Subcommittee on CAMP4W

Updated 2020 IRP Needs Assessment – Baseline Assumptions

Item 3b

September 30, 2025

IRP 2025 Update

Agenda

- Recap Scenarios
- Key Adjustments to 2020 IRP Baseline
- Refresher on Reliability Calculation
- Results: 2020 IRP vs IRP 2025 Update

IRP 2025 Update

Purpose

- Incorporate focused adjustments using the latest data and observations
- Update the 2020 IRP gap analysis
- Establish a new baseline for Scenarios C and D before applying portfolio investments
- Use the new baseline to evaluate project reliability benefits in CAMP4W assessments

Scenario Recap

2020 IRP Scenario Recap

Lower Demand on MWD

Higher Demand on MWD

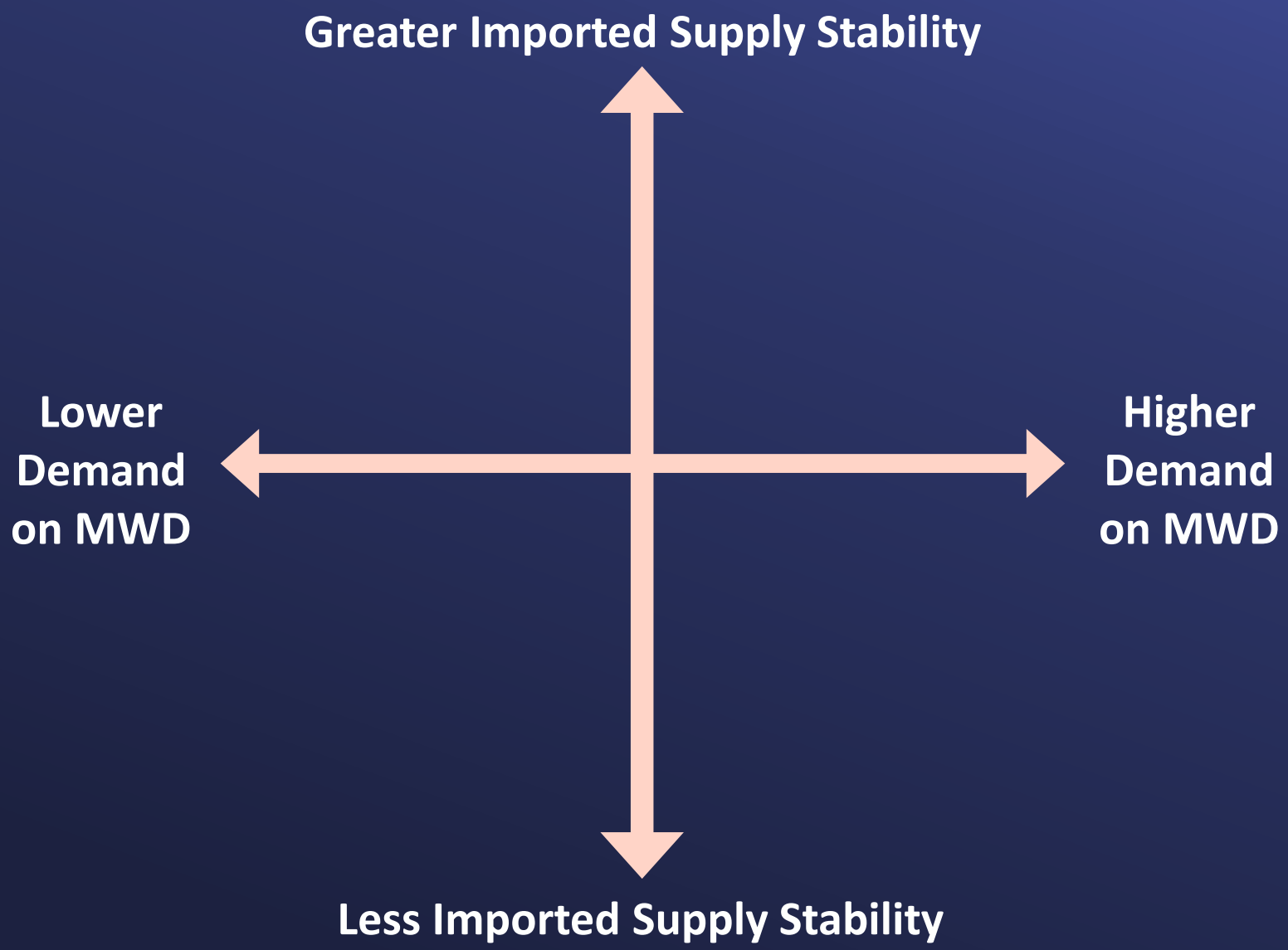
Demand on Metropolitan:

Retail Demand – **Local Supply**

Drivers of Uncertainty:

- **Economy**
- **Demographic data**
- **Weather**
- **Water Use Behavior**

2020 IRP Scenario Recap



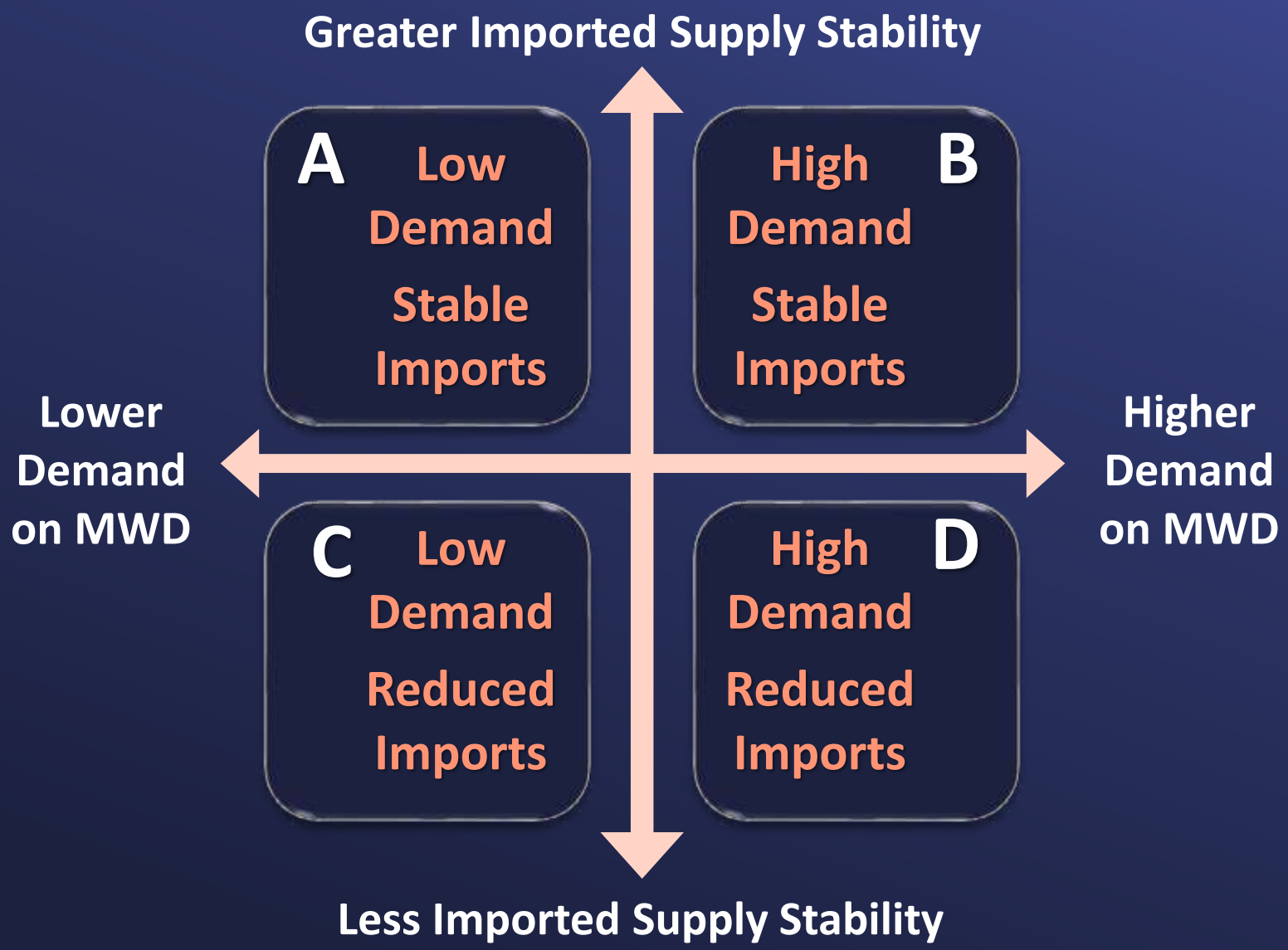
Imported Supply Stability:

Availability and consistency of State Water Project and Colorado River supply to Metropolitan

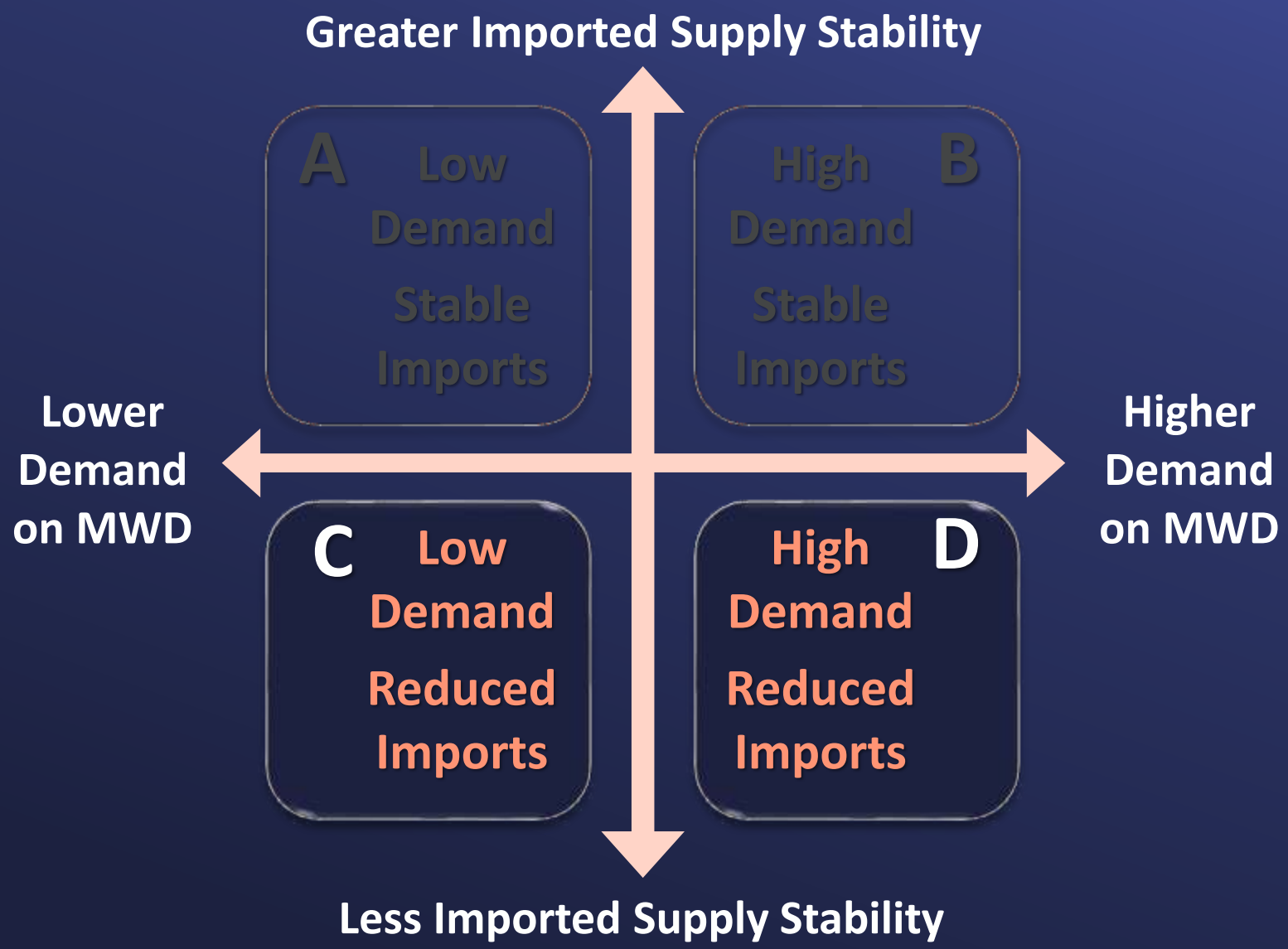
Drivers of Uncertainty:

- Climate Change
- Regulatory Requirements
- Changes to operating guidelines

2020 IRP Scenario Recap



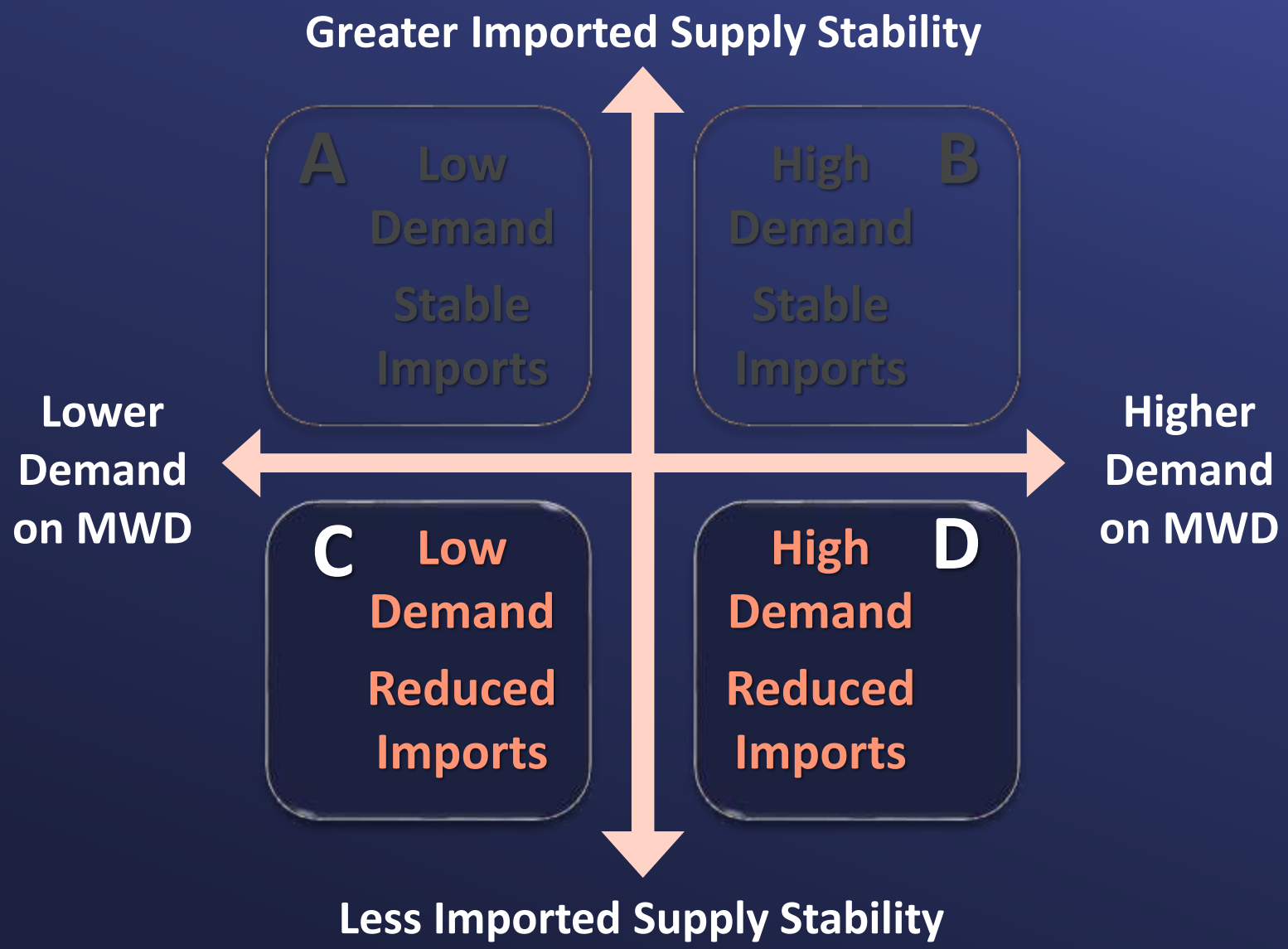
2020 IRP Scenario Recap



Board Directed Focus

- CAMP4W commitment focuses implementation on IRP Scenarios C and D
- Scenarios C and D capture climate risks under RCP 8.5 across low and high growth patterns
- CAMP4W assessments measure benefits against IRP Scenario C and D gaps
- Annual IRP Reporting tracks signposts across all scenarios to support comprehensive adaptive management

2020 IRP Scenario Recap



Scenario C

- Modest growth with strong local water use efficiency
- Limited local supply development
- Climate change and regulatory limits reduce imported supply

Scenario D

- Strong growth and rebound in water use drive demand
- Strong local supply development
- Climate change and regulatory impacts imported supply

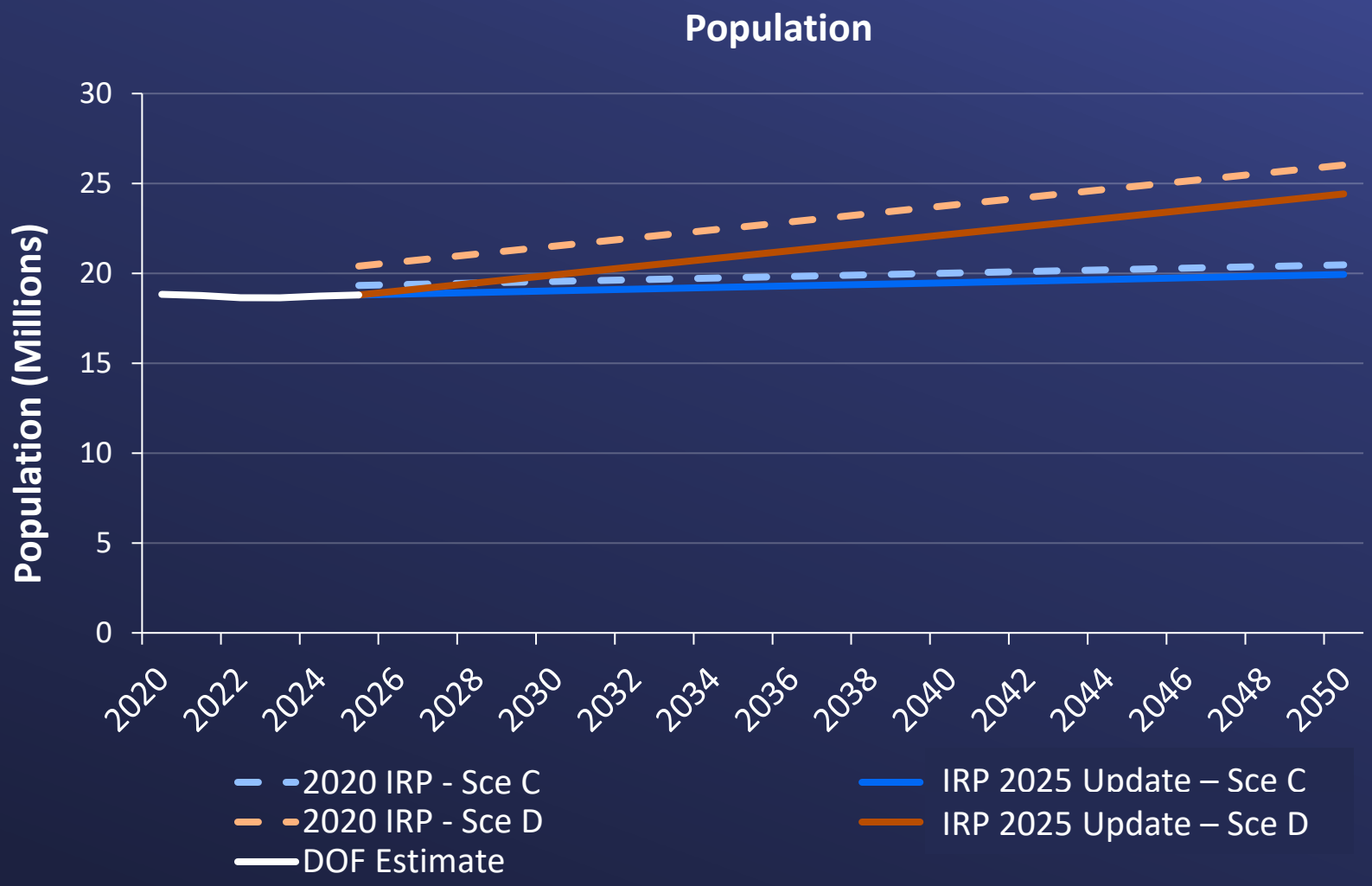
Updates to the 2020 IRP Assessment Baseline (IRP 2025 Update)

IRP 2025 Update

Where we made changes

- Demand on Metropolitan
  - Applies observed demographic data to starting conditions

Demographics



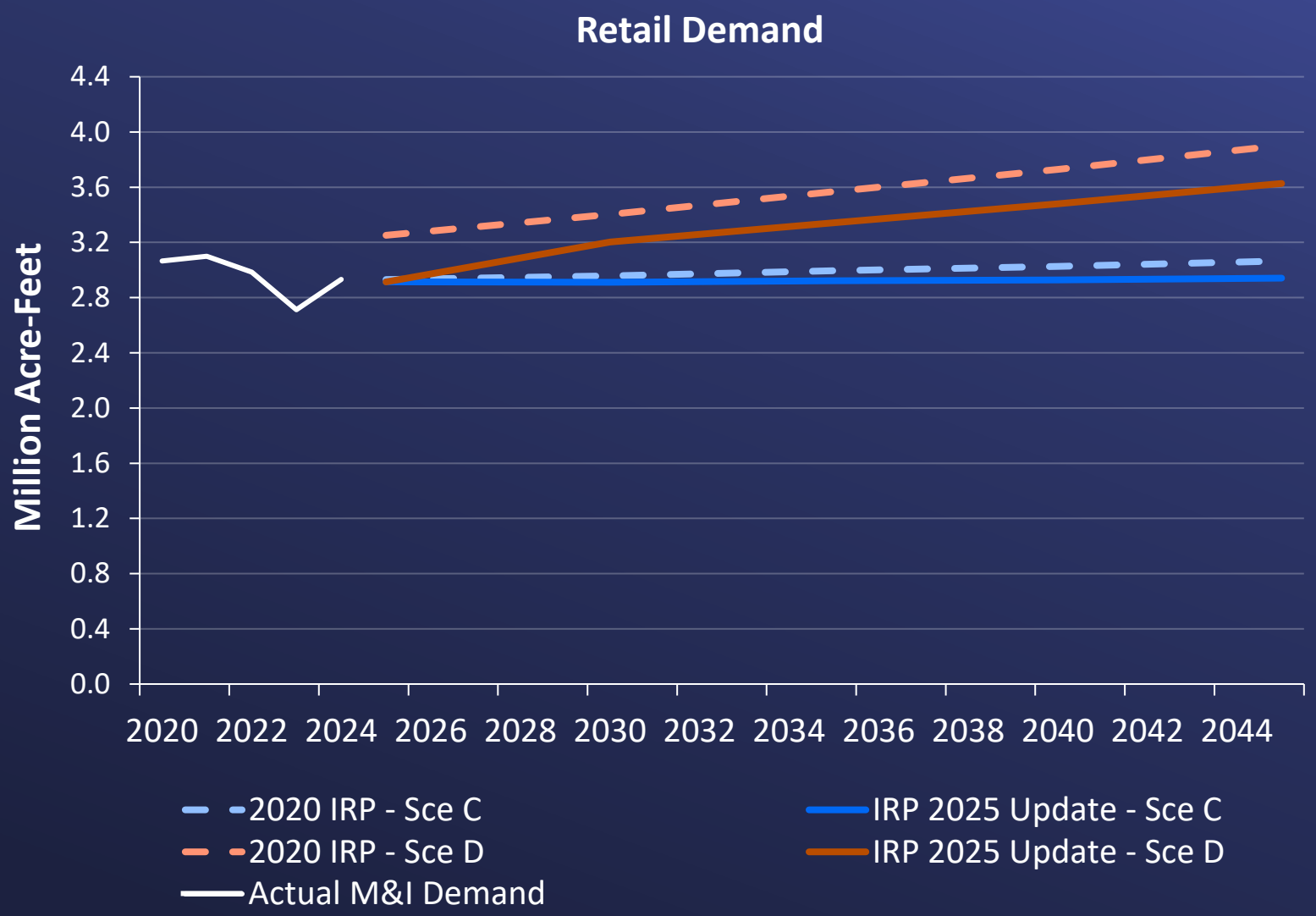
Observation

- Growth 2020-2025 is aligned more with Scenario C

Quantification

- Scenario C: 532,000 fewer people; 163,000 more households in 2025
- Scenario D: 1.6M fewer people; 278,000 fewer households in 2025

Retail Demand



Observation

- 2020-2025 Retail Demand is more aligned with Scenario C

Quantification

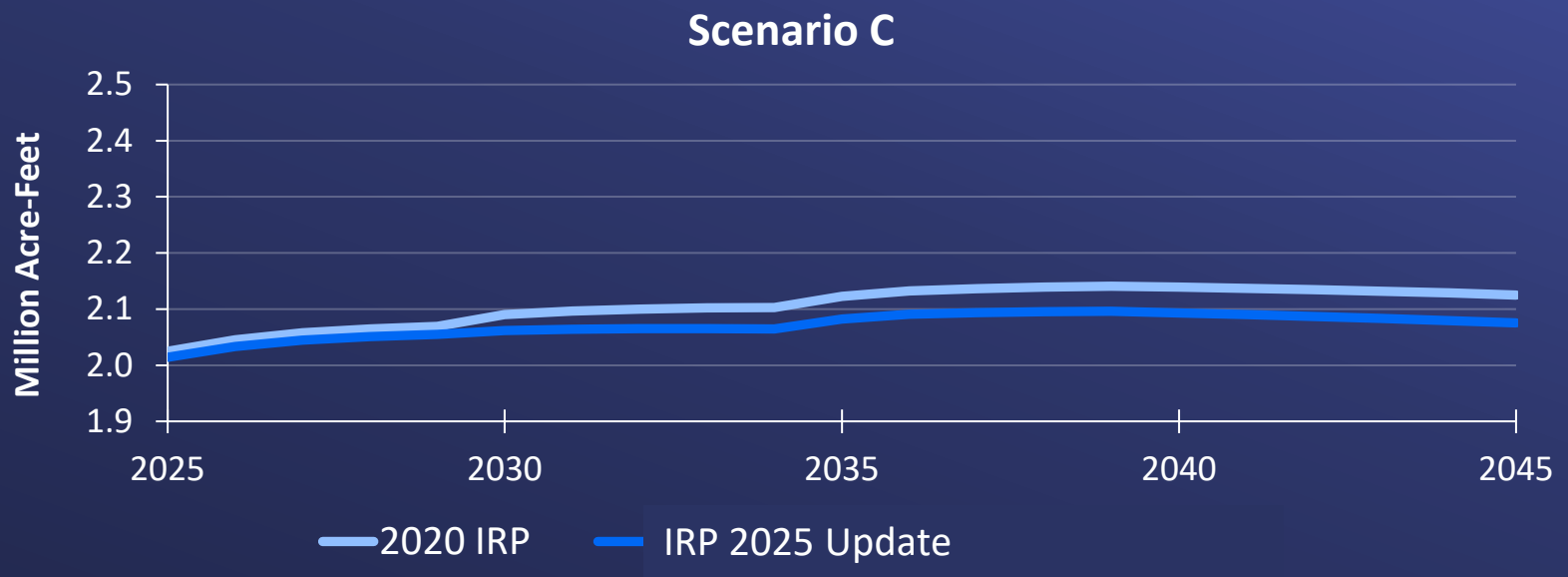
- Scenario C: Averages 17 TAF lower across the planning horizon
- Scenario D: Averages 202 TAF lower across the planning horizon

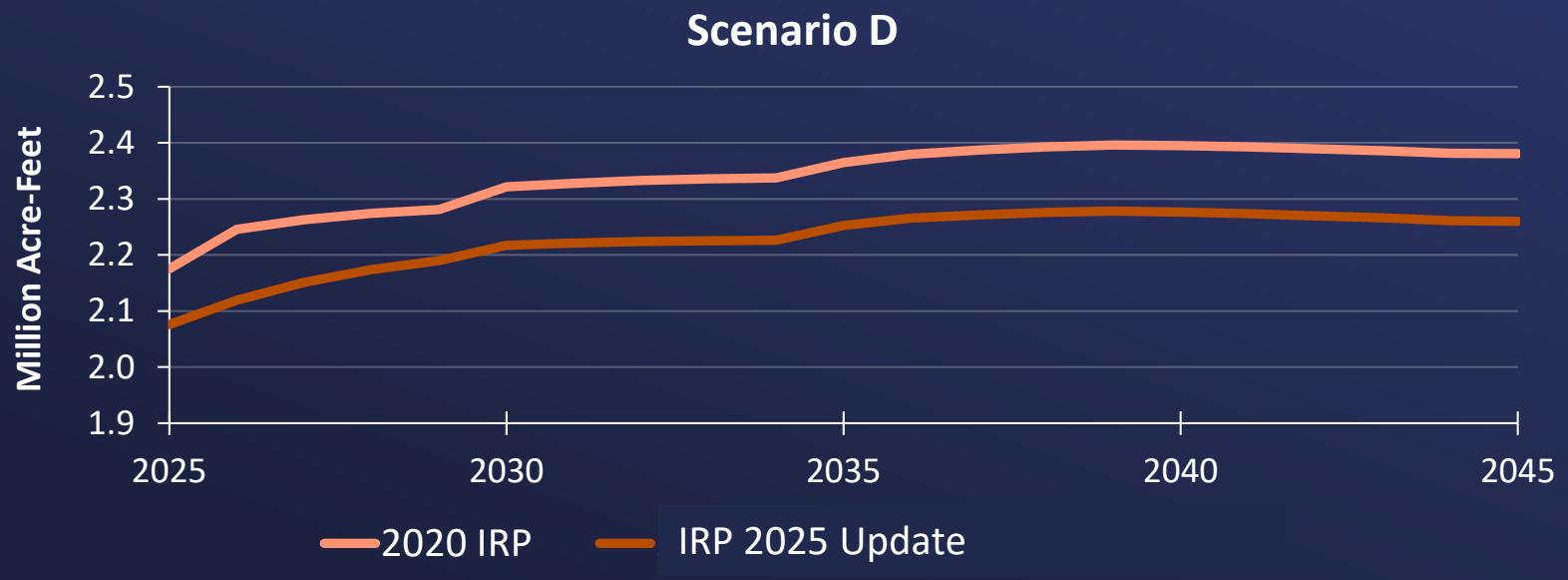
IRP 2025 Update

Where we made changes

- Demand on Metropolitan
  - Applies observed demographic data to starting conditions
  - Incorporates updated local supply information

Local Production





Observation

- A number of projects are no longer being pursued, notably: Huntington Beach and West Basin Seawater Desal

Quantification

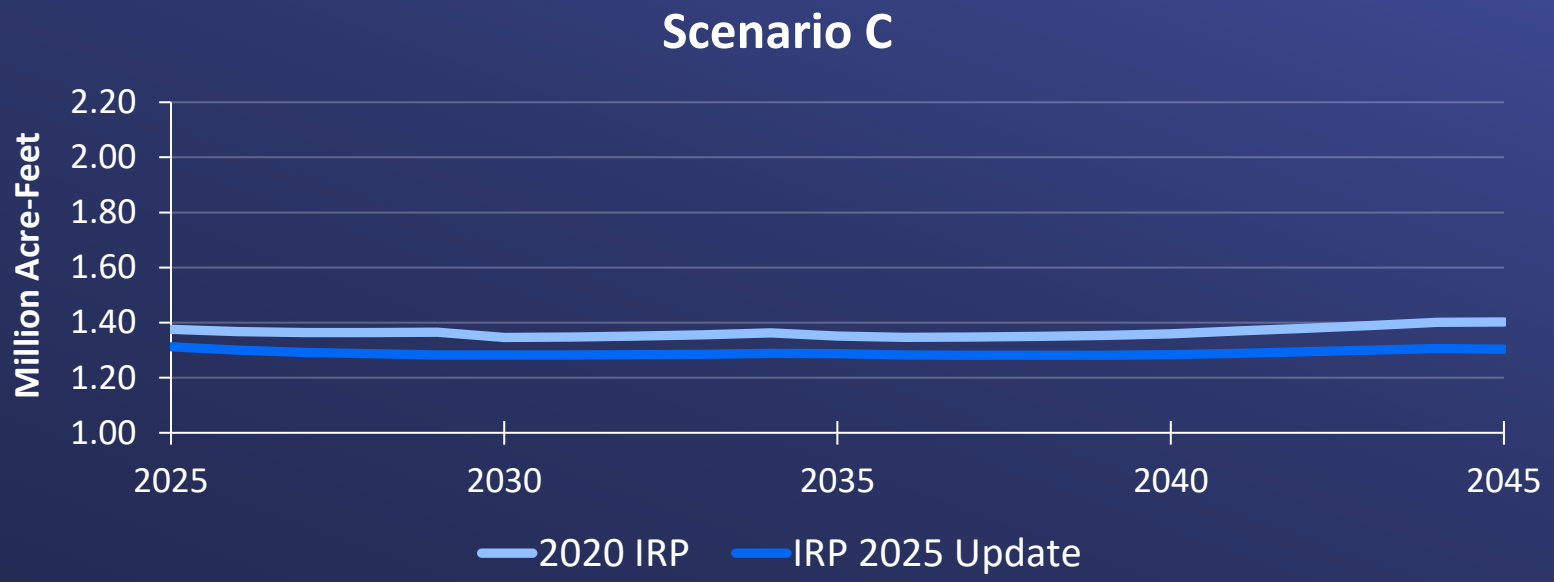
- Scenario C: Averages 35 TAFY lower across the planning horizon
- Scenario D: Averages 113 TAFY lower across the planning horizon

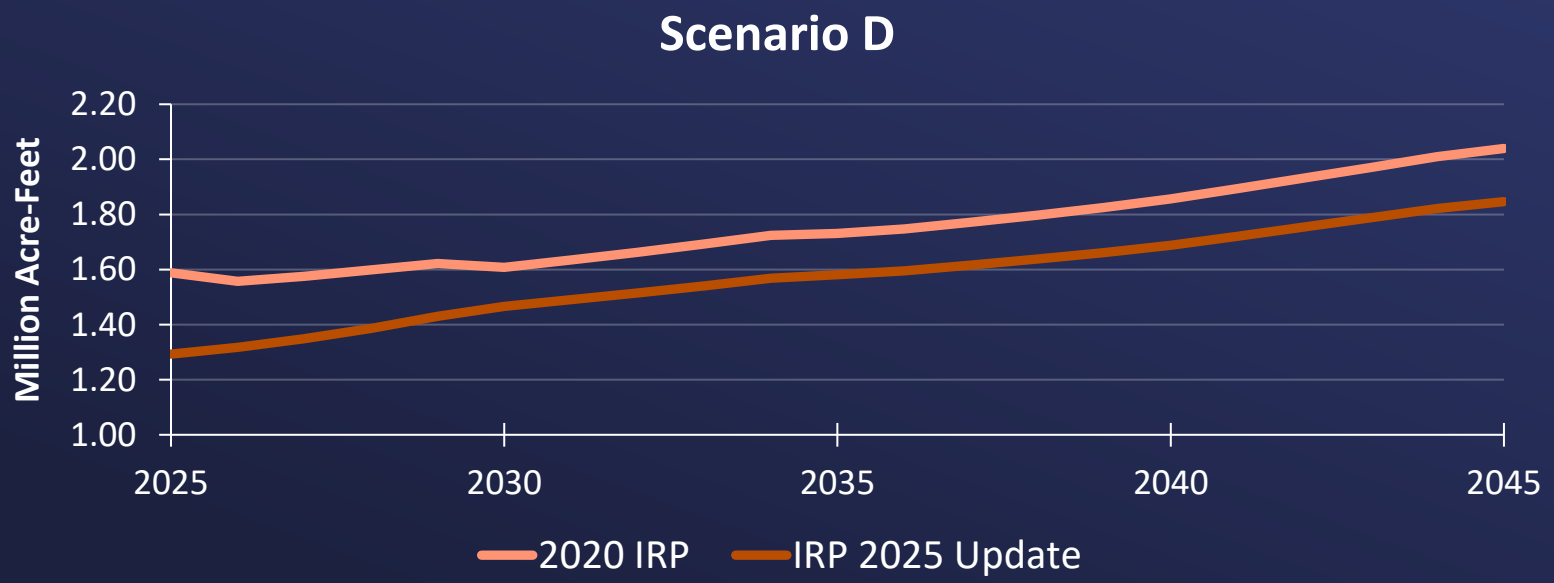
IRP 2025 Update

Where we made changes

- Demand on Metropolitan
  - Applies observed demographic data to starting conditions
  - Incorporates updated local supply information
  - Includes $35 Million and 5 TAF of new conservation per year

Demand on Metropolitan





Observation

- Near-term differences driven by updated demographics
- Long-term differences driven by additional conservation

Quantification

- Scenario C: Averages 75 TAFY lower across the planning horizon
- Scenario D: Averages 180 TAFY lower across the planning horizon

Developing Methodology for "Making Conservation a California Way of Life"

Key Focus Areas:

Indoor Use

- Clearer path forward: methodology largely established

Outdoor Use

- Uncertainty in how State will define & quantify irrigable acreage
- Key input for methodology remains unresolved

Commercial Use

- No state guidance on how to quantify water target
- Any estimates would be speculative and uncertain in terms of water budget impacts

Next Steps: Continue refining methodology as guidance is issued and align with policy discussions on compliance and funding responsibilities

Overview:

- Work is in progress in developing a methodology to estimate demand reduction benefits from state legislation
- Methodology will evolve as more information and guidance becomes available

Policy Implications

- Modeling assumes public compliance with new State objective
- Ensuring compliance may require MWD investment (e.g. funding support, incentives)

Developing Methodology for "Making Conservation a California Way of Life"

Key Focus Areas:

Indoor Use

Staff will incorporate the modeled demand reductions from this legislation into future adjustments

- Clearer path for methodology la established

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IRP 2025 Update

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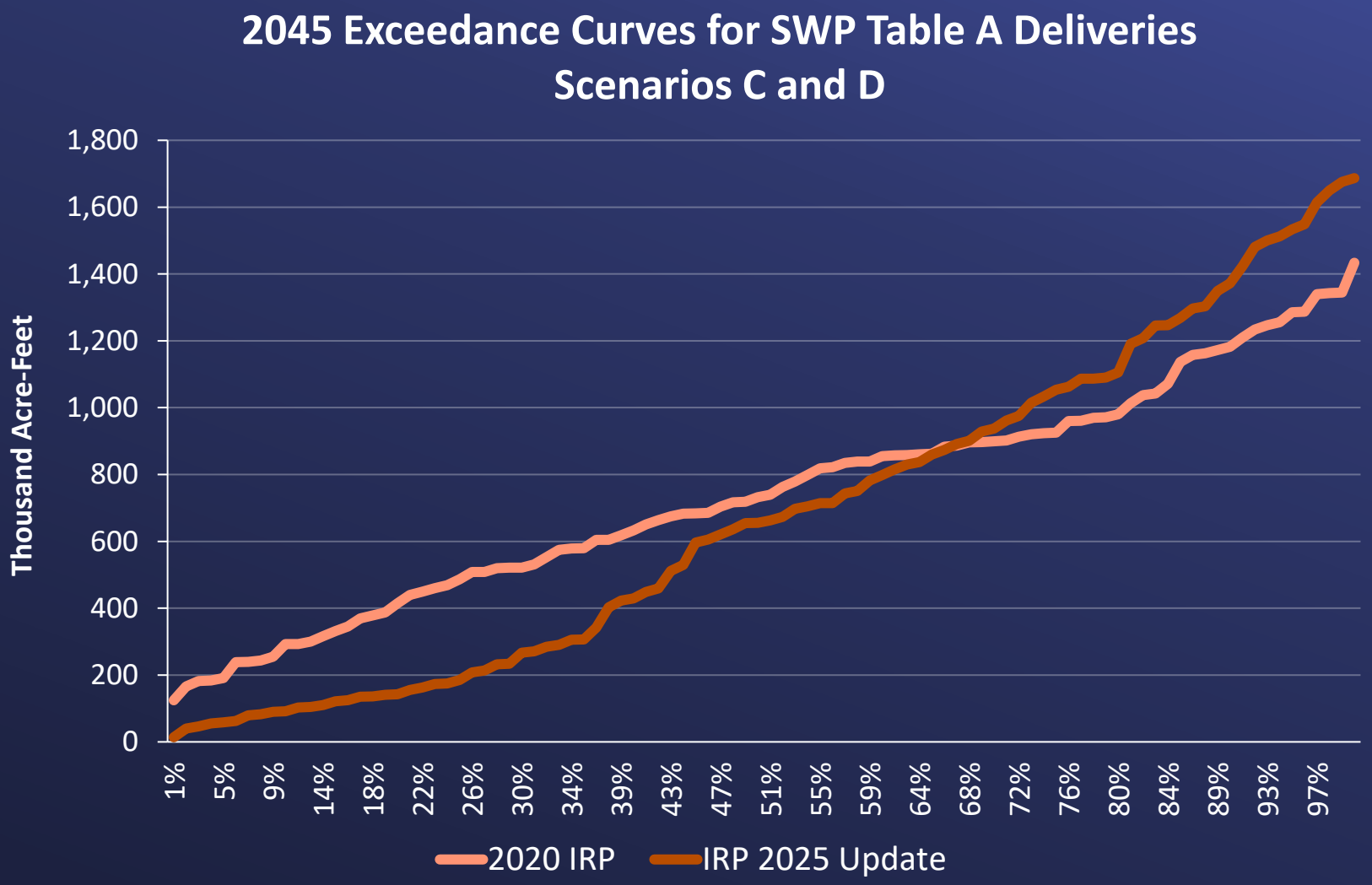
- State Water Project
  - Captures updated 2023 Delivery Capability Report modeling with adjustments

State Water Project Supply



Observation

- Scenarios C and D share the same supply degradation assumptions
- Extreme weather drives SWP allocations:
  - Hotter drier = lower allocations
  - Wetter = higher allocations

Quantification

- In drier conditions, the average drop in SWP allocation is 8 percent (160 TAF), roughly 65 percent of the time
- In wetter conditions, the average increase in SWP allocation is 9 percent (171 TAF), roughly 35 percent of the time
- On average the SWP supply reduced by 3% across all hydrologic conditions

IRP 2025 Update

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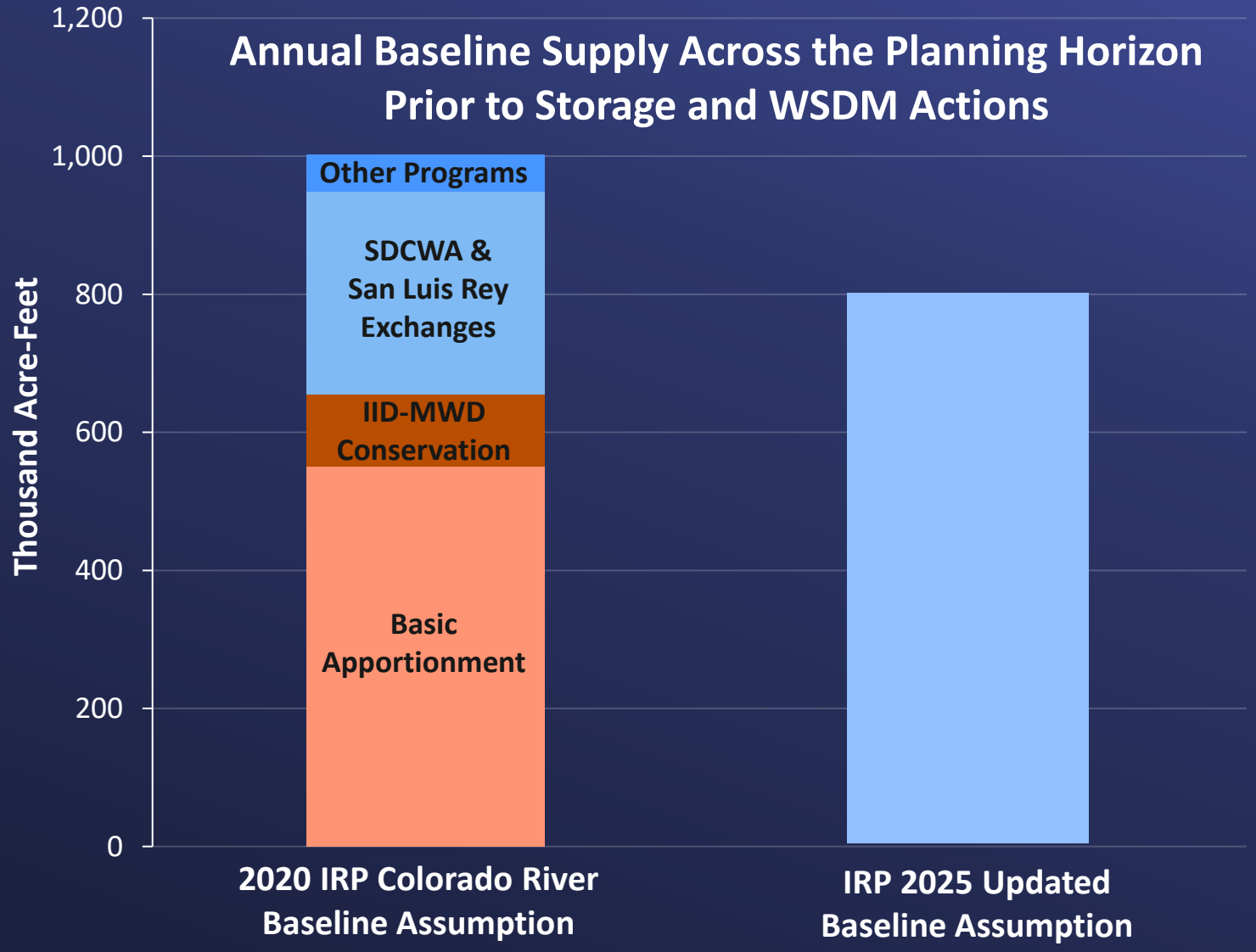
  - Reflects potential reduction commitments anticipated from ongoing operating guideline negotiations

Colorado River Supply



Note: For illustrative purposes only.

Observation

- Placeholder assumption applied to the baseline to reflect potential supply reduction commitments from ongoing operating guidelines negotiations
- Further refinements expected as negotiations progress and supply impacts become clearer

Quantification

- The assumed supply reduction commitments under post-2026 Colorado River operating guidelines reduce diversions by roughly 200 TAF annually through the planning horizon

Potential Water Purchases from SDCWA

Key Focus Areas:

Quantification

- Internal discussion and coordination with SDCWA to develop a methodology to determine Exchange Water availability

Modeling

- Internal review and discussion to determine the best approach for reflecting exchange water availability in modeling tools

Next Steps: Refine methodology, align with policy discussions, and apply in modeling to assess potential supply reduction offset

Overview:

- Purchased SDCWA supplies may offset the negative outcome of Colorado River negotiations
- Work is underway to develop a methodology to estimate Exchange Water availability

Policy Implications

- Cost undefined: Member Agencies have first right of refusal but no cost has been established
- Benefit conditional: Dependent on retail demands and local supply development in SDCWA service area

Potential Water Purchases from SDCWA

Key Focus Areas:

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Staff will incorporate the modeled regional benefit into future adjustments

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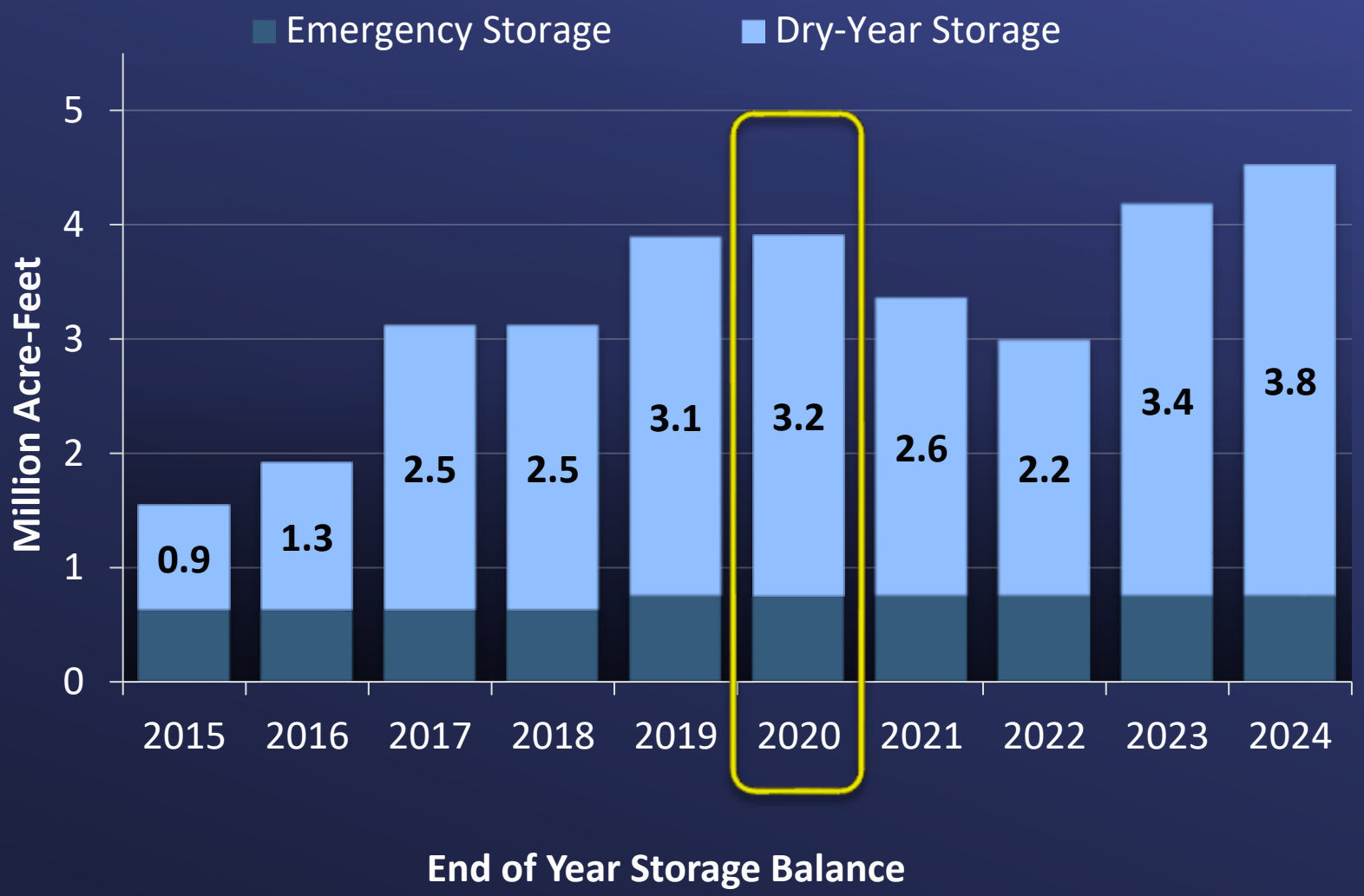
- Metropolitan Storage
  - Sets starting storage to 2025 levels

Metropolitan Storage



Observation

- Starting conditions: IRP 2025 Update is higher than the 2020 IRP
- Higher storage reduces shortages and increases reliability

Quantification

- Approximately 600 TAF higher in storage starting conditions reduces both frequency and magnitude of shortage across planning horizon

IRP 2025 Update

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- Colorado River Supply
  - Reflects potential reduction commitments anticipated from ongoing operating guideline negotiations
- Metropolitan Storage
  - Sets starting storage to 2025 levels
- Metropolitan Distribution System Flexibility
  - Reflects drought projects under construction

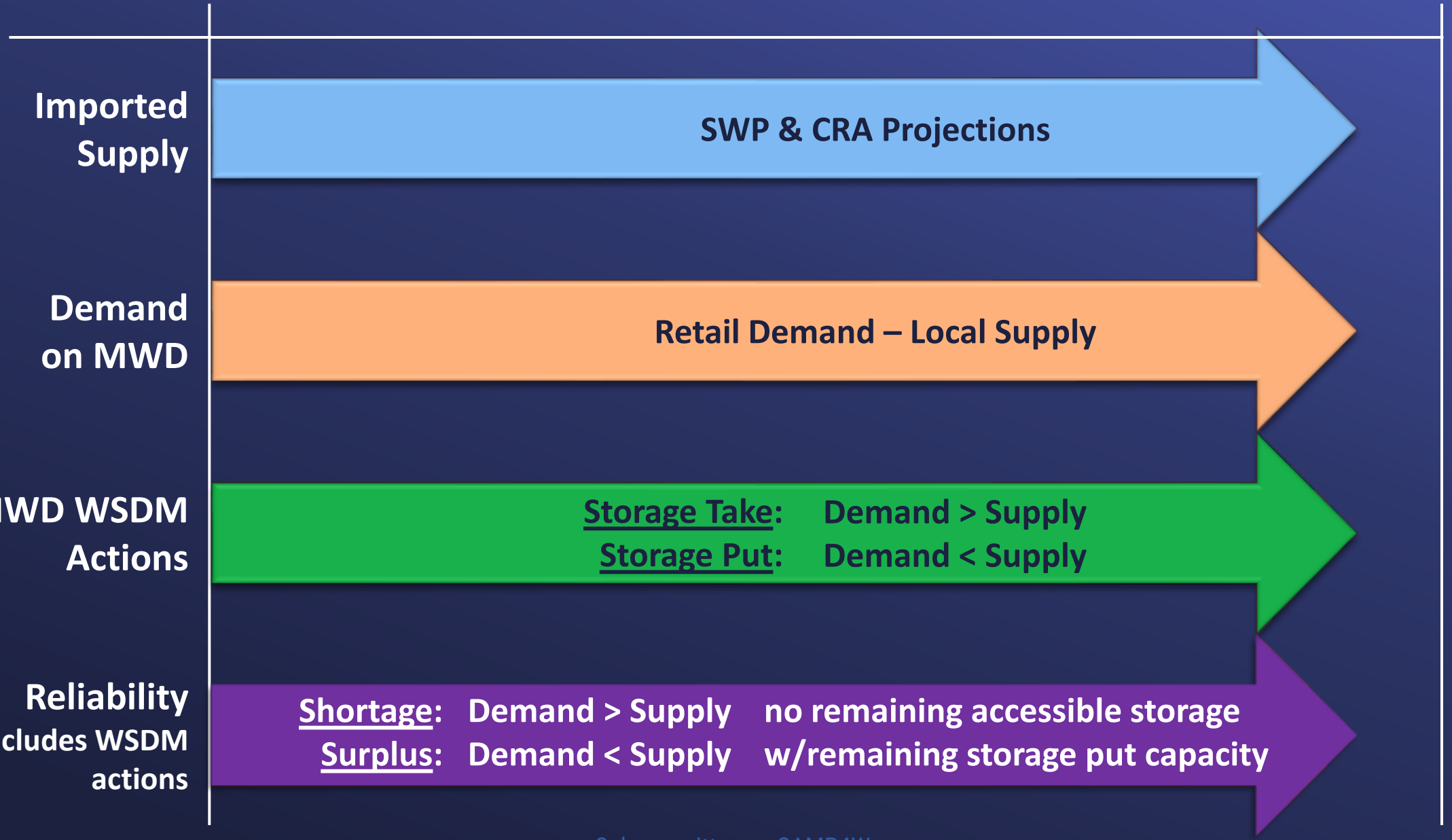
Supply Demand Balance – Water Reliability

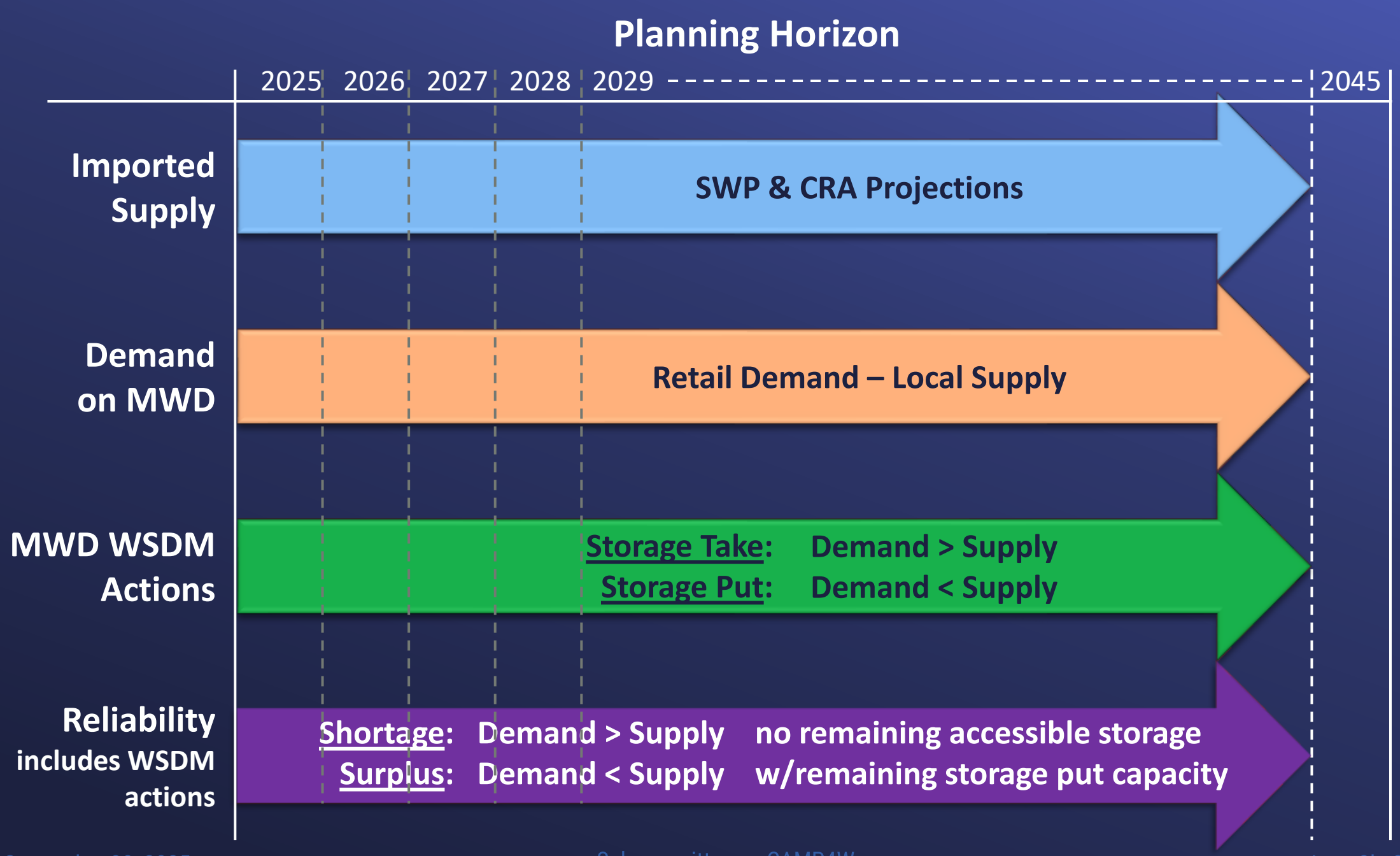
- Drier Dry Years on SWP
- Anticipated cuts to Basic Apportionment on CRA
- Lower Local Supplies

- Wetter Wet Years on SWP
- Lower Retail Demands
- Higher Storage Conditions
- Increased System Flexibility

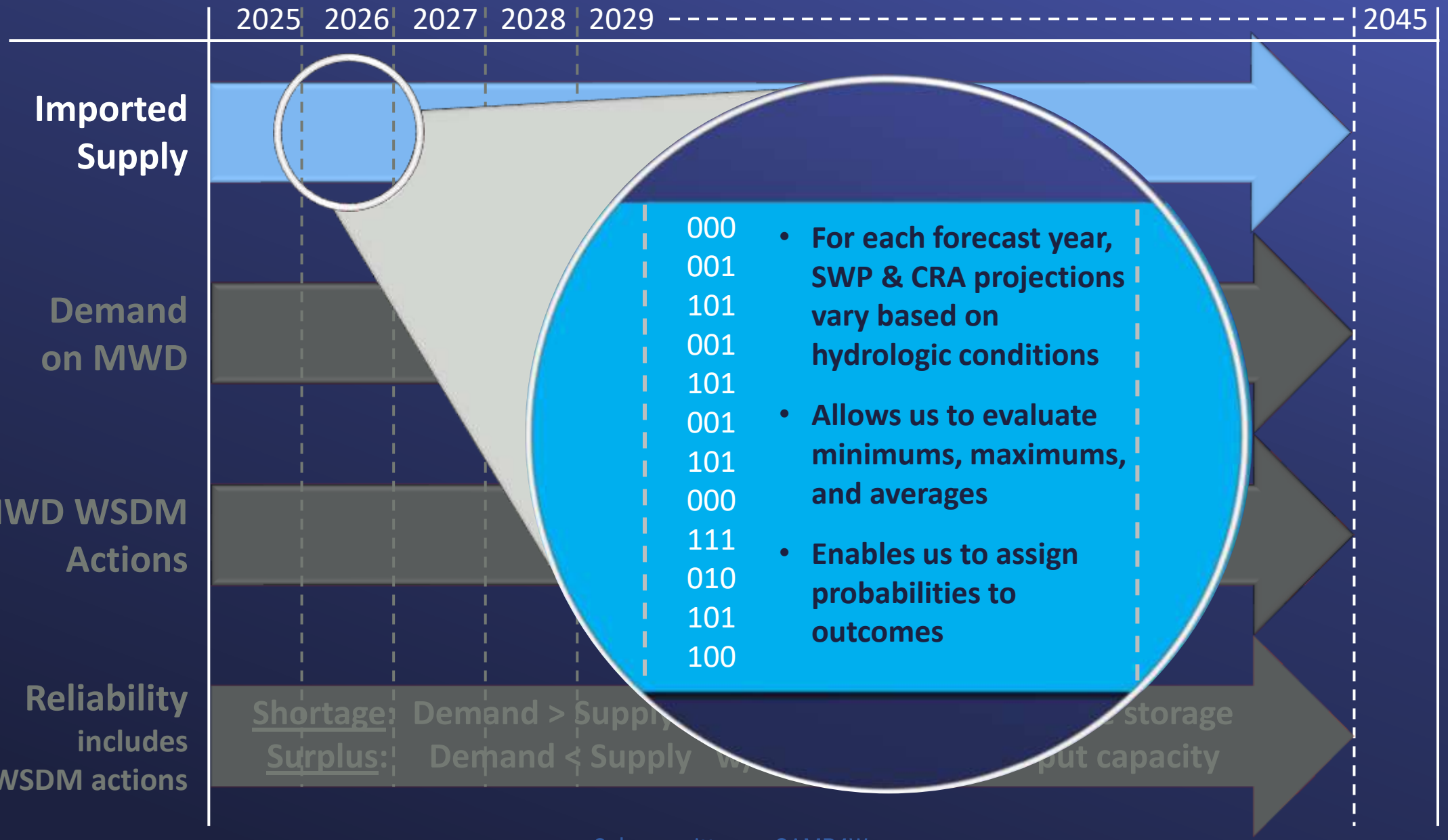
How is Reliability Calculated

Planning Horizon

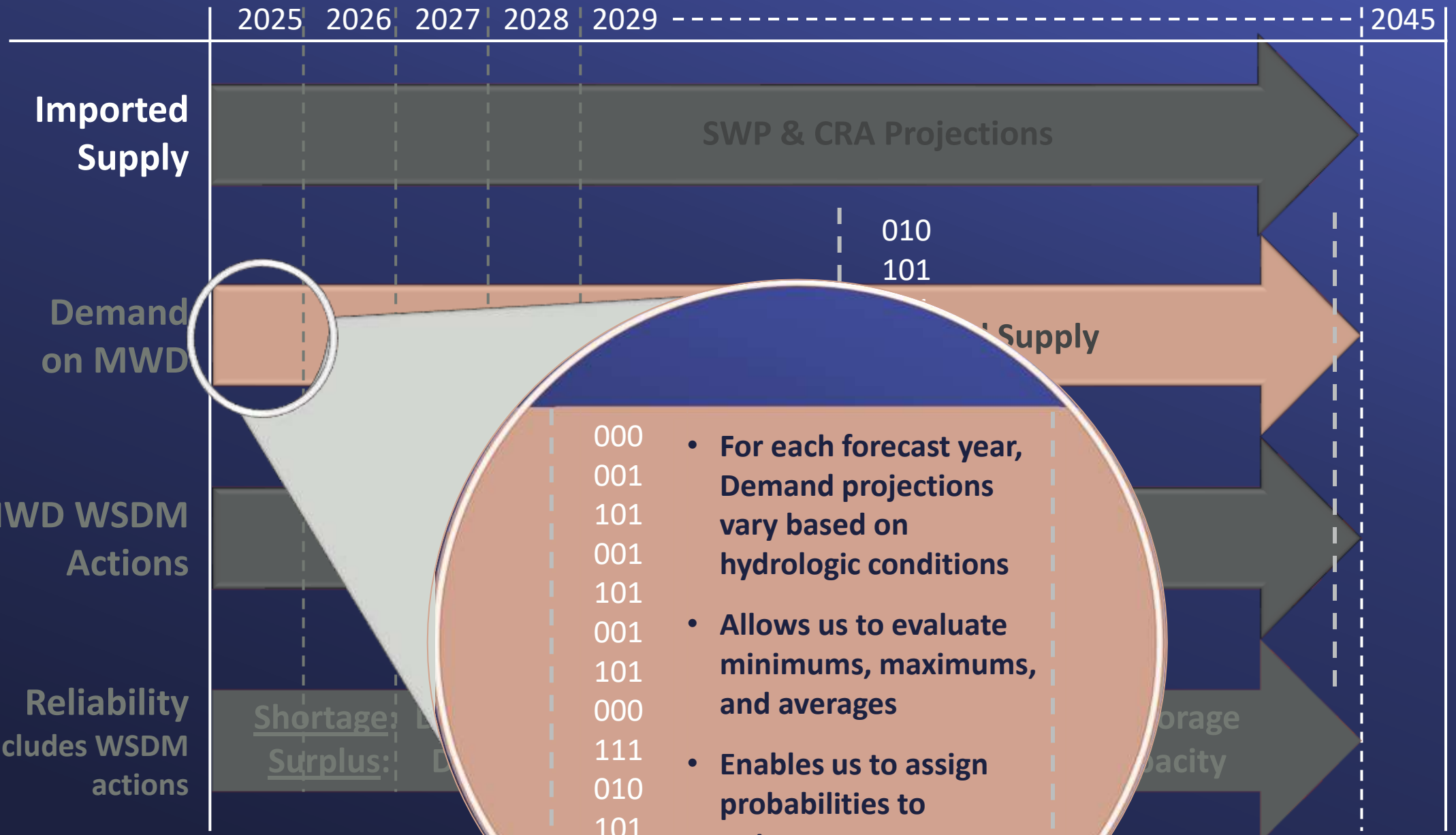



Planning Horizon
2025
2026
2027
2028
2029
2045
Imported Supply
SWP & CRA Projections
Demand on MWD
Retail Demand – Local Supply
MWD WSDM Actions
Storage Take: Demand > Supply
Storage Put: Demand < Supply
Reliability
includes WSDM actions
Shortage: Demand > Supply no remaining accessible storage
Surplus: Demand < Supply w/remaining storage put capacity

Planning Horizon



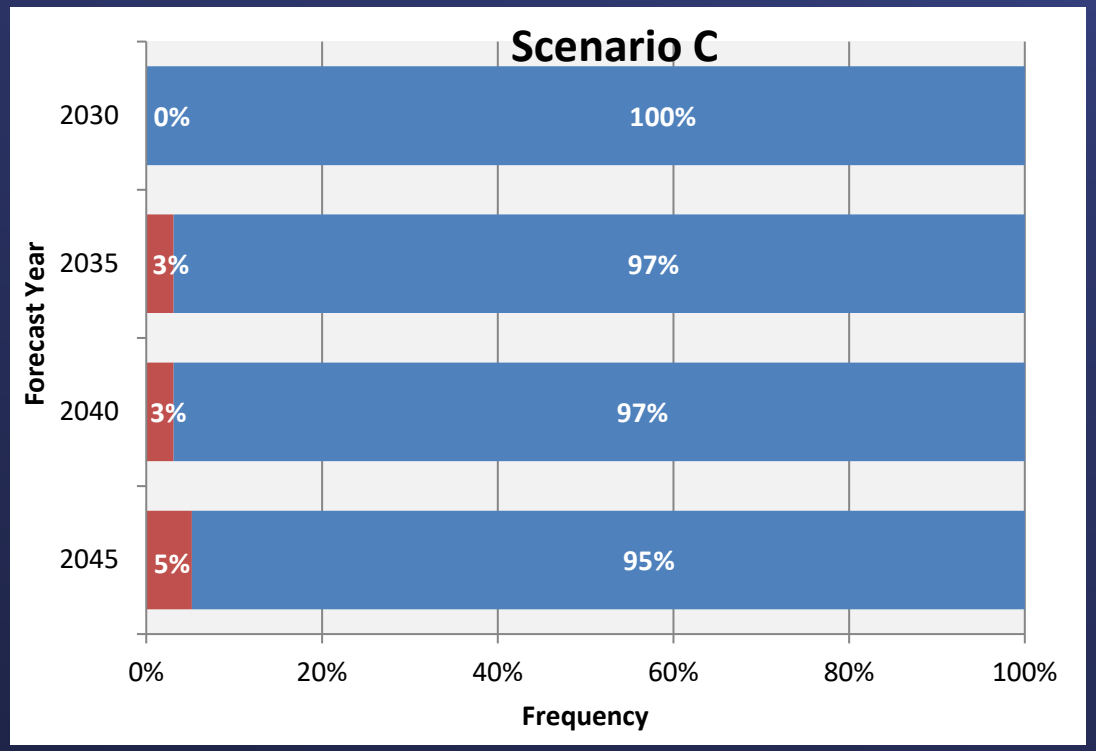
Planning Horizon



Comparison:
2020 IRP vs. IRP 2025 Update

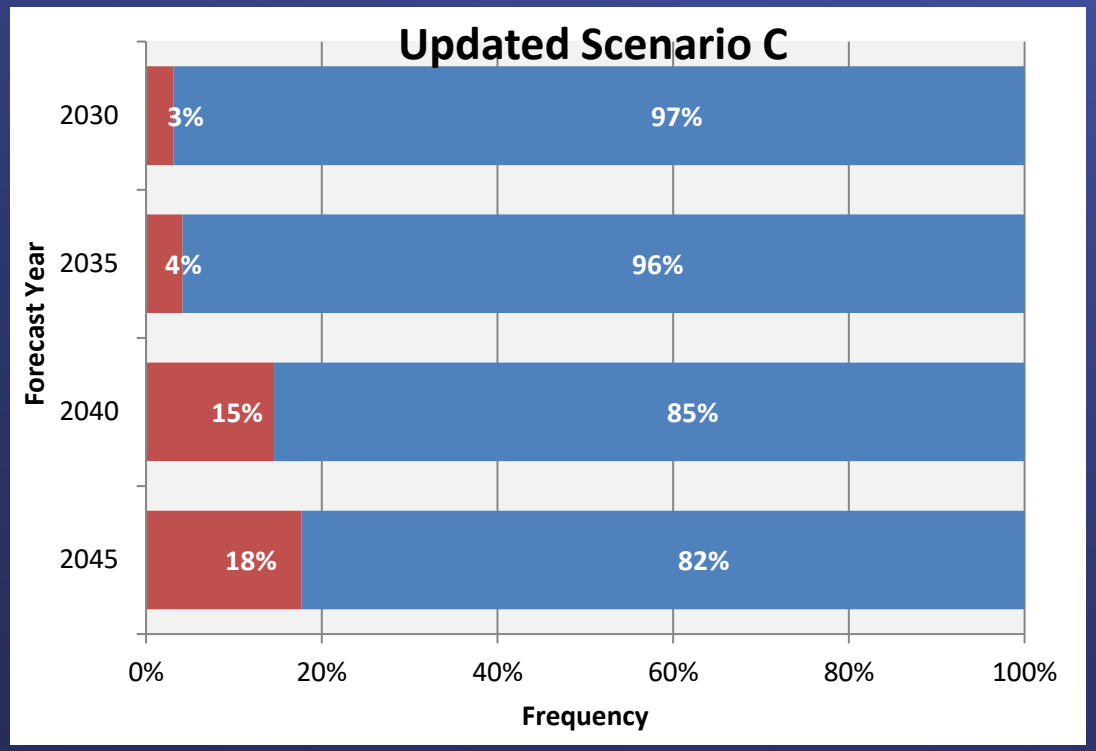
Scenario C – Frequency of Shortage

2020 IRP



- Net shortage frequency ranges from 3-5% between 2035 and 2045

IRP 2025 Update



- IRP 2025 Update has increased net shortage frequency, particularly in later forecast years

Scenario C – Comparison Details

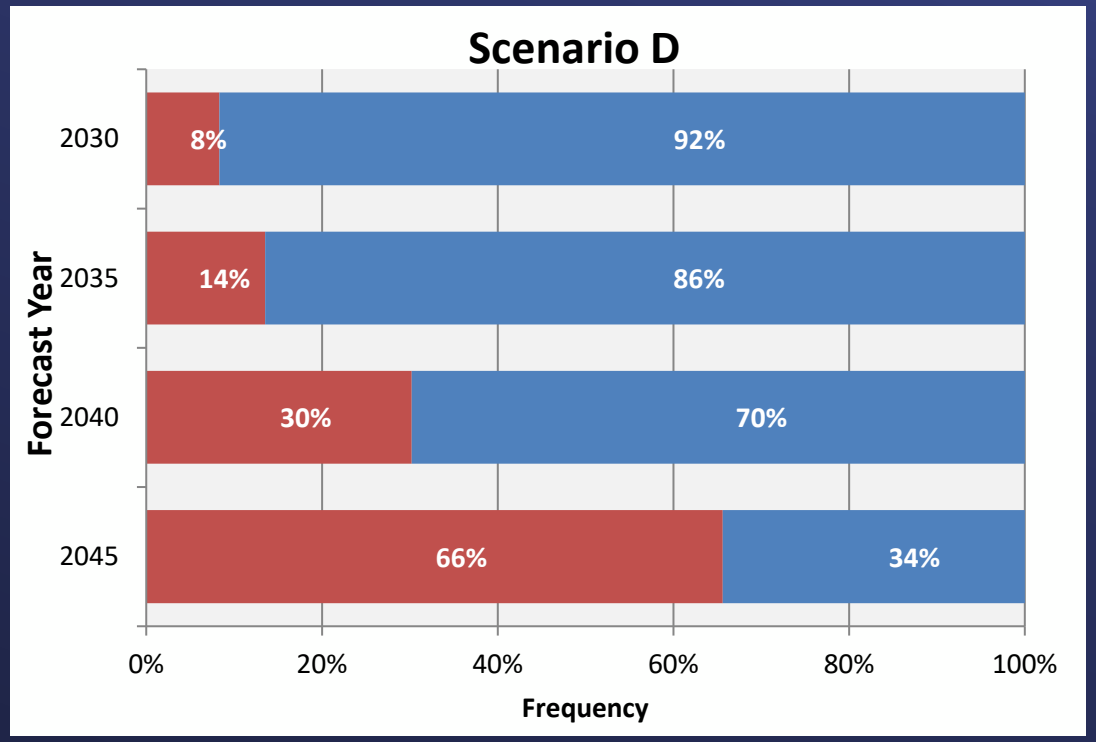
IRP 2025 Update

2020 IRP Needs Assessment vs. IRP 2025 Update

Forecast Year 2045	2020 IRP	2025 Update	Observations
Frequency of Shortage	**5%**	**18%**	Shortages increase as imported supplies decline, despite lower and flat demands
Magnitude (Maximum)	**200 TAF**	**600 TAF**	Shortage severity grows as imported water supplies shrink and conditions become drier
Storage (EOY Average)	**4.3 MAF**	**4.2 MAF**	Storage is used more often, but shortages persist due to accessibility and take capacity limits

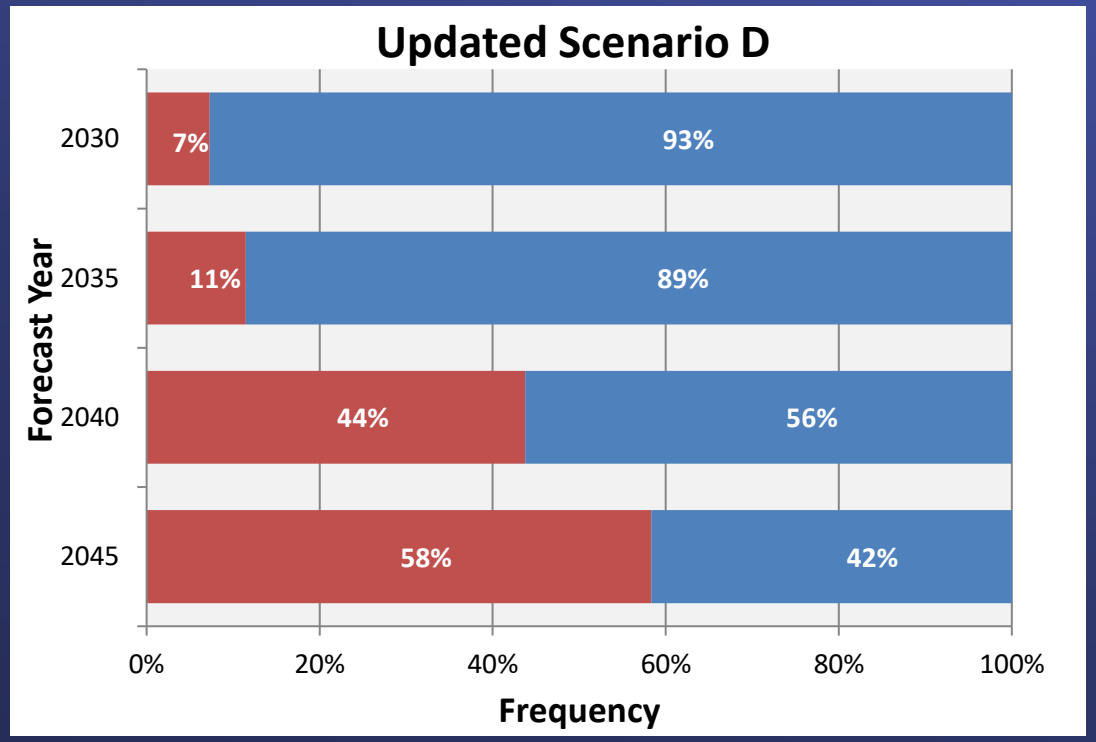
Scenario D – Frequency of Shortages

2020 IRP



- Net shortage frequency grows from 8% in 2030 to 66% in 2045

IRP 2025 Update



- Net shortage frequency reduced in most of the planning horizon compared to 2020 IRP

Scenario D – Comparison Details

IRP 2025 Update

2020 IRP Needs Assessment vs. IRP 2025 Update

Forecast Year 2045	2020 IRP	2025 Update	Observations
Frequency of Shortage	**66%**	**58%**	Net shortages in Scenario D persist, however the frequency is lower due to wetter wet years and lower demands
Magnitude (Maximum)	**1.22 MAF**	**1.31 MAF**	Shortage magnitudes increase as drier conditions become more severe
Storage (EOY Average)	**2.2 MAF**	**2.4 MAF**	Increased storage at the end of the planning horizon facilitated by lower demands and wetter wet years while accessibility and take capacity is still limited

IRP 2025 Update

Summary and Next Steps

- The updated Scenario C baseline shows that the reliability issues are supply-driven rather than growth-driven.
- The updated Scenario D baseline shows shortages persist and are more intense, albeit less frequent
- Staff is working to quantify and incorporate the benefits of the region achieving the *"Conservation as a California Way of Life"* objectives
- Staff is working on including potential regional benefits resulting from Member Agency or Metropolitan purchases from SDCWA
- The updated Scenario baseline positions us to conduct the portfolio analysis and identify a path forward to closing the reliability gap


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928