Adopt the 2020 IRP Regional Needs Assessment

Integrated Resources Plan Special Committee
Item 7-1
March 22, 2022

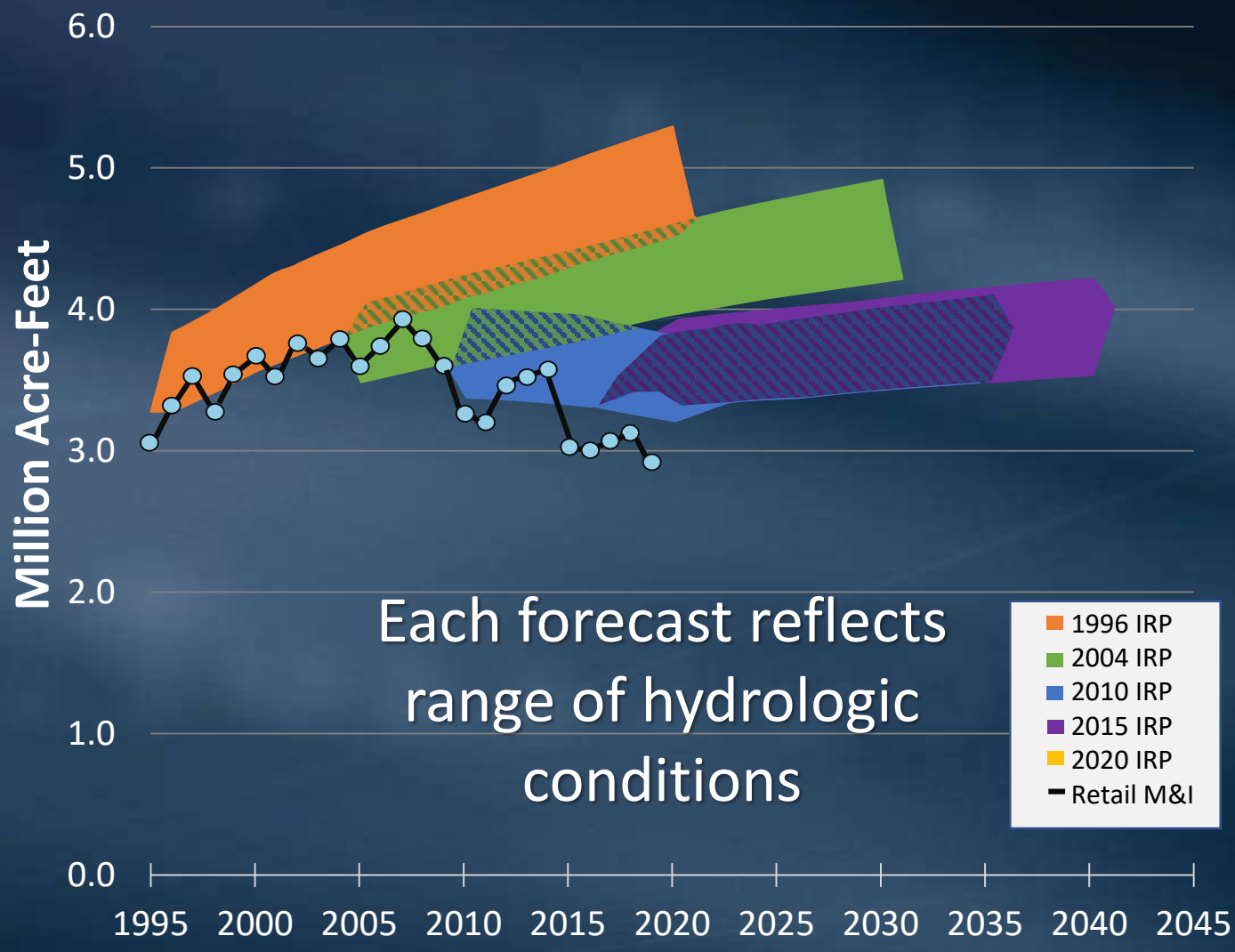
Outline

- IRP Purpose and Evolution (1996 to present)
- Findings
- Collaboration and Analysis

Ensuring Regional Water Reliability

- The Integrated Water Resources Plan (IRP) establishes a long-term comprehensive water resources strategy
- Since its inception, the IRP has been at the forefront of innovative ways to address water reliability and is consistent with and supports the One Water philosophy
- Metropolitan is guided by statutory directives (MWD Act Sections 130.5 (b) and 130.7) that set priorities for new water supply investments
- 2020 IRP incorporates scenario planning to address wide-ranging uncertainties

Evolution of the IRP



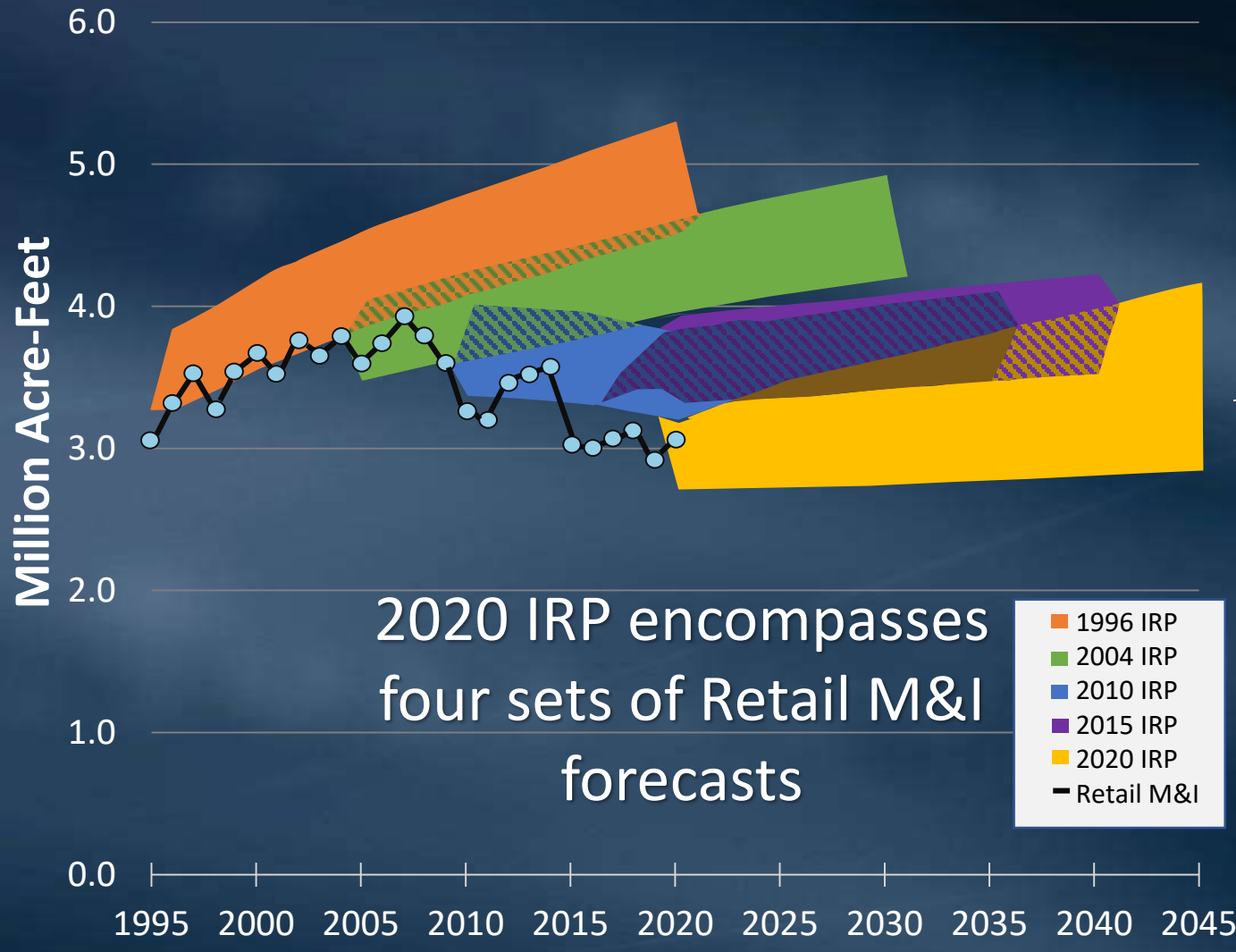
1996 IRP
- 1987-1992 Drought
- Preferred Resource Mix

2004 IRP
- Colorado River cutbacks
- Planning Buffer

2010 IRP
- SWP cutbacks
- Adaptive Management Strategy

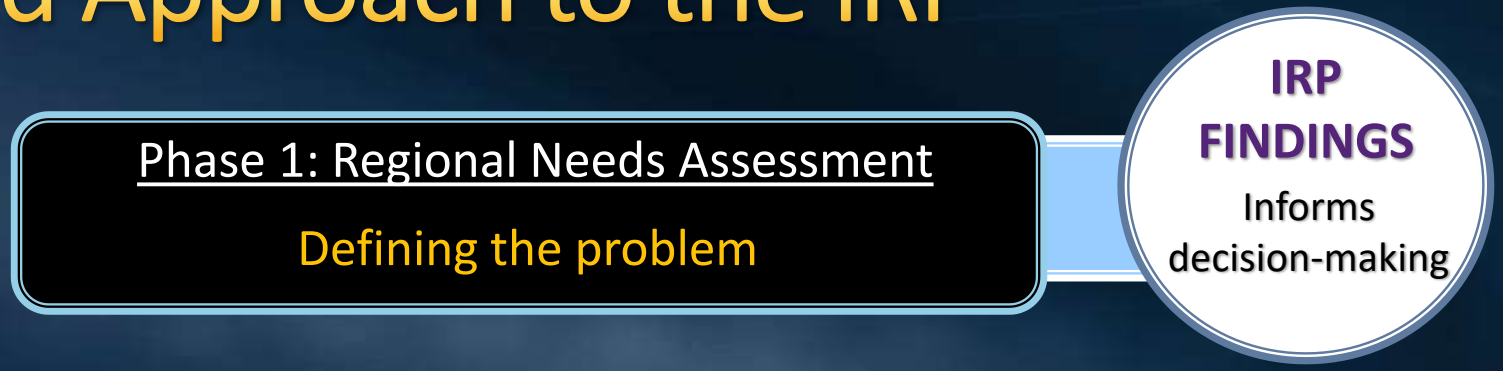
2015 IRP
- 2012-2016 Recession and Drought
- Emphasis on outdoor conservation and local resource protection and development

Evolution of the IRP



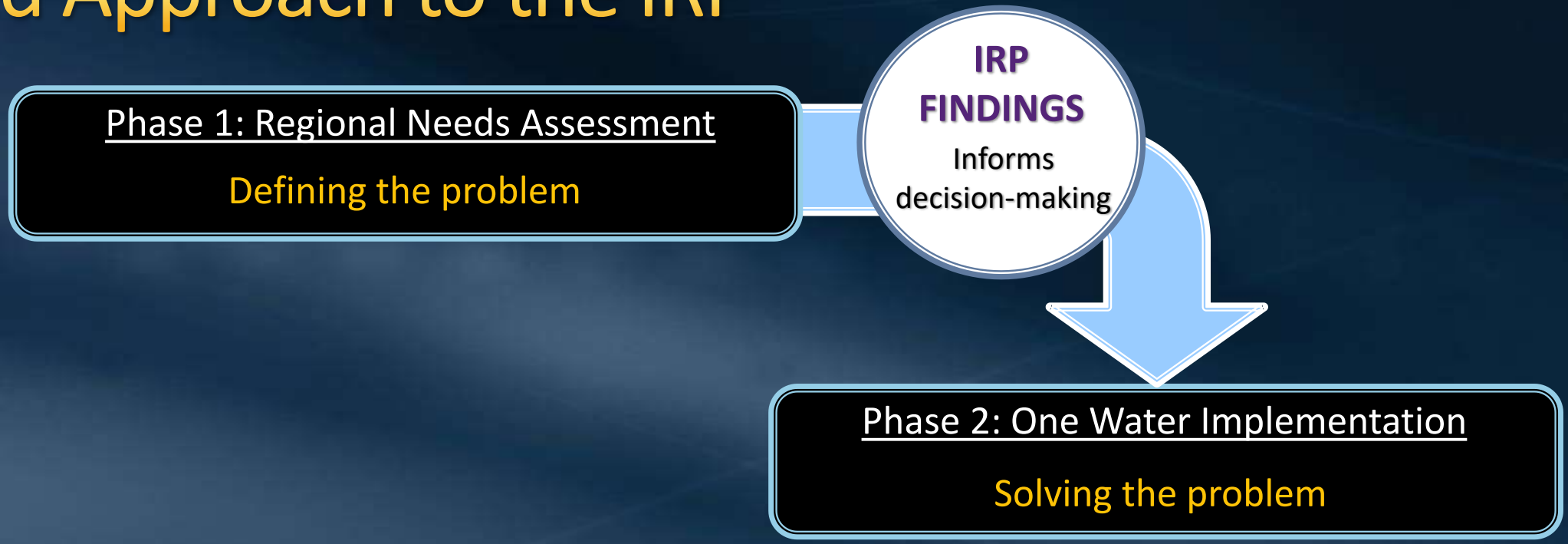
- Scenario planning takes a step forward from prior IRPs
- Reflects a range of hydrologic conditions and incorporates a broader range of outcomes for underlying uncertainties
- Increases preparedness, improves resiliency, and manages vulnerabilities

A Phased Approach to the IRP



- Phase 1: Regional Needs Assessment serves as a stand-alone guide for Southern California's uncertain water supply future

A Phased Approach to the IRP



- Phase 2: One Water Implementation will use the results and findings from Phase 1 as a basis for development and evaluation of potential policies, programs, and projects
- Phase 2 should also develop a comprehensive adaptive management strategy and evaluation criteria based on the key drivers of uncertainty to guide specific actions

Recommending Adoption of IRP Assessment

- Surplus/Shortage - Quantified for each scenario
- Portfolio Categories - Examined for effectiveness
- Findings - Grouped into five focus areas

SWP Dependent Area | Storage | Retail Demand/ Demand Management | MWD Imported Supplies | Local Supply

FINDINGS – SWP Dependent Areas

- Vulnerabilities in the SWP Dependent Areas are more severe given reduced reliability of SWP supplies and Metropolitan distribution system constraints. Actions identified in the implementation p ea's reliability challenge.
- New core supplies ter access to existing core supp
- Enhanced accessi , will improve SWP Dependent A to Metropolitan's distribution syster
- Storage capacity, p erations for the SWP Dependent A uld be consistent with the portfolio analysis. New storage must be accessible to the SWP Dependent Areas.

Vulnerabilities in the SWP Dependent Area are more severe due to reduced SWP supply reliability and limited access to existing storage and CRA supplies

FINDINGS – SWP Dependent Areas

- Vulnerabilities in the SWP Dependent Areas are more severe given reduced reliability of SWP supplies and Metropolitan distribution system constraints. Actions identified in the implementation phase must prioritize addressing the SWP Dependent Area's reliability challenge.
- New core supplies must be accessible to the SWP Dependent Areas. Greater access to existing core supplies can also increase SWP Dependent Area reliability.
- Enhanced accessibility to core supplies and storage, both existing and new, will improve SWP Dependent Area and overall reliability. This includes improvements to Metropolitan's distribution system and capacity to deliver non-SWP supply and storage.
- Storage capacity, put/take capabilities, and accessibility are critical considerations for the SWP Dependent Area. New storage capacity and put/take capabilities should be consistent with the portfolio analysis. New storage must be accessible to the SWP Dependent Areas.

FINDINGS – Storage

- Storage capacity, put/take capabilities, and accessibility are critical considerations in maintaining reli ons, especially for SWP Depend
- Maintaining Met ding the consideration of
- Expanding existi ments in Metropolitan's d e supply development to te change.
- When evaluating ; even storage programs with modest put/take capabilities help reduce the need for flexible supply.

New storage helps. Increasing accessibility to existing storage and/or developing new storage accessible to the SWP Dependent Area helps achieve reliability.

FINDINGS – Storage

- Storage capacity, put/take capabilities, and accessibility are critical considerations in maintaining reliability under the region's current and future conditions, especially for SWP Dependent Areas.
- Maintaining Metropolitan’s existing storage portfolio is critical, including the consideration of re-negotiating contracts when they expire.
- Expanding existing or developing new storage programs and investments in Metropolitan’s distribution system can reduce the need for new core supply development to meet potential future shortages and adapt to climate change.
- When evaluating storage options, put/take capabilities are essential; even storage programs with modest put/take capabilities help reduce the need for flexible supply.

FINDINGS – Retail Demand/Demand Management

- Metropolitan's future supply reliability may fluctuate based on demand increases and decreases.
- Variability in re door water use. Outdoor eather and climate and by ation measures.
- It is important growth, and demand reduc s necessary.
- Managing long ter reduces dependency o duce the need for extraordinary conservation measures.

Managing retail water demand is very important. Focusing on outdoor water use efficiency measures can help mitigate the impacts of climate change.

FINDINGS – Retail Demand/Demand Management

- Metropolitan's future supply reliability may fluctuate based on demand increases and decreases.
- Variability in retail demand largely comes from changes in outdoor water use. Outdoor water use behavior is complex, influenced by weather and climate and by awareness of water scarcity and other conservation measures.
- It is important to pay attention to demand rebound, demand growth, and demand reductions, and take appropriate regional measures as necessary.
- Managing long-term demands through the efficient use of water reduces dependency on supplies, helps preserve storage, and helps reduce the need for extraordinary conservation measures.

FINDINGS – MWD Imported Supplies

- Existing imported supplies are at risk from various drivers of uncertainty.
- Maintaining existing imported supply reliability reduces the need for new core supply development an
- SWP supplies are mate change, and regulatory restri
- Variability and ca vater during wet periods for use i itan's ability to distribute or sto region's reliability, partic stem and Colorado River A oncerning SWP storage.
- Shortages on the r Aqueduct deliveries as a core supply in the future.

Stable imported water supplies help achieve reliability and leverage storage. Further erosion of imported supplies increases the need for potentially costly new core supply development.

FINDINGS – MWD Imported Supplies

- Existing imported supplies are at risk from various drivers of uncertainty.
- Maintaining existing imported supply reliability reduces the need for new core supply development and leverages years of investments.
- SWP supplies are highly susceptible to varying hydrologic conditions, climate change, and regulatory restrictions.
- Variability and capacity in SWP supplies provide opportunities to store water during wet periods for use in dry years, including Colorado River storage. Metropolitan's ability to distribute or store SWP supplies when they materialize will enhance the region's reliability, particularly the SWP Dependent Areas. The Colorado River system and Colorado River Aqueduct capacity do not offer the same opportunities concerning SWP storage.
- Shortages on the Colorado River will limit the reliability of Colorado River Aqueduct deliveries as a core supply in the future.

FINDINGS – Local Supply

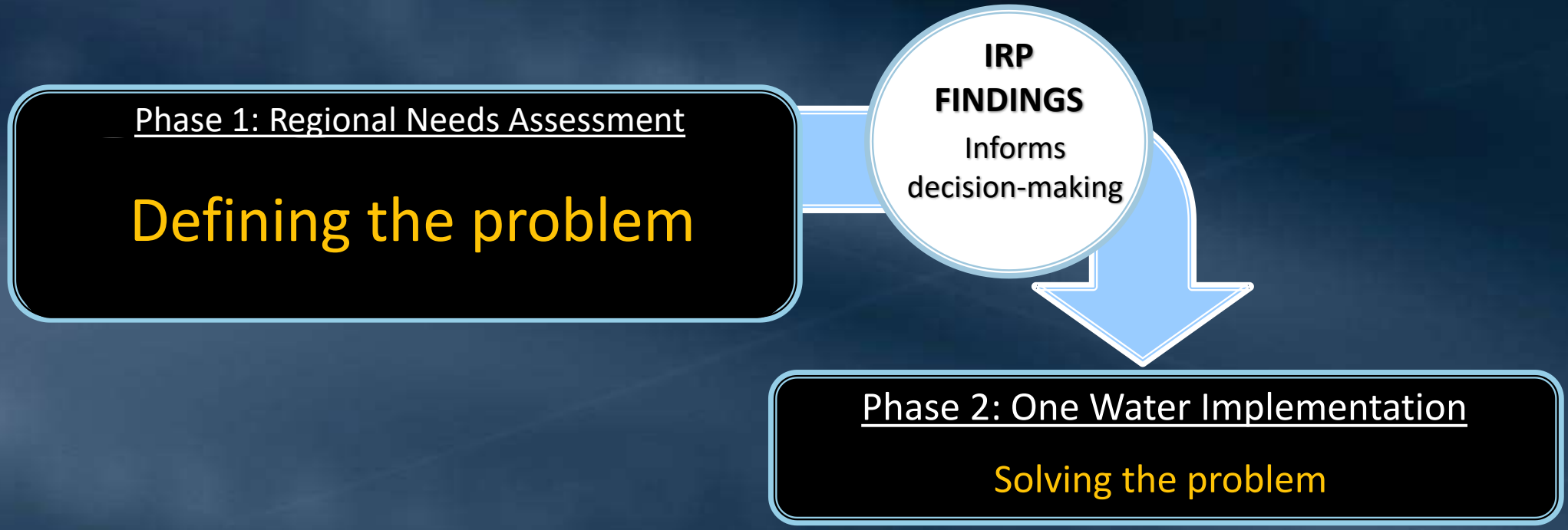
- Maintaining existing and developing new local supplies is critical in helping m
- Impacts to r are not achieved; th ess of local supply devel e Water Implementa
- Additional a future local supply

Demand on Metropolitan is affected by local supply production. Lower than assumed local supply will impact reliability and need for further investment

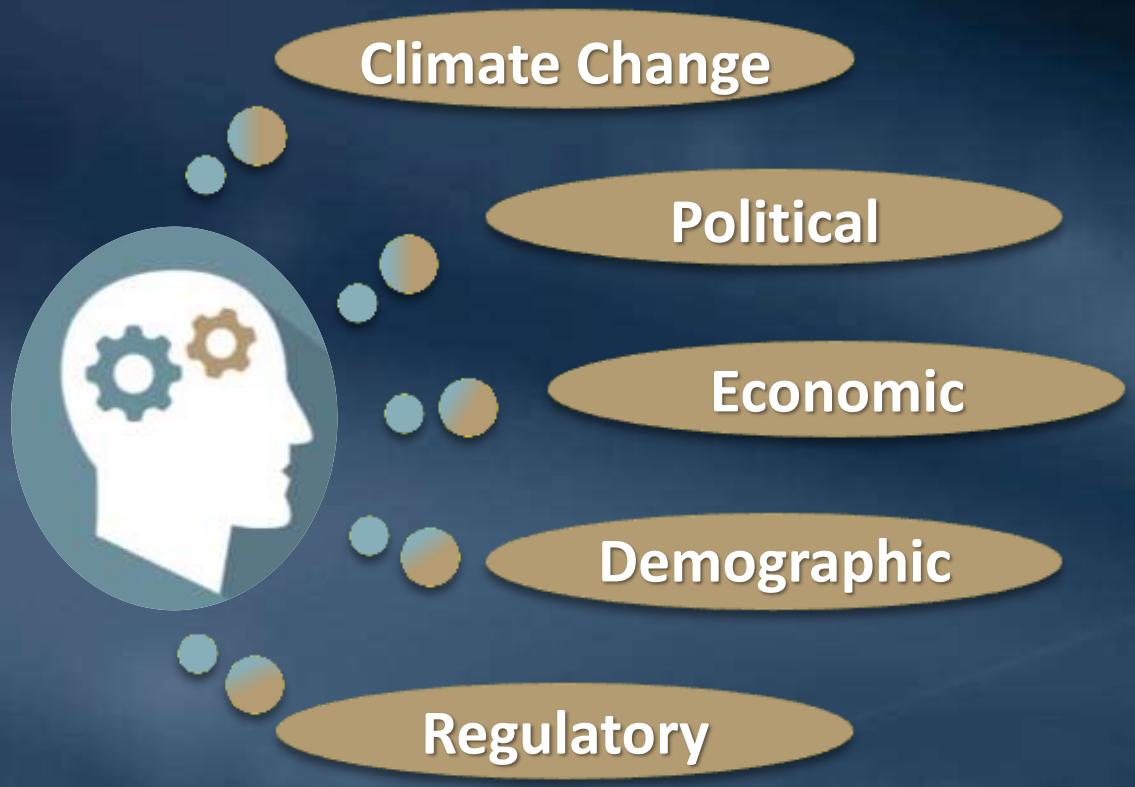
FINDINGS – Local Supply

- Maintaining existing and developing new local supplies is critical in helping manage demands on Metropolitan.
- Impacts to reliability occur if local supply assumptions are not achieved; therefore, it is important to track the progress of local supply development as one of the signposts in the One Water Implementation phase.
- Additional actions may be needed should existing and future local supply levels deviate from IRP assumptions.

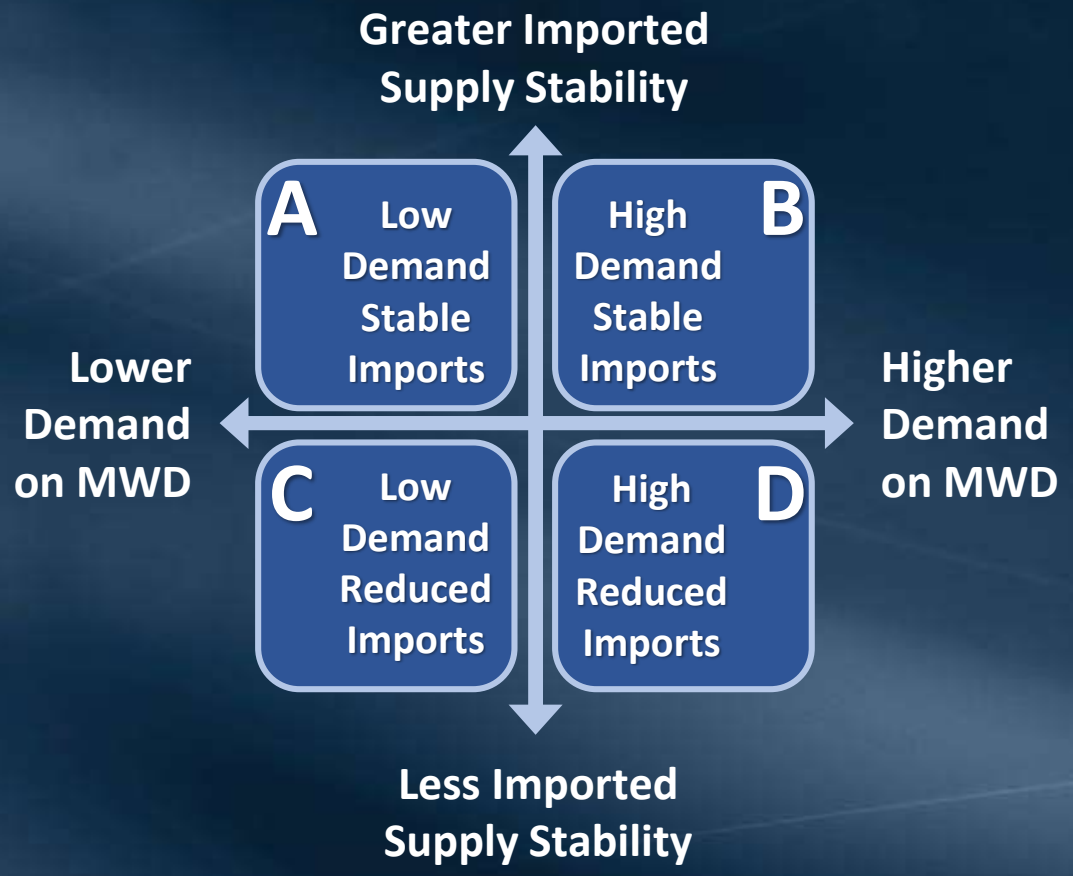
Stepping Through the Process



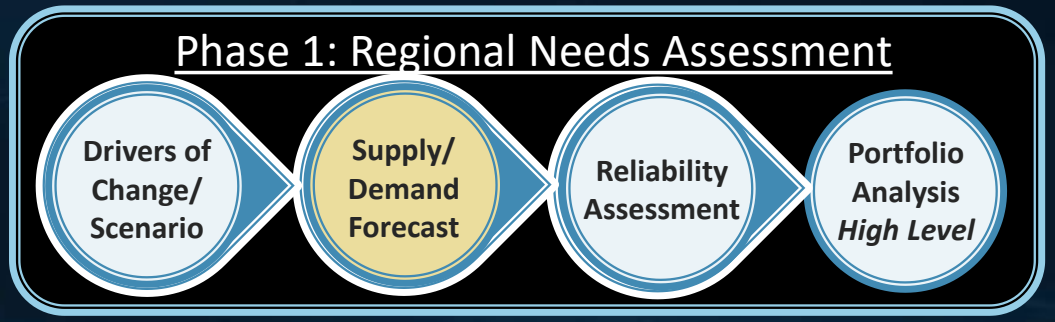
Uncertainties



Brainstormed Drivers of Change: ***Conducted surveys and workshops, and collaborated with MWD Board, member agency staff, climate and demand experts, and other interested parties***



Assumptions



Feedback Received

- Member Agencies
- Groundwater Basin Managers
- Climate Experts
- Demand Experts
- Other interested parties

Four Scenario Projections

Retail Demand

Local Supply Production

} Difference equates to demand on MWD

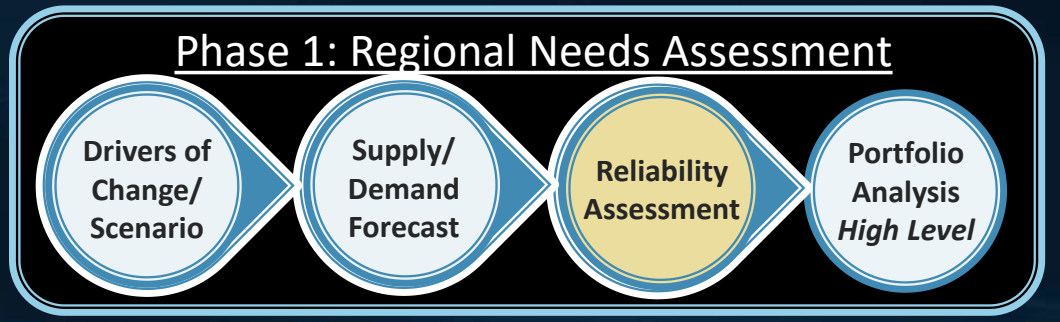
Imported Water Supply

Model Results

- 25-year planning horizon
- Projected variable weather outcomes
- Based on 4 sets of assumptions for each Scenario

Quantification

Identifying Shortage and Surplus

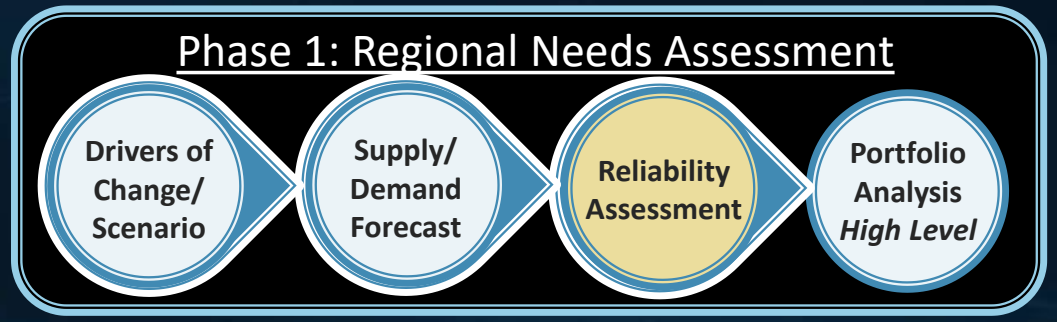


IRPSIM modeling provides:

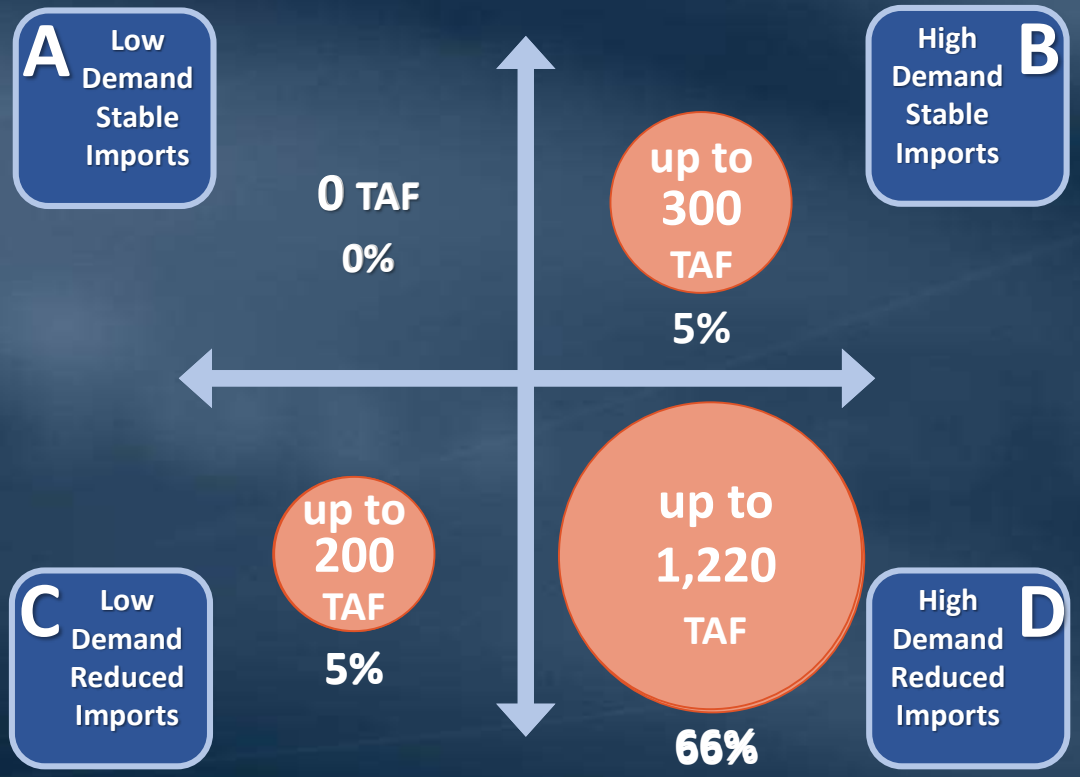
- Magnitude and probabilities of net surpluses and shortages for each forecast year
  - *Net shortage refers to the magnitude and frequency of a supply-demand gap after taking from available storage*
  - *Net surplus refers to the magnitude and frequency of surplus after filling available storage*

Quantification

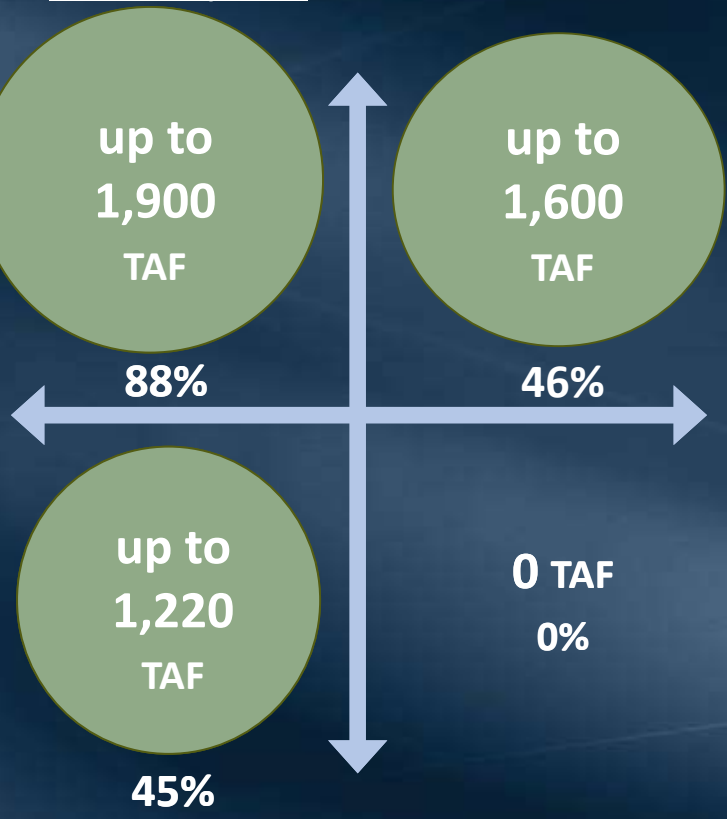
Identifying Shortage and Surplus



Maximum Magnitude (TAF) and Frequency (%) of a Net Shortage in Forecast Year 2045



Maximum Magnitude (TAF) and Frequency (%) of a Net Surplus in Forecast Year 2045



Quantification

Examining Effectiveness of High-Level Supply Categories

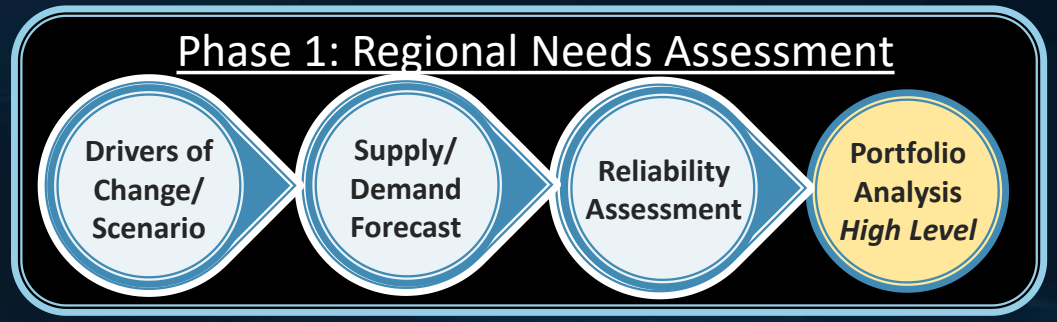
One Water Portfolio Analysis

Category

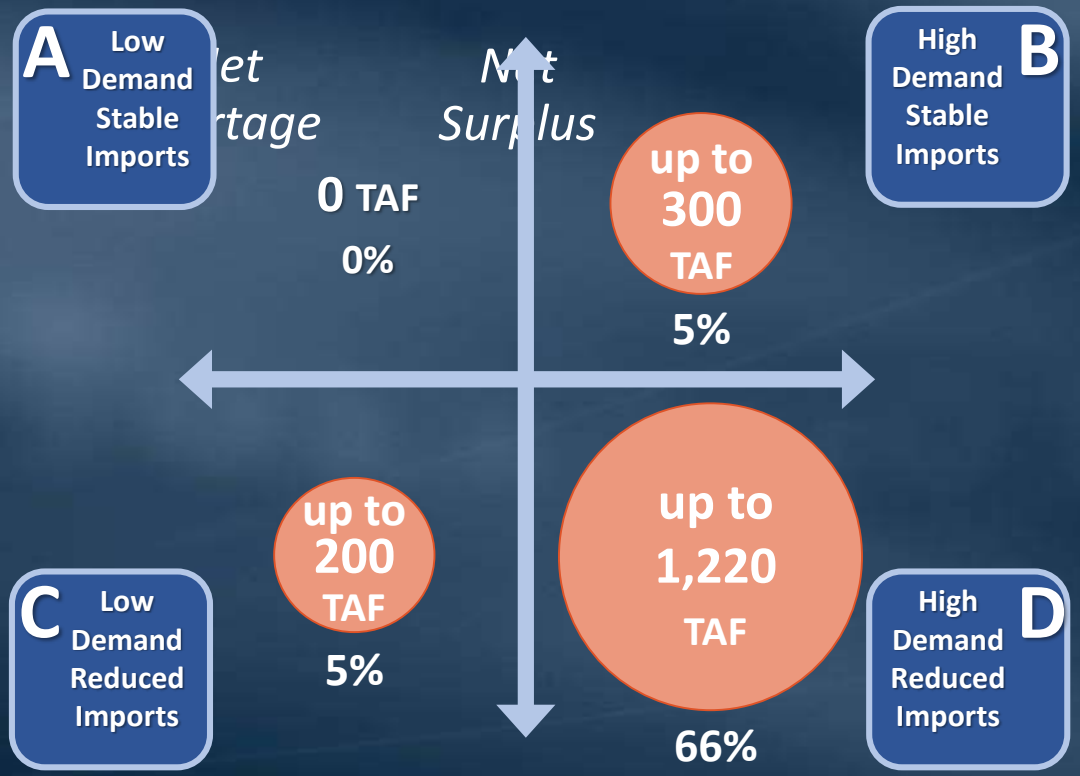
- **Core Supply**
  - Generally available and used every year to meet demands under normal conditions
    - Examples: Colorado River apportionment, IID/MWD conservation agreement, other structural conservation
- **Flexible Supply**
  - Implemented on an as-needed basis; may or may not be available for use each year
    - Examples: SWP transfers, Palo Verde Land Management
- **Storage**
  - The capability to store water supply to meet demands at a later time
    - Examples: DVL, SWP flexible storage, AVEK High Desert Water Bank

Quantification

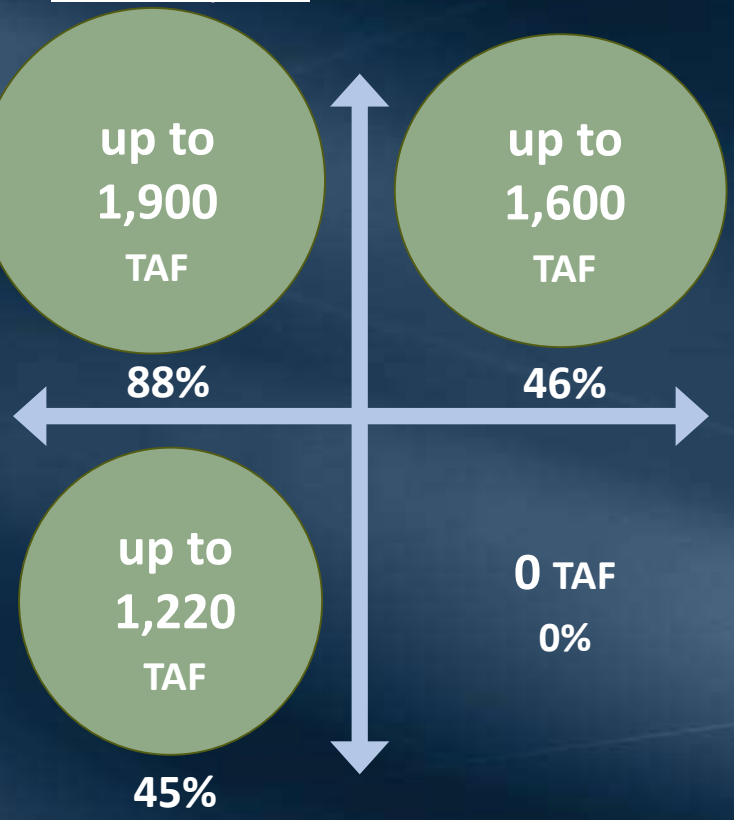
Examining Effectiveness of High-Level Supply Categories



Maximum Magnitude (TAF) and Frequency (%) of a Net Shortage in Forecast Year 2045

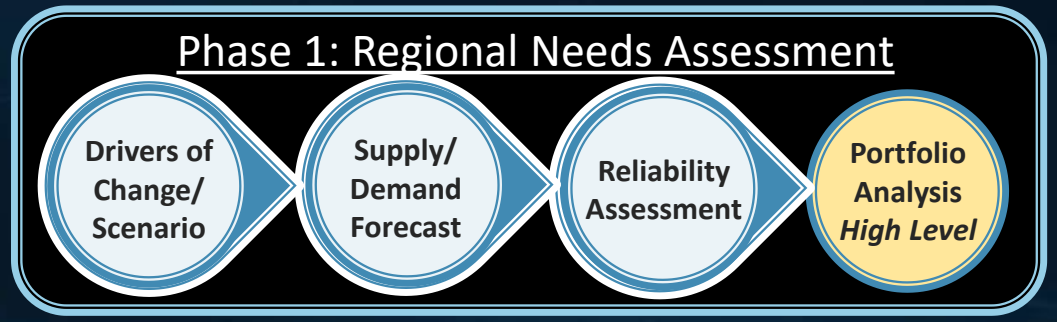


Maximum Magnitude (TAF) and Frequency (%) of a Net Surplus in Forecast Year 2045

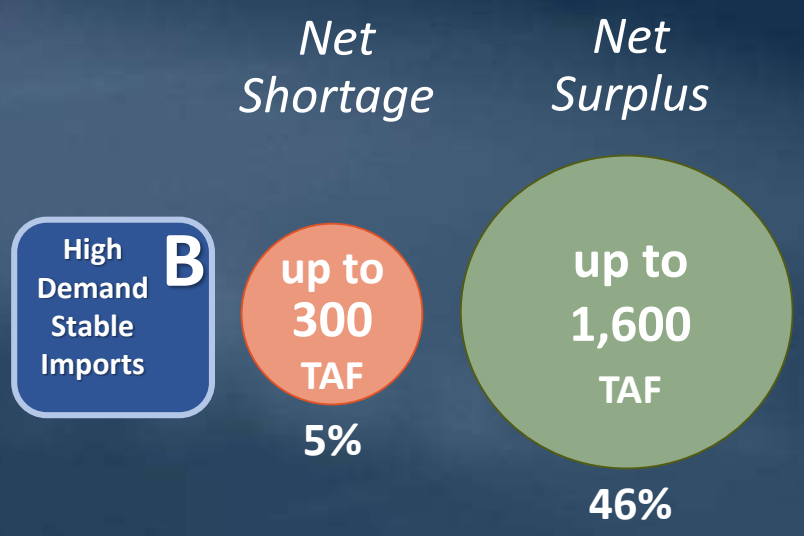


Quantification

Examining Effectiveness of High-Level Supply Categories



Reliability Assessment
Forecast Year 2045



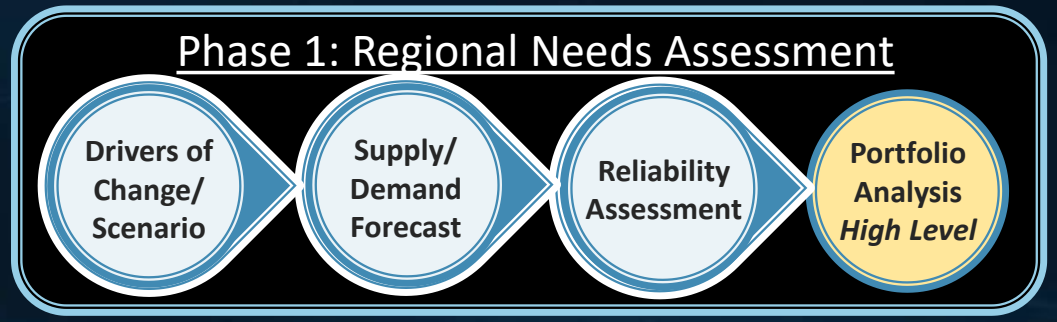
Scenario B Portfolio Category Need – Not Combined
Forecast Year 2045

New Core Supply (TAF)	New Flexible Supply (TAF)	New Storage Capacity (TAF)
150	300	500 *(250 TAFY put/take capacity)*

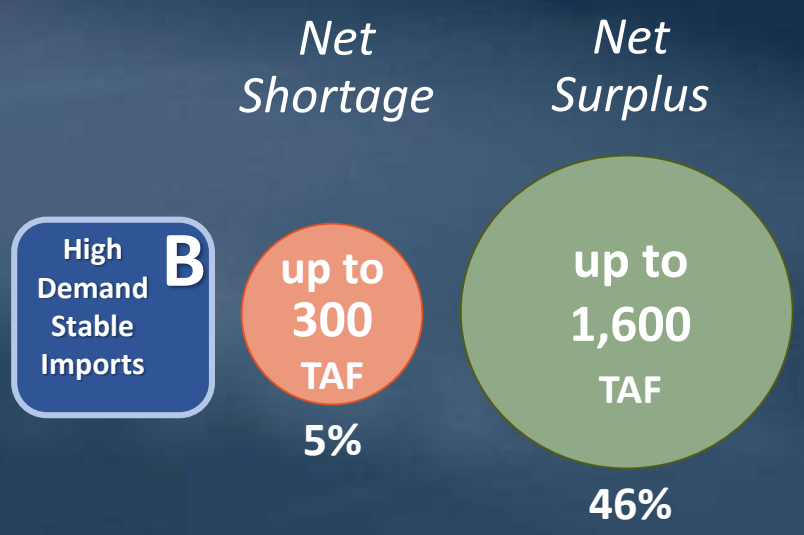
Unrealistic and risky to depend on such a large amount of flexible supply in a dry year

Quantification

Examining Effectiveness of High Level Supply Categories



Reliability Assessment Forecast Year 2045

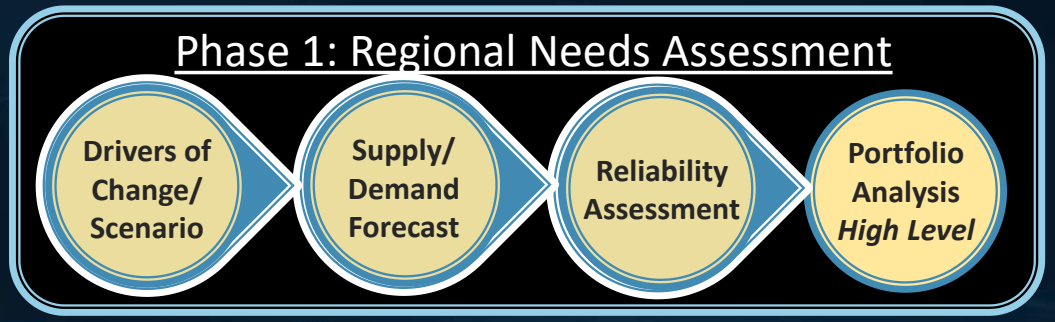


Scenario B Portfolio Category Need - Combined Forecast Year 2045

New Storage Capacity (TAF)	Flexible Supply (TAF)	Core Supply Needed by 2045 (TAF)
0	Capped at 100	100
100		70
250		30
500		30

No additional reduction in core supply if new storage capacity above 250 TAF

Open Process Seeking Input



Board

Member Agencies

Interested Parties

Next Steps

- Seeking IRP Special Committee recommendation to adopt the 2020 Integrated Water Resources Plan Regional Needs Assessment today
  - Follows two years of an open collaborative process with the Board, Member Agencies, and other interested parties
- Seek Board adoption of the 2020 Integrated Water Resources Plan Regional Needs Assessment on April 12, 2022
- Initiate Phase 2: One Water Implementation following adoption of the 2020 Integrated Water Resources Plan Regional Needs Assessment

Board Actions

- Option 1
  - Authorize the General Manager to adopt the 2020 Integrated Water Resources Plan Regional Needs Assessment.
- Option 2
  - Do not adopt the 2020 Integrated Water Resources Plan Regional Needs Assessment.

Staff Recommendation

- Option 1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928