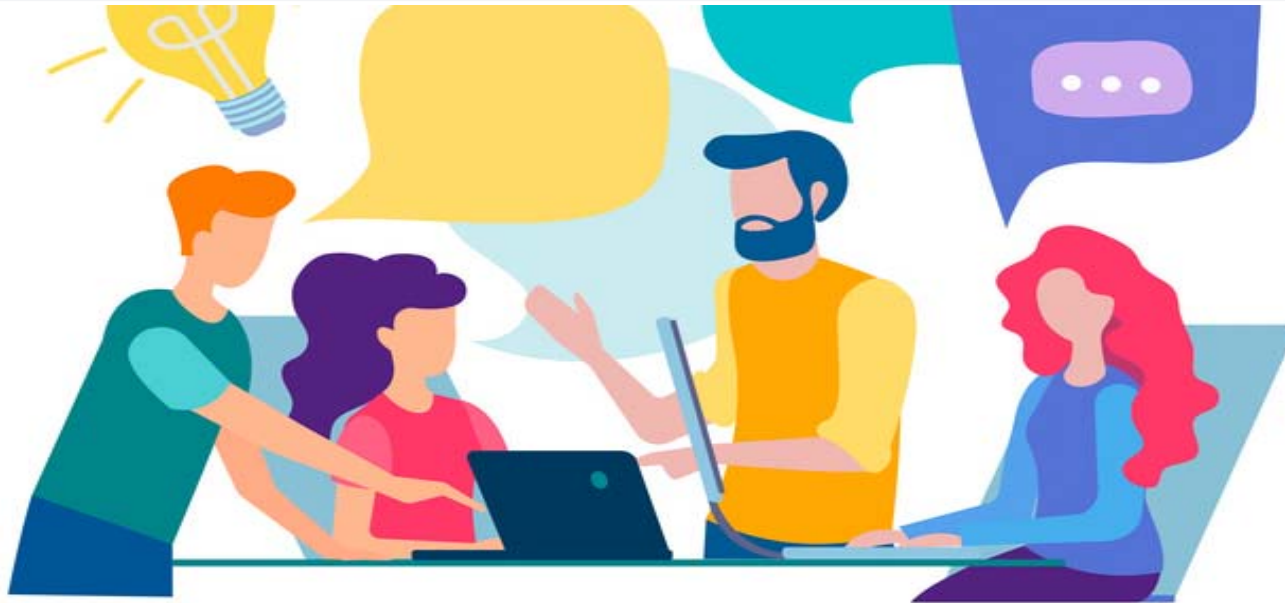
Other Performance Measures may require a broader assessment of both Existing and Future Portfolio Actions in context. (e.g. Diversification)

Sv1
Sv2
Sv2
AN1

Slide 29

- Sy1** Was not an explicit comment but in Technical Workgroup #5 Michael mentioned the rate of change on demand and supplies has increased + their ability to deal with it i.e. projects take longer than what it used to be. Is time for implementation/ease of implementation something that needs to be evaluated amongst the portfolios?
Syed,Areeba, 7/8/2021
- Sy2** Comment from Delon about what role local projects have in meeting regional demand? This doesnt seem like a portfolio evaluation per se but is there something related to that?
Syed,Areeba, 7/8/2021
- Sy3** Another comment in Workshop #4 - Henry mentioned that the Board stated environmental justice along with affordability as factors. Will look in Board notes also
Syed,Areeba, 7/8/2021
- AN1** Henry made a comment in Workshop #2- may develop a resource mix that fits a particular scenario but if there are system constraints within Met's service area that may constrain the ability to move those benefits , that would be a driver. Potential portfolio evaluation is system flexibility/ redundancy?
Abundez,Tracy N, 7/8/2021

GROUP DISCUSSION



- Does this approach make sense?
- Are there other categories, elements/sub-elements we should consider?
- Do these performance measures make sense?
- Are there any additional performance measures that we should add / consider?

NEXT STEPS

- Take your feedback into consideration
- Bring portfolio development to IRP Committee with a focus on policy aspects (sub-elements)
- Begin to outline portfolio mixes for each scenario
- Integrate scenario portfolios into adaptive management plan

