



Finance, Audit, Insurance, and Real Property Committee

Adopt the 2023 Long-Range Finance Plan Needs Assessment

Item 8-7

November 14, 2023

Item 8-7

Long-Range Finance Plan Needs Assessment

Subject

Adopt the 2023 Long Range Finance Plan Needs Assessment

Purpose

Adopt the 2023 Long Range Finance Plan Needs Assessment, which

- Provides a high-level estimate of rate impacts of the four Integrated Resource Plan Needs Assessment Scenarios;
- Provides an overview of capital financing and funding considerations for Metropolitan's future capital investments; and
- Provides a summary of key finance policies

Recommendation and Fiscal Impact

Staff recommends approval of Option #1:

- Adopt the 2023 Long-Range Finance Plan Needs Assessment

Fiscal Impact: No Fiscal Impact

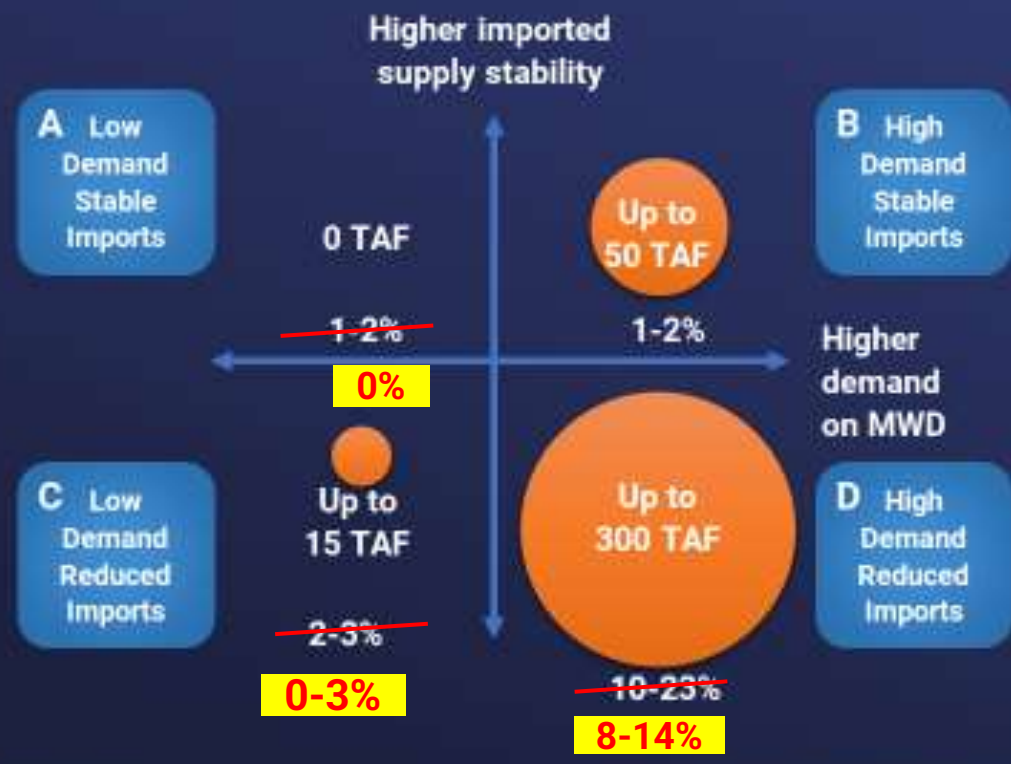
Agenda

- Correction to Draft LRFP-NA report and PPT
- Financial Analysis Extended to 2045
- Debt Capacity Analyses
- Frequently Asked Questions
- Board Options and Staff Recommendation
- Appendix: LRFP-NA board presentation on Aug 15, 2023

Net Shortage Assessment in 2020 IRP

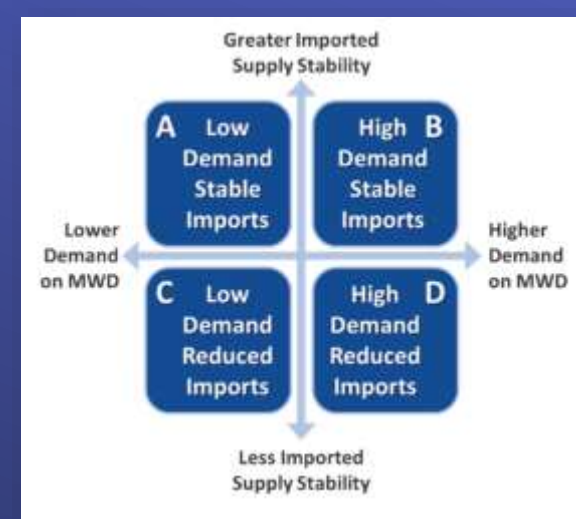
Plan for IRP A (no additional resources developed) but experience the higher demands from IRP D.

Magnitude (TAF) and Frequency (%) of a Net Shortage in Forecast Year 2032

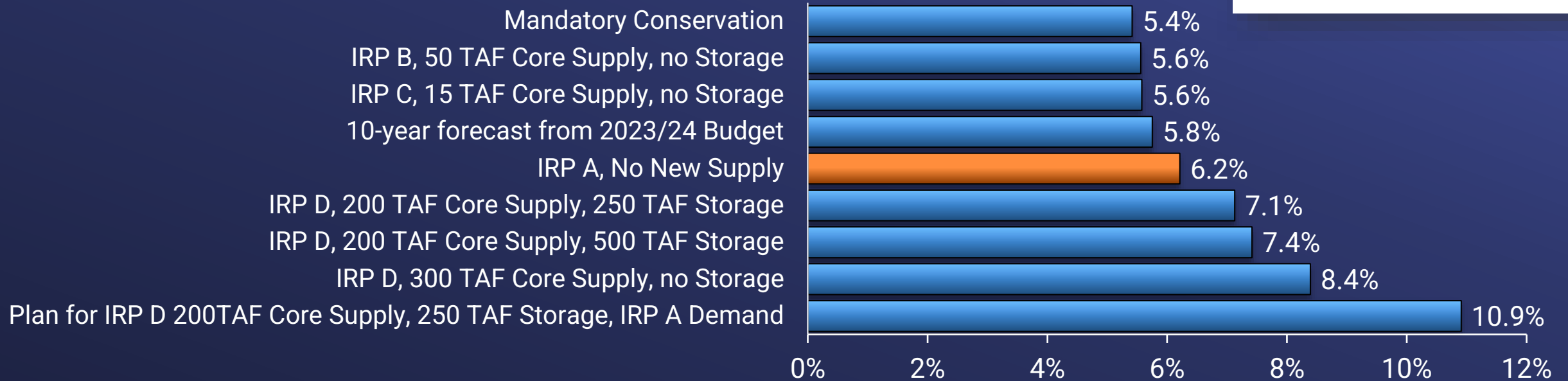


1. Water supply shortages will incur economic costs
2. What level of resource development does the Board want to pursue in light of reliability, resilience, and affordability objectives?

Summary of 2032 Scenarios



Overall Annual Rate Increases (%)
2025-2032*



**Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.*

Financial Analysis Extended to 2045

Extending the Analyses to 2045

Approach

- Similar to the 2032 Analysis:
 - The model assumes that costs are recovered exactly as anticipated, allowing the model to focus on the impacts of resource development costs without introducing additional variation from reserves, debt coverage considerations, and other items that will be incorporated into the final LRFP

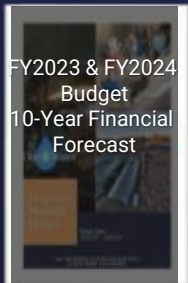
Resource Development (AF)*

✕ Resource Unit Cost (\$/AF)**

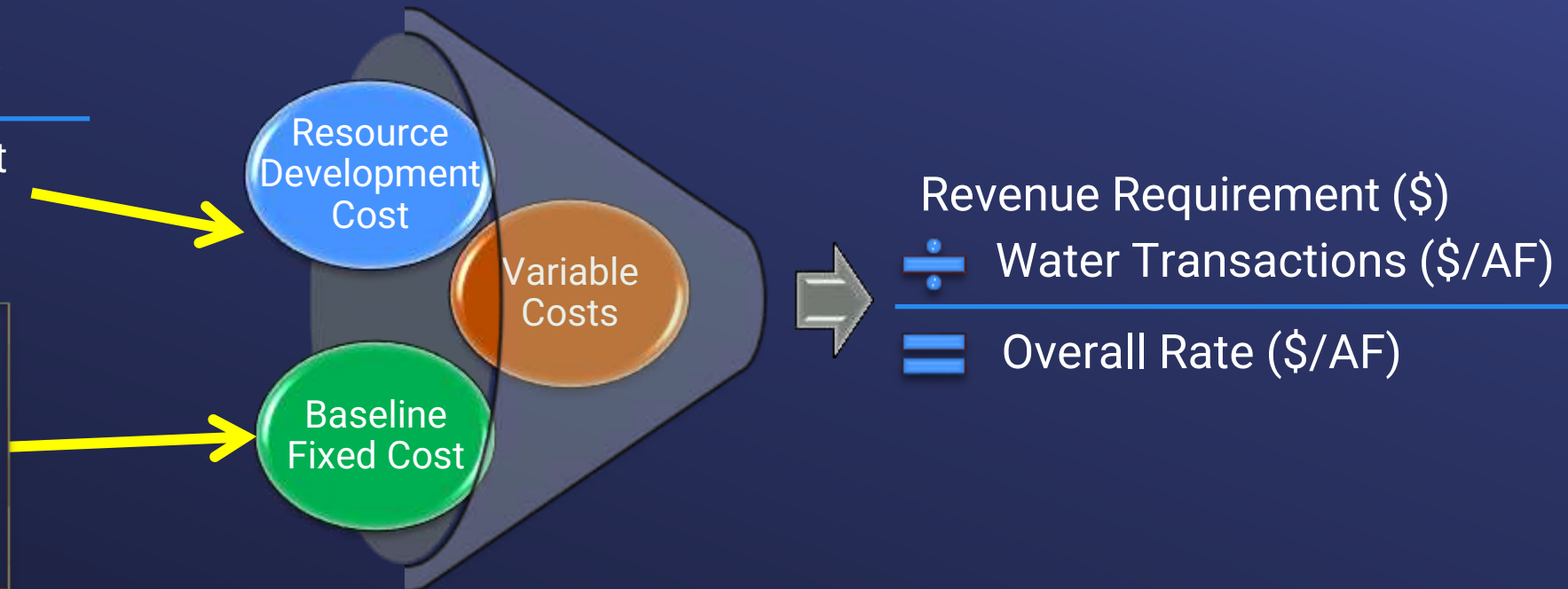
≡ Resource Development Cost

**Based on 2020 IRP Need Assessment Targets*

*** Unit costs are escalated 3% per year*



Extended with
Escalation
Factors through
2045



Extending the Analyses to 2045

Financial forecasts are inherently uncertain, and more so as a forecast extends farther out into the future

- 10-year forecast incorporates more known events whereas long-term cost escalation factors trend toward moderate inflationary increases (3-5%)

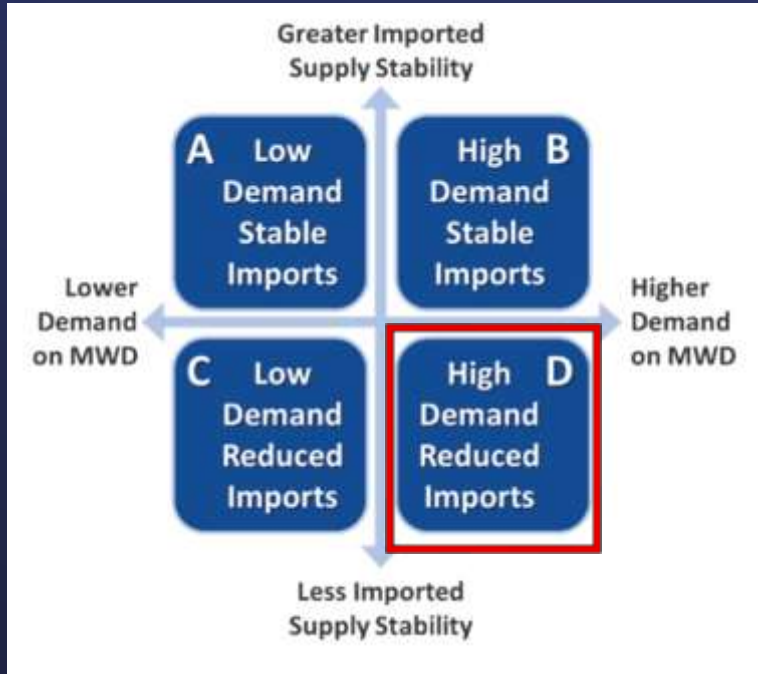
Base Cost Assumptions Common to All Scenarios

- Cost escalation factors based on the trends in the 10-Year Financial Forecast and relevant data inputs
 - **Fixed Costs**
 - Departmental O&M: average increases within the 10-year Financial Forecast
 - State Water Contract (excluding Power): average increase within the 10-year Financial Forecast
 - CIP, Supply and Demand Management: long-term average of the CPI-U
 - **Variable Costs = Variable Average Unit Cost x Quantity**
 - Variable treatment unit cost: long-term average increase of the CPI-U
 - Average Power unit costs: Long-term average increase of Energy in US city average in CPI-U

Annual Cost Escalations	%
Department & Other O&M	4.5%
State Water Contract (excluding power costs)	4.0%
Supply and Demand Management	3.0%
PAYGO CIP	3.0%
Variable Treatment Unit Costs	3.0%
Average Power Unit Costs	5.0%

Resource Portfolios Example

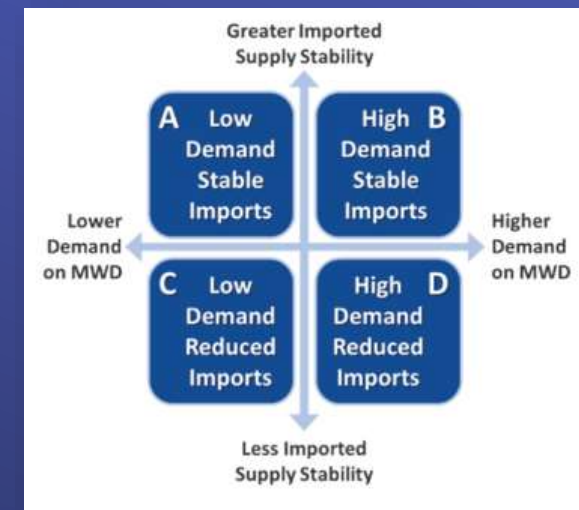
IRP Scenario D



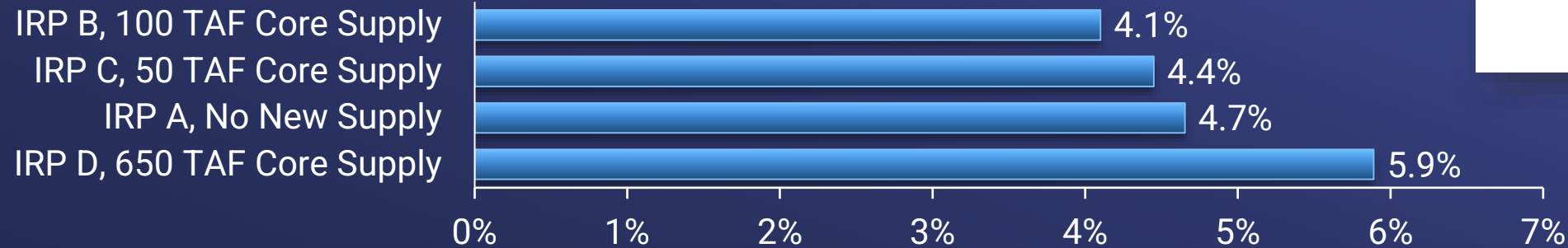
	Additional storage: 0 AF		Additional storage: 250 TAF		Additional storage: 500 TAF	
	Storage	Core Supply	Storage	Core Supply	Storage	Core Supply
2025	0 TAF	100 TAF	23 TAF	100 TAF	45 TAF	100 TAF
2026	0 TAF	150 TAF	45 TAF	150 TAF	91 TAF	150 TAF
2027	0 TAF	150 TAF	68 TAF	150 TAF	136 TAF	150 TAF
2028	0 TAF	150 TAF	91 TAF	150 TAF	182 TAF	150 TAF
2029	0 TAF	150 TAF	114 TAF	150 TAF	227 TAF	150 TAF
2030	0 TAF	150 TAF	136 TAF	150 TAF	273 TAF	150 TAF
2031	0 TAF	300 TAF	159 TAF	200 TAF	318 TAF	200 TAF
2032	0 TAF	300 TAF	182 TAF	200 TAF	364 TAF	200 TAF
2033	0 TAF	300 TAF	205 TAF	200 TAF	409 TAF	200 TAF
2034	0 TAF	300 TAF	227 TAF	200 TAF	455 TAF	200 TAF
2035	0 TAF	300 TAF	250 TAF	200 TAF	500 TAF	200 TAF
2036	0 TAF	450 TAF	250 TAF	400 TAF	500 TAF	400 TAF
2037	0 TAF	450 TAF	250 TAF	400 TAF	500 TAF	400 TAF
2038	0 TAF	450 TAF	250 TAF	400 TAF	500 TAF	400 TAF
2039	0 TAF	450 TAF	250 TAF	400 TAF	500 TAF	400 TAF
2040	0 TAF	450 TAF	250 TAF	400 TAF	500 TAF	400 TAF
2041	0 TAF	650 TAF	250 TAF	550 TAF	500 TAF	500 TAF
2042	0 TAF	650 TAF	250 TAF	550 TAF	500 TAF	500 TAF
2043	0 TAF	650 TAF	250 TAF	550 TAF	500 TAF	500 TAF
2044	0 TAF	650 TAF	250 TAF	550 TAF	500 TAF	500 TAF
2045	0 TAF	650 TAF	250 TAF	550 TAF	500 TAF	500 TAF

Overall Rate Impact of IRP Scenarios

No additional storage option



Overall Annual Rate Increases (%)
2025-2045*



Observations: Consistent trend with results in the 2032 Analysis

1. Developing core supply to meet demands identified in IRP D will have the largest rate impacts.
2. The rate impact shown in IRP A results from lower water sales.

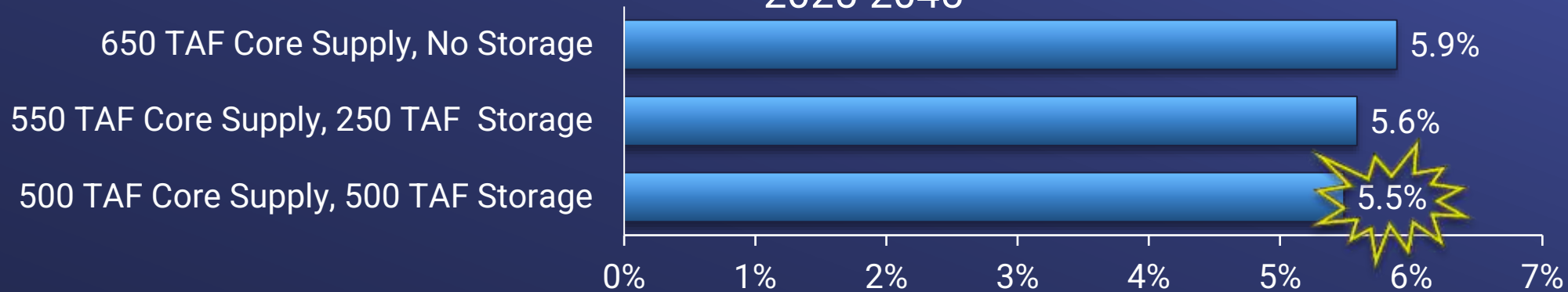
Impacts of extending to 2045:

- Long-term cost escalation factors trend towards moderate inflationary increases (3%-5%)
- Calculated averages for all modeled scenarios are approximately 2% lower than results in 2032 analysis due to longer time to reach the resource development targets (2025 – 2032 vs. 2033 – 2045) and only inflationary increases for other fixed and variable costs

**Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.*

Effect of Adding Storage for IRP D Scenario

Overall Annual Rate Increases (%)
2025-2045*



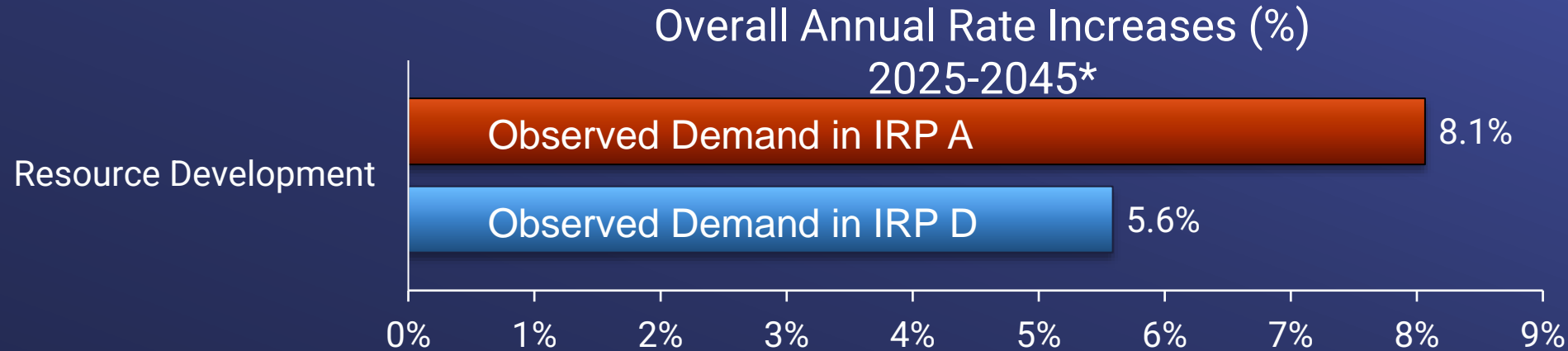
Observations

- To meet the projected water demand in IRP D, development of 500 TAF of core supply and 500 TAF of storage capacity has lower rate impacts (5.5%) due to benefits of lower core supply when adding additional 250 TAF storage
- Extension to 2045 shows lower average increases than 2032 results by approximately 2%
 - Note: long-term forecast trends more toward inflationary increases (3-5%) whereas short term forecast includes more known events with more available information

**Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.*

Sensitivity Analysis for Lower Demand

Plan for IRP D Resource Needs with 500 TAF Storage but realize the lower water demands from IRP A



Observations:

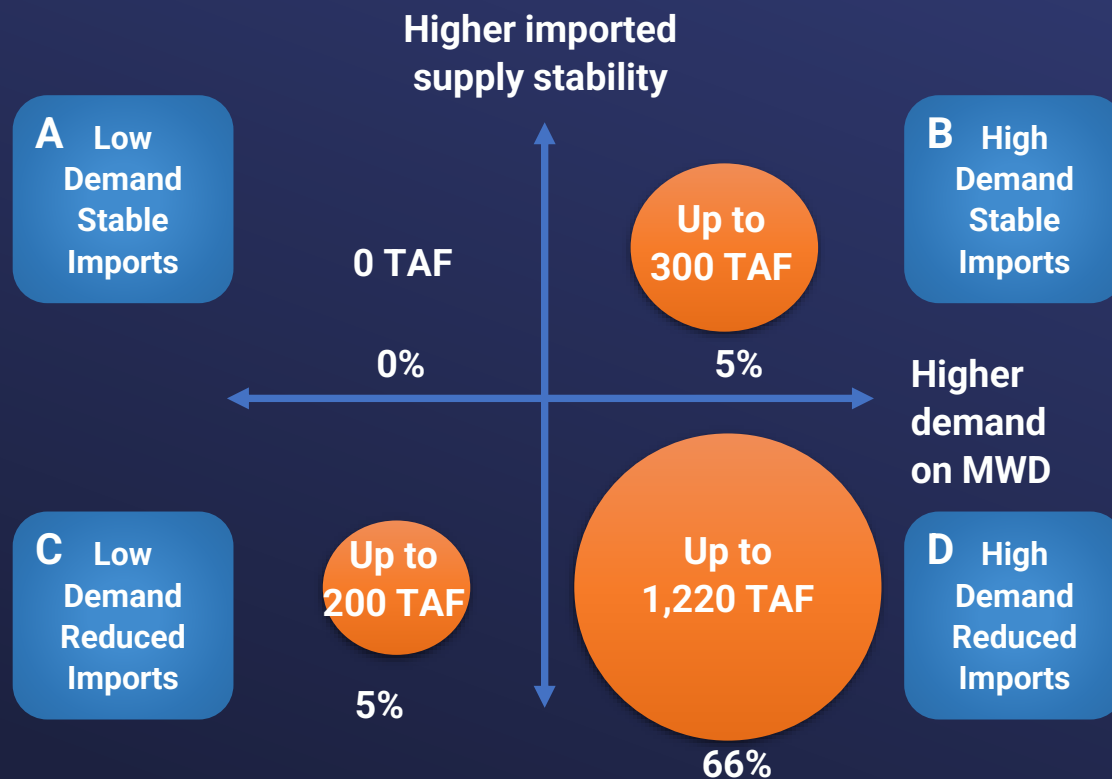
- If water demand does not materialize as projected in IRP D and instead occurs as projected in IRP A, development of core supply and storage to meet projected demand in IRP D could result in substantially higher rates (2-3% higher annual rate increases)
- **Extending to 2045:** the calculated averages are lower but the trend is consistent with the 2032 analysis

**Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.*

Net Shortage Assessment in 2020 IRP

Plan for IRP A (no additional resources developed) but experience the higher demands from IRP D.

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



1. Water supply shortages will incur economic costs
2. What level of resource development does the Board want to pursue in light of reliability, resilience, and affordability objectives?

Estimated Capital Investment

Examples for IRP D Scenario by 2045

Resource Development		Estimated Capital *
Core Supply	Storage Capacity	
550 TAF	250 TAF **	\$14.6 Billion – \$15.3 Billion
500 TAF	500 TAF***	\$14.0 Billion - \$15.3 Billion

Engineering challenge

3.5x PWSC
completed by 2045

~1/3-2/3 of Diamond
Valley Lake
completed by 2035

Financial Considerations

- Net Position to support revenue bond capacity
- More cashflow available for higher debt coverage

* Assumptions: \$3,000/AF for core supply (2023 \$), 50% costs from O&M
\$300/AF for storage capacity (2023 \$), 0-50% costs from O&M
Capital financing @ 4%, 30-yr, 2% debt issuance cost

** 250 TAF in 2035

*** 500 TAF in 2035

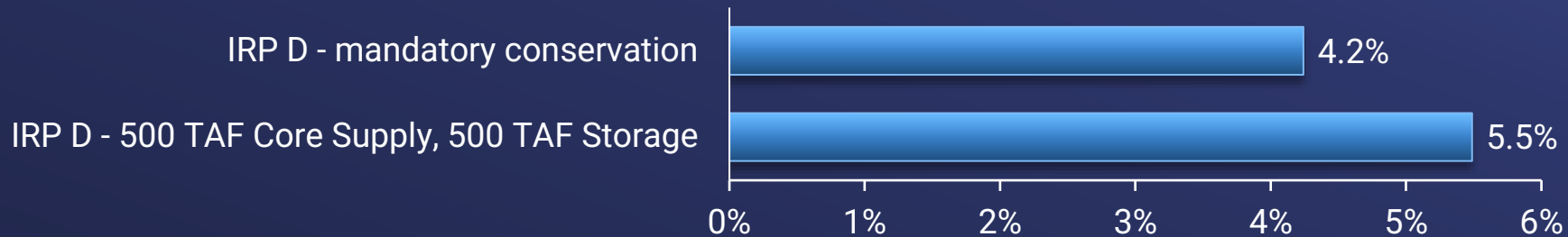
Mandatory Conservation Scenario

Mandatory conservation in response to long-term structural imbalance between supply and demand

Scenario Assumptions

- Assumes regulatory action mandating conservation
- No new resource development – new supply or incentivized conservation
- Mandatory conservation is no cost to Metropolitan (\$0/AF in the model)
- Begin with projected demand in IRP D and reduce gradually to meet 2045 resource development goal - 650 TAF

Overall Annual Rate Increases (%) 2025-2045*



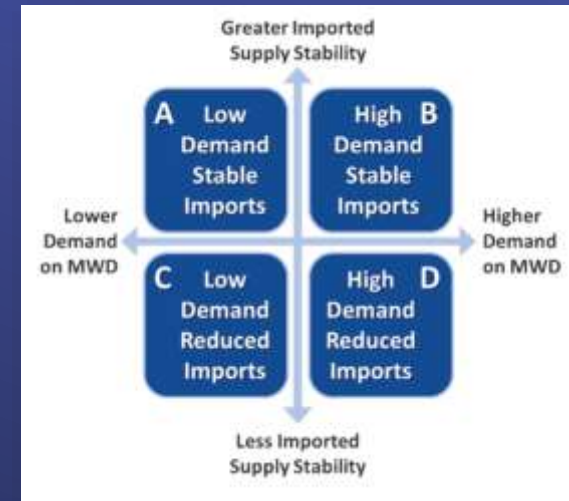
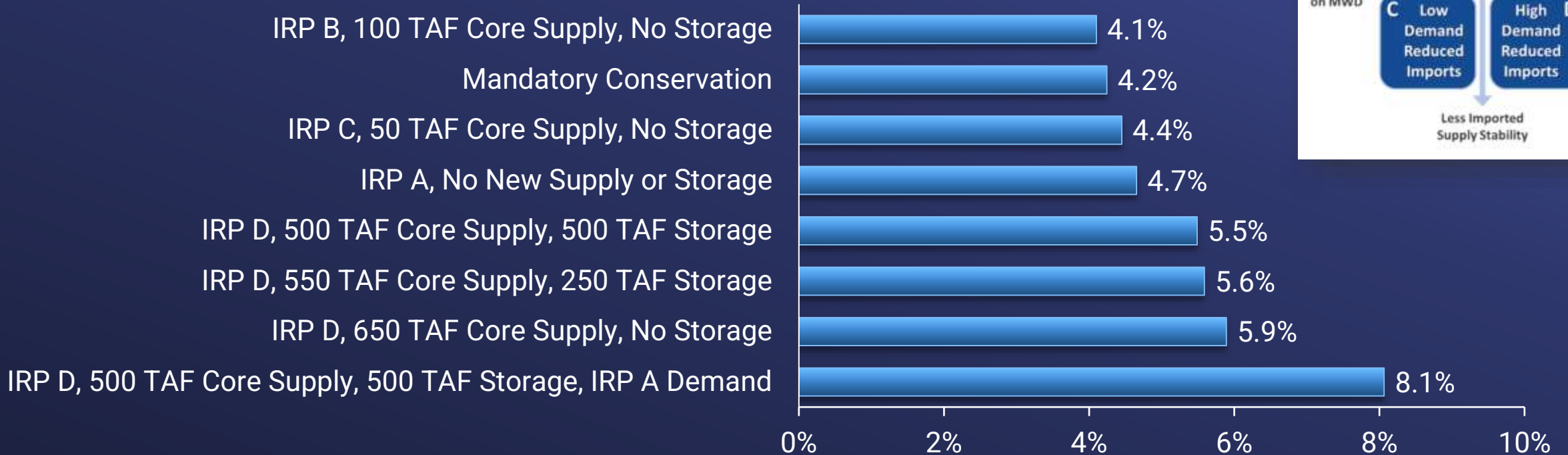
Observations:

1. Lowest rate impact as there is no financial cost to Metropolitan for mandatory conservation. However, member agencies and their customers will incur compliance and enforcement costs.
2. What are the implications of mandatory conservation on economic growth and quality of life for region?

**Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.*

Summary of 2045 Scenarios

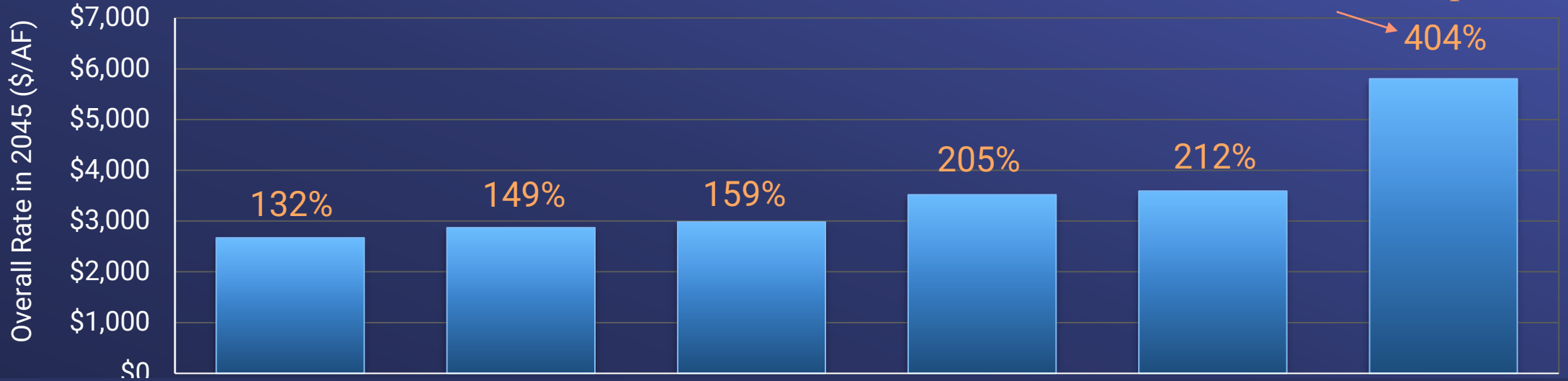
Overall Annual Rate Increases (%)
2025-2045*



*Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.

Projected 2045 Overall Rate by IRP Scenario

Cumulative overall rate increase from 2024 adopted rate



	IRP B, No Storage	IRP C, No Storage	IRP A, No Storage	IRP D, 500 TAF Storage	IRP D, 250 TAF Storage	Plan for IRP D, Observed IRP A Demand
Core Supply	100 TAF	50 TAF	0	500 TAF	550 TAF	500 TAF
Storage	0	0	0	500 TAF	250 TAF	500 TAF
Water Demand	IRP B 1.72 MAF	IRP C 1.40 MAF	IRP A 1.22 MAF	IRP D 2.04 MAF	IRP D 2.04 MAF	IRP A 1.22 MAF

**Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.*

Debt Capacity Analyses

- FY 2024 Through FY 2032
- FY 2024 Through FY 2045

Debt Capacity Considerations - 2032

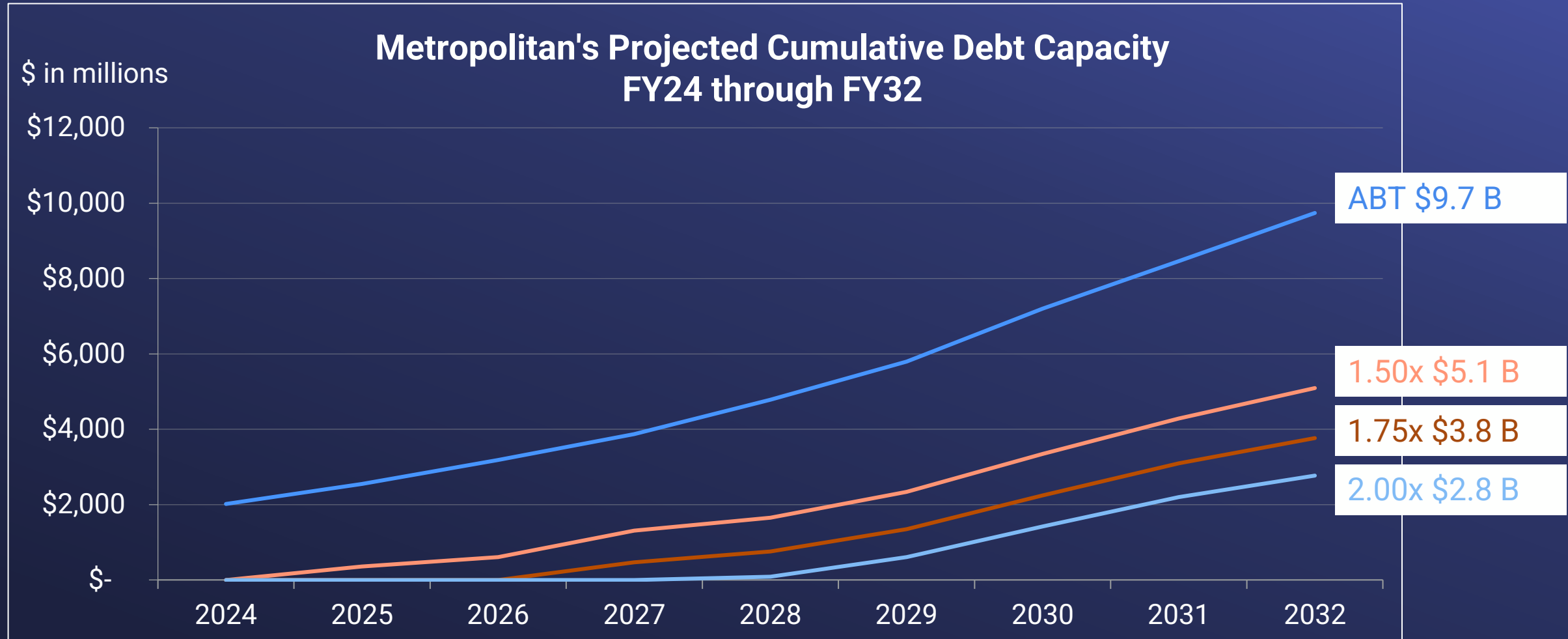
Metropolitan will be constrained in revenue bond debt capacity over the next nine years to meet projected capital investments under the current 10-Year Financial Forecast Assumptions

- With an estimate of \$5.5 billion to \$6.0 billion in capital need under IRP D, revenue bond financing alone is insufficient to fund the needed capital
- Even if we assume a 40% PAYGO target ratio of this capital expense, IRP D has a range of \$3.3 billion to \$3.6 billion in bonding requirement
- We use four alternative projections of debt capacity: ABT, 1.50x DSC, 1.75x DSC and 2.00x DSC

	Current ABT (max senior and sub liens)	1.50x Debt Service Coverage	1.75x Debt Service Coverage	2.00x Debt Service Coverage
Additional Debt Capacity	\$9.7 billion	\$5.1 billion	\$3.8 billion	\$2.8 billion
<small>*Debt capacity calculated using 5% interest rates and as of June 30, 2023 **Debt service coverage calculated for each respective scenario to estimate the debt capacity available while targeting the minimum target coverage ratio based on current year revenues.</small>				

Debt Capacity Considerations - 2032

Remaining Capacity using the 10-Year Financial Forecast



Debt Capacity Considerations - 2045

Metropolitan will have more revenue bond debt capacity over the next 20 years to meet projected capital investments under the IRP D (250 TAF Storage Capacity) scenario

- With an estimate of \$14.6 billion to \$15.3 billion in capital need under IRP D, cashflow leverage appears sufficient to fund the needed capital investments
- This analysis assumes a funding of R&R at \$300 million per year (inflated)
- We use three alternative projections of debt capacity: ABT, 2.00x DSC and 1.75x DSC

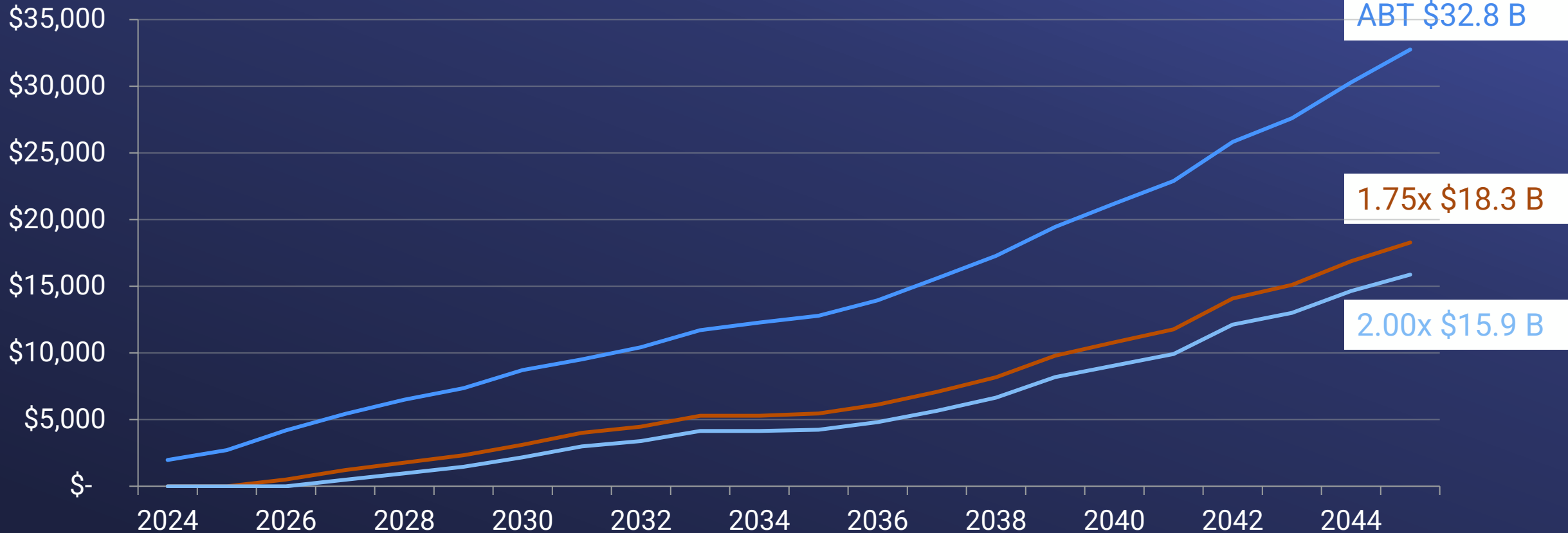
	Current ABT (max senior and sub liens)	1.75x Debt Service Coverage	2.00x Debt Service Coverage
Additional Debt Capacity	\$32.8 billion	\$18.3 billion	\$15.9 billion
<small>*Debt capacity calculated using 5% interest rates and as of June 30, 2023 **Debt service coverage calculated for each respective scenario to estimate the debt capacity available while targeting the minimum target coverage ratio based on current year revenues.</small>			

Debt Capacity Considerations - 2045

Remaining Capacity using the IRP D (250 TAF Storage Capacity)

Cumulative Debt Capacity Through 2045 for IRP D (250 TAF Storage Capacity)

\$ in millions





Question 1: Considering Metropolitan's revenue bond capacity constraints, what are the benefits of WIFIA loans?

Answer:

BACKGROUND

- Water Infrastructure Finance and Innovation Act (WIFIA) loans are managed by the U.S. Environmental Protection Agency (EPA).

WIFIA can provide loan funding up to 49 percent of Eligible Project Costs at competitively low rates, currently around 4 percent, with certain beneficial repayment provisions. While WIFIA loans have mostly been used for specific projects, there are opportunities for funding qualifying expenditures for a combination of eligible projects through a Master Loan Agreement with EPA. Based on the maximum estimate of capital infrastructure needs in IRP D scenario (\$6.0 billion), a WIFIA loan, if awarded, could provide approximately \$3 billion in loan authorization, depending upon the project(s) submitted and qualifying eligibility under the WIFIA program. Importantly, WIFIA loans are not subject to Metropolitan's borrowing limitations. Detailed information on WIFIA loans are included in Appendix G of the LRF-NA written report (p. 129).

Question 3: What is the status of the discussion on Affordability and how will it be incorporated into CAMP4W?

Answer:

- Metropolitan staff is engaged in a collaborative initiative with Eastern MWD and UC Riverside to develop a research report focused on water rate affordability in the Metropolitan Water District of Southern California service area.
- Furthermore, the affordability discussion has been and will continue to be part of the CAMP4W process.
- To date, the topic has included a discussion of terminology and working definitions as well as a panel of Metropolitan member agencies to provide context for the issues faced.
- Staff supports the continuation and expansion of the conversation on affordability; however, it is in staff's view that this conversation will occur outside of the LRFP-NA document.

Question 4: Is Metropolitan considering other potential actions in addition to core supply and storage resources?

Answer:

BACKGROUND

- The IRP-NA was the basis of the financial analysis of the LRFP-NA
- The IRP-NA assumed that additional resource needs would be met with additional core supplies and storage. The broad definition of core supplies included conservation.

While the IRP-NA analysis provided useful results and insights, it was not intended to cover all possible approaches and projects. For example, some known projects like Sites Reservoir and PWSC may not clearly fit the IRP definition of core supplies, flex supplies or storage. As such, specific projects will require additional IRP analysis as part of the CAMP4W process.

Additionally, while the LRFP-NA analysis proved a useful benchmark, other projects and combinations of projects will likely prove to be more cost-effective and require additional analysis. For example, the combination of adding additional storage to the east branch plus the purchase of flex supplies during average and wet years will require additional analysis as part of the CAMP4W process.

Question 5: How can we use the 4 IRP scenarios to zero in on a base case financial forecast?

Answer:

The LRFP-NA provides an initial look at ranges of estimated rate impacts based on the work done in the IRP-NA. These tools can be used to evaluate projects and portfolios of projects in the CAMP4W process that will help the Board make resource development decisions to pursue while weighing resiliency, reliability, financial sustainability, and affordability objectives.

As specific projects are identified that meet Board-approved objectives, a more refined rate impact and financing options can be developed, including phased project financing, cost recovery methodology, and reserve requirements that will roll into a detailed Long-Range Financial Plan.

Also, in the meantime, the biennial budget process, which includes a 10-year forecast, will continue to be updated every other year. The budget is a base case financial forecast. The base case financial forecast will fall into the range of the 4 IRP scenarios and provide one estimate representing a reasonable expectation of where conditions are currently heading.

With each budget update, we will update the projection based on estimates for water transactions and include any Board approved projects/objectives/plans as well as changes in underlying conditions.

Question 6: Does the LRFP-NA take into consideration the impacts of the “Making Conservation a California Way of Life” framework?

Answer:

BACKGROUND

- “Making Conservation a California Way of Life” (“Way of Life”) is a new regulatory framework proposed by State Water Board staff that establishes individualized efficiency goals for each Urban Retail Water Supplier. State Water Board staff expects these goals to **reduce urban water use across California by more than 400-thousand-acre feet by 2030**, helping California adapt to the water supply impacts brought on by climate change.

The LRFP-NA included rate impact analysis from mandatory conservation, which the “Way of Life” framework falls under. The analysis acts as a bookend on the lower bound of average annual overall rate increases, showing the results on Metropolitan’s rates from having the IRP supply gaps met entirely from regulatory action. The CAMP4W process will help Metropolitan select a mix of resources to meet the demands in Phase 2 of the LRFP, incorporating regulatory action such as the “Way of Life” framework.

Board Options

Option #1

Adopt the 2023 Long-Range Finance Plan Needs Assessment

Fiscal Impact: No fiscal impact

Business Analysis: Provides an important foundation and context for future decisions impacting Metropolitan's financial sustainability

Option #2

Do not adopt the 2023 Long-Range Finance Plan Needs Assessment

Fiscal Impact: No fiscal impact

Business Analysis: Without adoption of the LRFP-NA, the Board will not have a foundation for discussions in Phase 2 of the LRFP through the CAMP4W process.

Recommendation

Option #1

Adopt the 2023 Long-Range Finance Plan Needs Assessment

Fiscal Impact: No fiscal impact

Business Analysis: Provides an important foundation and context for future decisions impacting Metropolitan's financial sustainability



APPENDIX

Review Draft 2023 Long-Range Finance Plan Needs Assessment

Presentation in FAIRP Committee on August 15, 2023

With minor corrections on slide “Net Shortage Assessment in 2020 IRP”



Finance, Audit, Insurance, and Real Property
Committee

Review Draft FY 2023/24 Long-Range Finance Plan Needs Assessment

Item 9-2

August 15, 2023

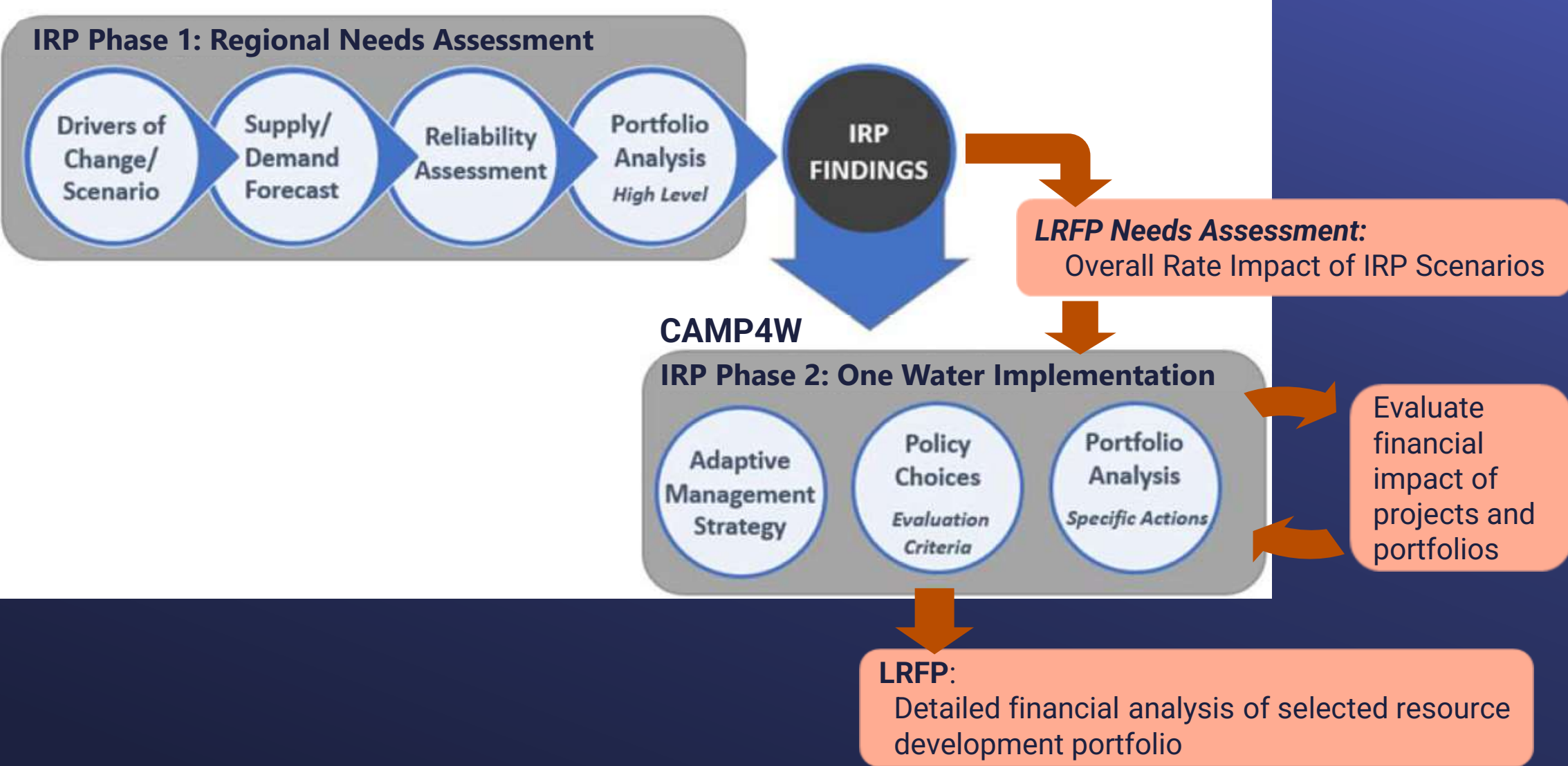
Agenda

- Overview of LRFP Process
- Rate Impact Modeling Analysis
- Capital Financing Considerations
- Conclusions & Next Steps

Long-Range Finance Plan Needs Assessment

Overview of LRFP Process

Integrated Planning Processes



Long-Range Financial Plan

LRFP Needs Assessment: Overall Rate Impact of IRP Scenarios and Capital Financing Considerations

1. Estimate the *rate impact* of various resource development scenarios identified in the IRP needs assessment
2. Discuss the primary capital financing and funding tools Metropolitan has at its disposal, describe the key finance policy considerations, and review alternative financial approaches

Results: Inform the CAMP4W process and assist the Board in selecting the resource development portfolio to pursue while weighing resiliency, reliability, financial sustainability, and affordability objectives

LRFP: Detailed Long-Range Financial Plan

As specific projects are identified that meet Board-approved objectives, a more refined rate impact can be developed, including phased project financing, cost recovery methodology, and reserve requirements

Long-Range Finance Plan Needs Assessment

Rate Impact Modeling Analysis

Modeling Overview

LRFP Needs Assessment



Modeling Period

- Starts with the adopted rates for calendar year 2023 and 2024 and project overall annual rate increases to 2032
- Public agencies and water utilities commonly use 5 or 10-year financial forecasts. Beyond a 10-year horizon, forecasts become highly uncertain
- The intent of the LRFP Needs Assessment is to estimate average annual overall rate increases over the 10-year forecast period and provide an indication of the trajectory of rates in the longer-term
- The model assumes that costs are recovered exactly as anticipated, allowing the model to focus on the impacts of resource development costs without introducing additional variation from reserves, debt coverage considerations, and other items that will be incorporated into the final LRFP

Modeling Overview

LRFP Needs Assessment

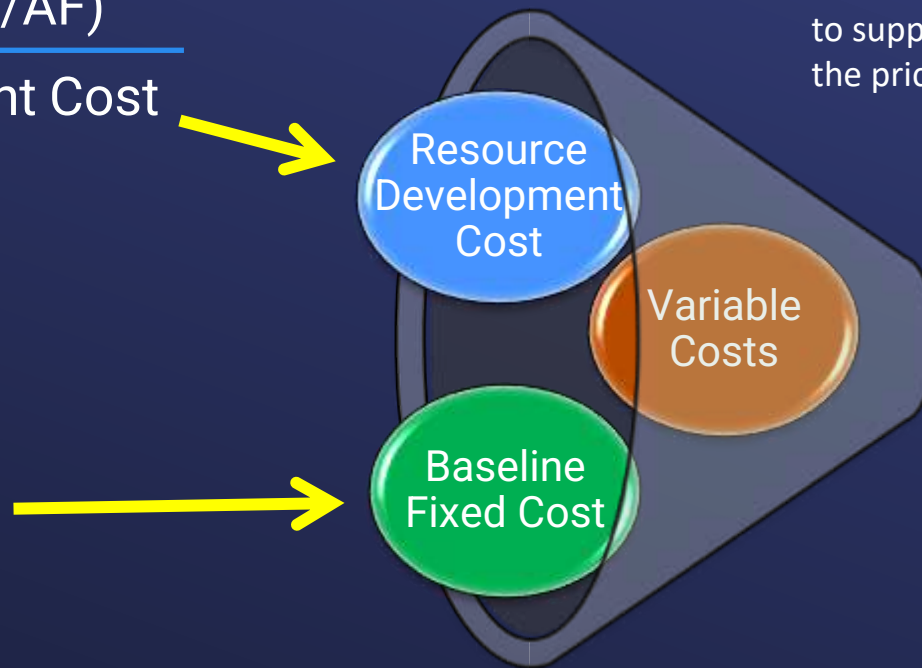
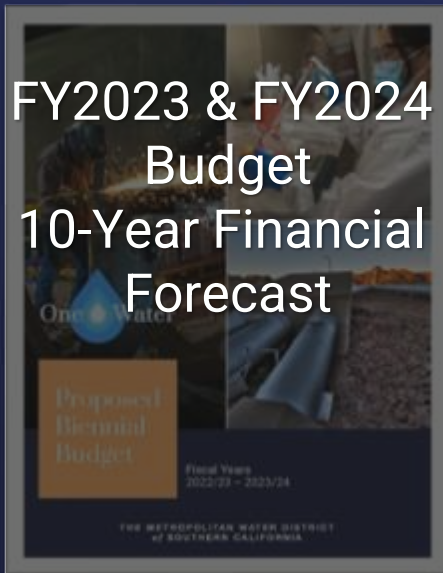
Modeling Process

For each IRP Scenario for each year:

Resource Development (AF)

✘ Resource Unit Cost (\$/AF)

▬ Resource Development Cost



*Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.

Revenue Requirement (\$)

÷ Water Transactions (\$/AF)

▬ Overall Rate (\$/AF)

2020 IRP Needs Assessment Scenarios

Scenario Descriptions

Scenario A – Low Demand/Stable Imports:

Gradual climate change impacts, low regulatory impacts, and slow economic growth.

Scenario B – High Demand/Stable Imports:

Gradual climate change impacts, low regulatory impacts, high economic growth.

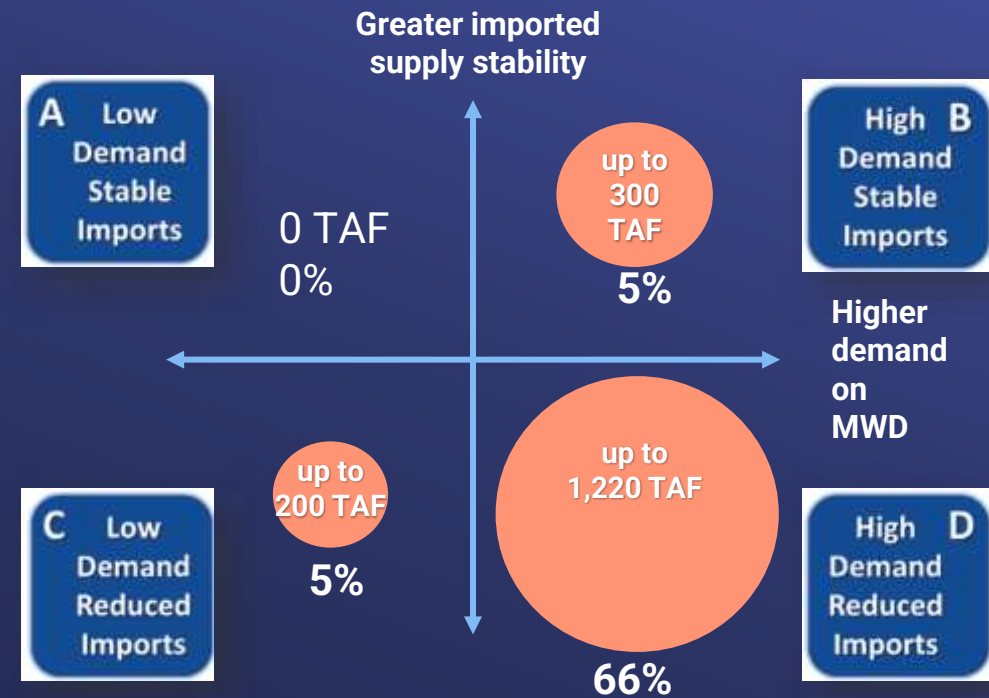
Scenario C – Low Demand/Reduced Imports:

Severe climate change impacts, high regulatory impacts, slow economic growth.

Scenario D – High Demand/Reduced Imports:

Severe climate change impacts, high regulatory impacts, and high economic growth.

Summary Matrix of IRP Scenario Results*



**Max Magnitude of Supply Gap (TAF) and Frequency (%) of a Net Shortage in 2045*

2020 IRP Needs Assessment Scenarios

**Max Magnitude of
Supply Gap (TAF) and
Frequency (%) of a Net
Shortage in 2045**

Scenario A

0 AF

No additional resource development required

Scenario C

up to
200
TAF
5%

Minimal resource development required

Scenario B

up to
300
TAF
5%

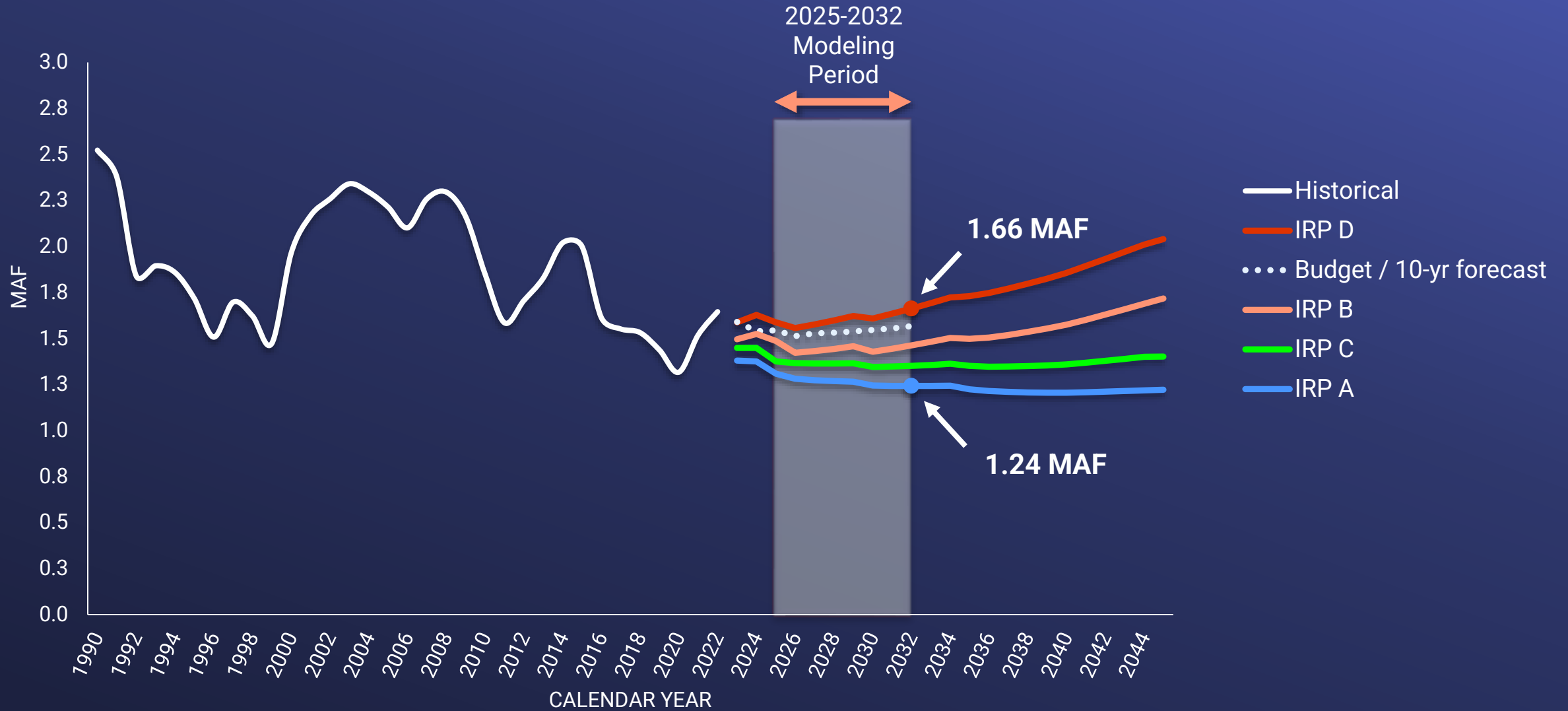
Moderate resource development required

Scenario D

up to
1,220
TAF
66%

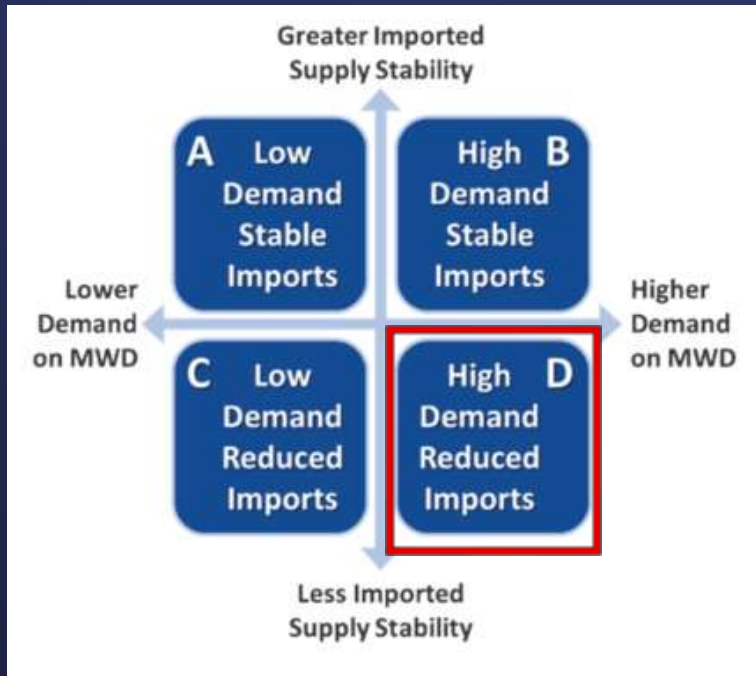
Significant resource development required

Projected Water Demands



Resource Portfolios Example

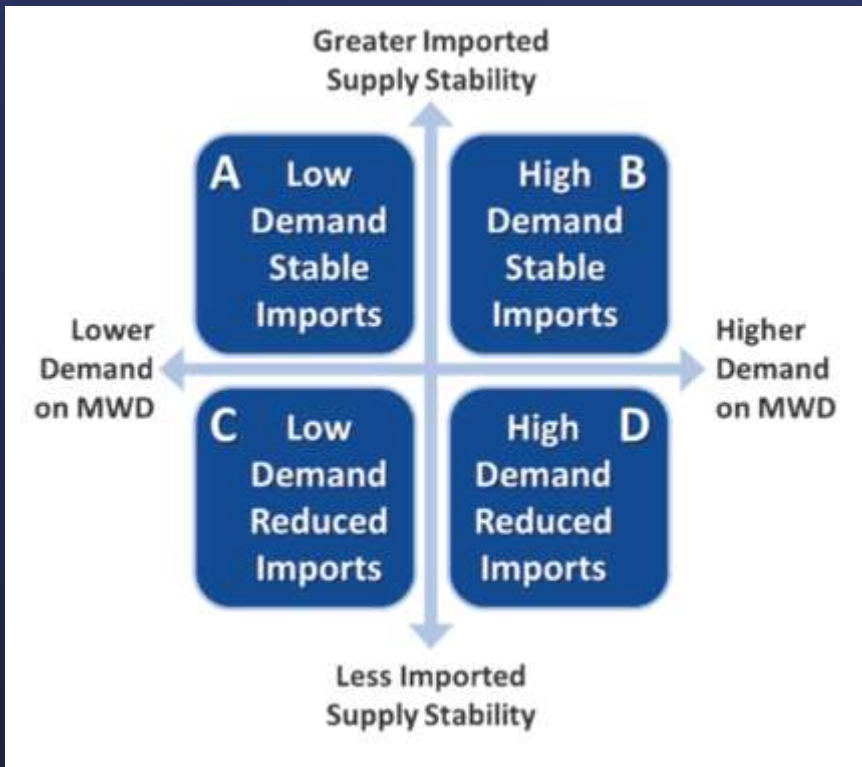
IRP Scenario D



	Additional storage: 0 AF		Additional storage: 250 TAF		Additional storage: 500 TAF	
	Storage	Core Supply	Storage	Core Supply	Storage	Core Supply
2025	0 TAF	100 TAF	23 TAF	100 TAF	45 TAF	100 TAF
2026	0 TAF	150 TAF	45 TAF	150 TAF	91 TAF	150 TAF
2027	0 TAF	150 TAF	68 TAF	150 TAF	136 TAF	150 TAF
2028	0 TAF	150 TAF	91 TAF	150 TAF	182 TAF	150 TAF
2029	0 TAF	150 TAF	114 TAF	150 TAF	227 TAF	150 TAF
2030	0 TAF	150 TAF	136 TAF	150 TAF	273 TAF	150 TAF
2031	0 TAF	300 TAF	159 TAF	200 TAF	318 TAF	200 TAF
2032	0 TAF	300 TAF	182 TAF	200 TAF	364 TAF	200 TAF
2033	0 TAF	300 TAF	205 TAF	200 TAF	409 TAF	200 TAF
2034	0 TAF	300 TAF	227 TAF	200 TAF	455 TAF	200 TAF
2035	0 TAF	300 TAF	250 TAF	200 TAF	500 TAF	200 TAF
2036	0 TAF	450 TAF	250 TAF	400 TAF	500 TAF	400 TAF
2037	0 TAF	450 TAF	250 TAF	400 TAF	500 TAF	400 TAF
2038	0 TAF	450 TAF	250 TAF	400 TAF	500 TAF	400 TAF
2039	0 TAF	450 TAF	250 TAF	400 TAF	500 TAF	400 TAF
2040	0 TAF	450 TAF	250 TAF	400 TAF	500 TAF	400 TAF
2041	0 TAF	650 TAF	250 TAF	550 TAF	500 TAF	500 TAF
2042	0 TAF	650 TAF	250 TAF	550 TAF	500 TAF	500 TAF
2043	0 TAF	650 TAF	250 TAF	550 TAF	500 TAF	500 TAF
2044	0 TAF	650 TAF	250 TAF	550 TAF	500 TAF	500 TAF
2045	0 TAF	650 TAF	250 TAF	550 TAF	500 TAF	500 TAF

Resource Portfolios Summary

IRP Scenarios



Core Supply Needs in 2032			
	No Storage	250 TAF Storage (182 TAF storage in 2032)	500 TAF Storage (364 TAF storage in 2032)
IRP A	0 TAF	0 TAF	0 TAF
IRP B	50 TAF	30 TAF	30 TAF
IRP C	15 TAF	15 TAF	15 TAF
IRP D	300 TAF	200 TAF	200 TAF

Resource Unit Costs

Resource	Range from sources	Modeled Unit Cost ¹
Core Supply ²	Carlsbad Desal = \$2,975/AF Santa Barbara Desal = \$3,126/AF Venture Water Pure = \$3,266/AF	\$3,000/AF
Storage	DVL ³ = \$269/AF (\$3.8B @ 30yrs 4%, 800 TAF capacity) Chino Basin Storage Study ⁴ ~ \$275-325/AF	Annual cost = \$300/AF storage capacity
Flex Supply ⁵	SWP Transfer = \$605/AF Yuba Accord Transfer = \$400/AF	\$600/AF

¹ 2023 unit costs are escalated at 3% to future costs

² From SDCWA publication dated February 2023, Santa Barbara Recycled Water Assessment Oct 2022 Staff Report

Ventura PW cost was estimated by Metropolitan staff assuming \$206 million in total capital costs, \$6.7 million in annual O&M costs, and \$18.2 million in grants, with the remaining capital costs funded from the EPA's WIFIA loan program at a rate of 2.5% for a 30-year term. Sources: 2019-Ventura-Water-Supply-Projects-Final-EIR (civicplus.com); 3069 (ca.gov). Prices were escalated to 2023 dollars from 2019 with 3% escalator.

³ Annual financing cost per AF of capacity constructed based on project cost in today's dollars of \$3.8 billion. Assumes 30-year financing at 4%.

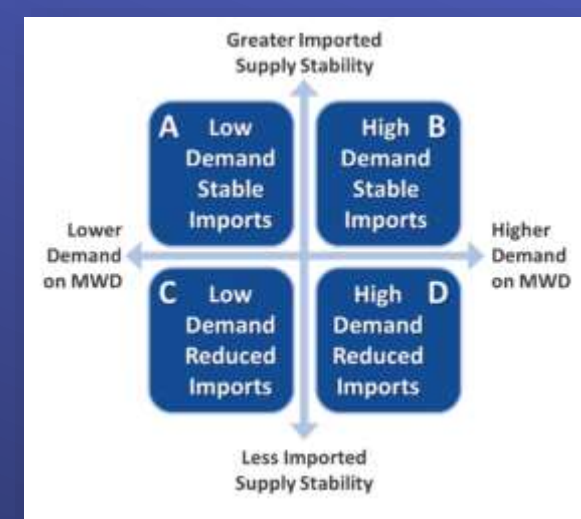
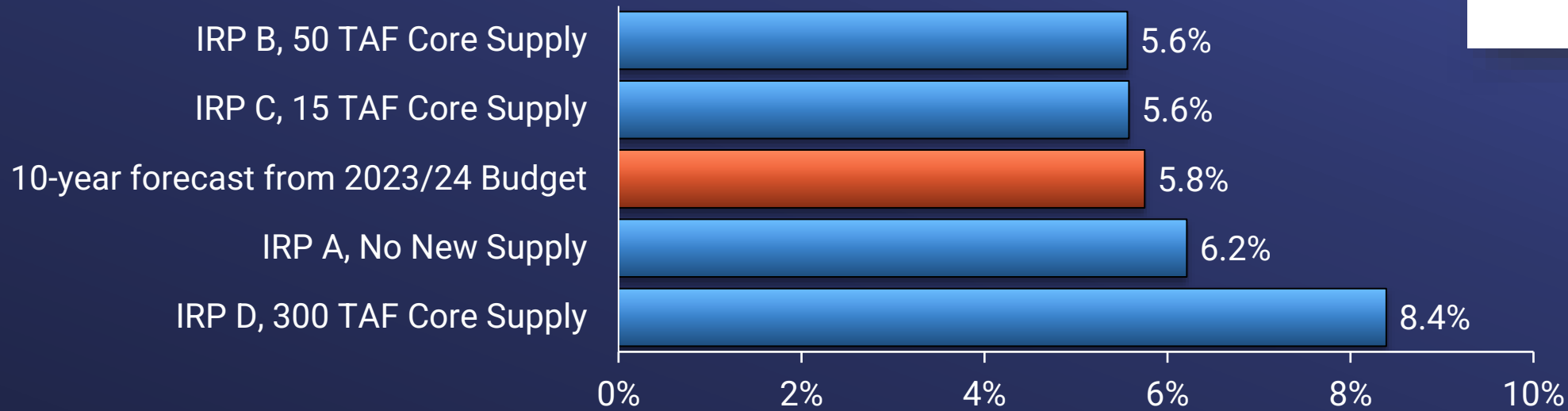
⁴ Annual financing cost per AF of capacity constructed and projected annual O&M costs based on average of Chino Basin Storage Study options. Assumes 30-year financing at 4% for capital costs

⁵ SWP and Yuba Accord transfers based on 2022 prices escalated to 2023 dollars.

Overall Rate Impact of IRP Scenarios

No additional storage option

Overall Annual Rate Increases (%)
2025-2032*



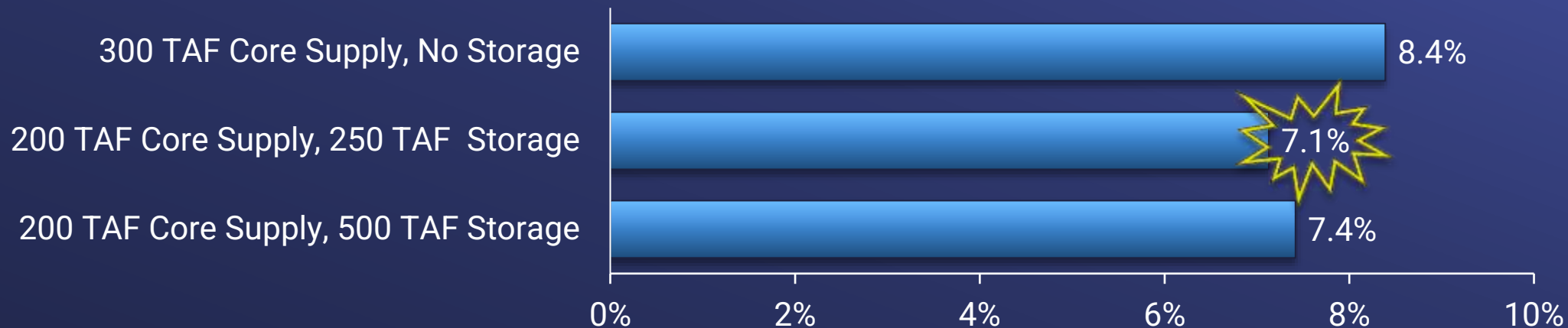
Observations:

1. Developing core supply to meet demands identified in IRP D will have the largest rate impacts.
2. The rate impact shown in IRP A results from lower water sales.

*Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.

Effect of Adding Storage for IRP D Scenario

Overall Annual Rate Increases (%)
2025-2032*



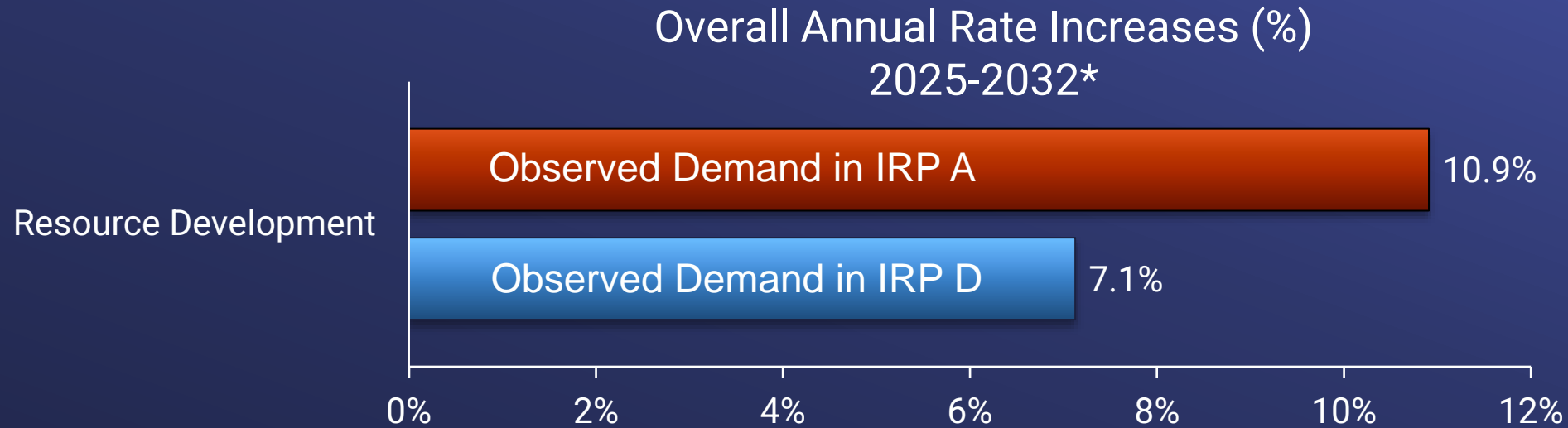
Observations:

To meet the projected water demand in IRP D, development of 200 TAF of core supply and 250 TAF of storage capacity has lower rate impacts (7.1%) than the no storage and 500 TAF storage options.

*Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.

Sensitivity Analysis for Lower Demand

Plan for IRP D Resource Needs with 250 TAF Storage but realize the lower water demands from IRP A



Observations:

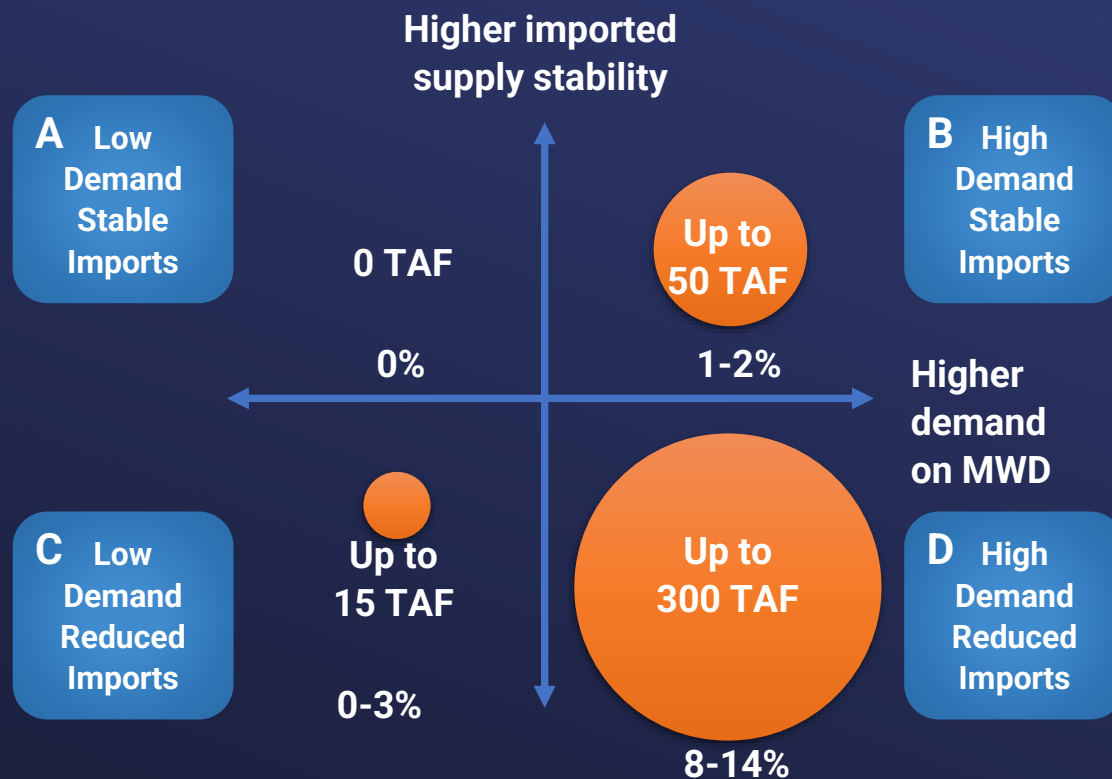
If water demand does not materialize as projected in IRP D and instead occurs as projected in IRP A, development of core supply and storage to meet projected demand in IRP D could result in substantially higher rates.

*Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.

Net Shortage Assessment in 2020 IRP

Plan for IRP A (no additional resources developed) but experience the higher demands from IRP D.

Magnitude (TAF) and Frequency (%)
of a Net Shortage in Forecast Year 2032



1. Water supply shortages will incur economic costs
2. What level of resource development does the Board want to pursue in light of reliability, resilience, and affordability objectives?

Estimated Capital Investment

Examples for IRP D Scenario by 2032

Resource Development		Estimated Capital *
Core Supply	Storage Capacity	
200 TAF	250 TAF **	\$5.5 Billion – \$6.0 Billion

Engineering challenge

1.5x PWSC
completed by 2032

~1/3 of Diamond
Valley Lake
completed by 2032

Financial challenge

- Available revenue bond capacity
- Cashflow constraints for debt coverage

* Assumptions: \$3,000/AF for core supply (2023 \$), 50% costs from O&M
\$300/AF for storage capacity (2023 \$), 0-50% costs from O&M
Capital financing @ 4%, 30-yr, 2% debt issuance cost

** 182 TAF in 2032

CAMP4W process

Example of projects to consider

- Pure Water of Southern California Project
- Delta Conveyance Project
- Sites Reservoir
- PVID Land Purchases

Can we meet the additional supply needs in IRP D with conservation?

Current Conservation Initiatives

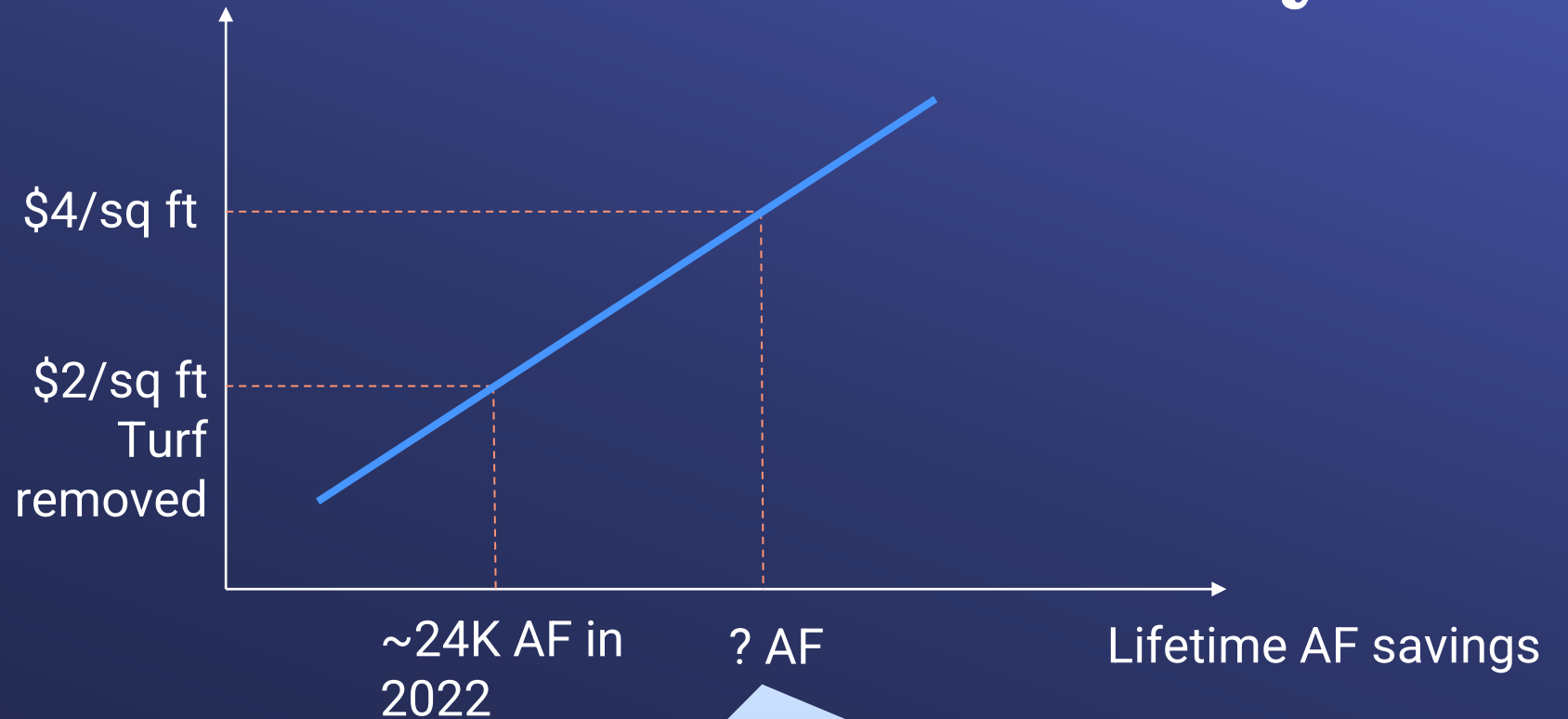
Most Utilized in 2022

Devices	Water Savings (GPD)	Life (Yrs)	Life AF Savings	Rebate	Rate (\$/AF)	2022 Quantity (Units)	Total Lifetime AF Savings	Total \$
	A	B	$C = A \times B / 892.74^*$	D	$E = D / C$	F	$G = C \times F$	$H = D \times F$
High Efficiency Nozzles	2.36	5	0.0132	\$2	\$152	22,312	295 AF	\$44,624
High Efficiency Washer	29.32	14	0.4598	\$85	\$185	11,762	5,408 AF	\$999,770
High Efficiency Toilets	9.37	20	0.2100	\$40	\$190	22,625	4,752 AF	\$905,000
Showerheads	3.76	5	0.0211	\$12	\$570	5,029	106 AF	\$60,348
Flow Control	7.50	10	0.0840	\$5	\$60	5,223	439 AF	\$26,115
Weather Based Irrigation Controller	36.99	10	0.4143	\$80	\$193	9,337	3,869 AF	\$746,960
Weather Based Controller by Station	15.98	10	0.1790	\$35	\$196	19,264	3,448 AF	\$674,240
Commercial Turf Replacement	0.12	30	0.0041	\$2	\$494	2,933,030	11,883 AF	\$5,866,060
Residential Turf Replacement	0.09	30	0.0032	\$2	\$631	3,814,405	12,081 AF	\$7,628,810
Rain Barrel	1.70	5	0.0095	\$35	\$3,676	2,452	23 AF	\$85,820
Total / Weighted Average					\$403 / AF		42,301	\$17,037,747

* 892.74 is conversion factor for GPD to AFY

Conservation Price Elasticity

How much conservation is available and at what price?



- Insufficient data on availability of additional conservation and at what price.
- Further study needed to identify the available capacity and price elasticity of conservation.

Nature of Conservation Investment

Front-loaded expenditures for water savings over the lifetime

Example: Meeting IRP D core supply needs (300 TAF) with turf removal

- Assumes 300 TAF of conservation is available at \$4/sq ft (or ~\$1,000/AF of lifetime savings)
- Cumulative savings must grow by 37,500 AF/yr from 2025 - 2032 to meet 2032 target of 300 TAF
- \$1,000 saves 1 AF of water over the next 30 years, or 0.033 AF/year. \$30,000 saves 1 AF/yr for the next 30 yrs.
- To achieve 300 TAF of annual water savings by 2032, annual conservation expenditure would be ~\$1.1B/yr through 2032

Annual Expenditures and Water Savings for Turf Removal

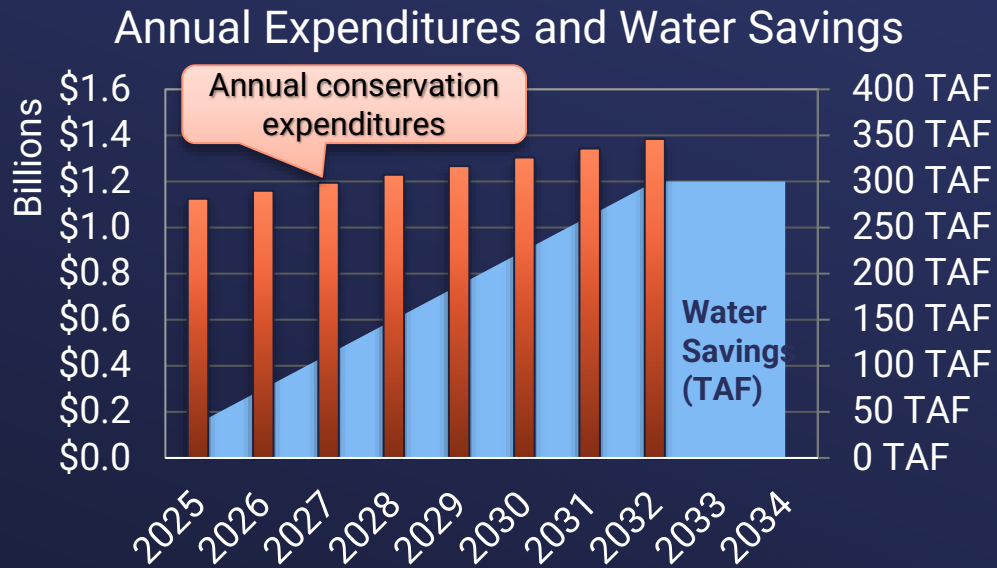


Nature of Conservation Investment ...cont.

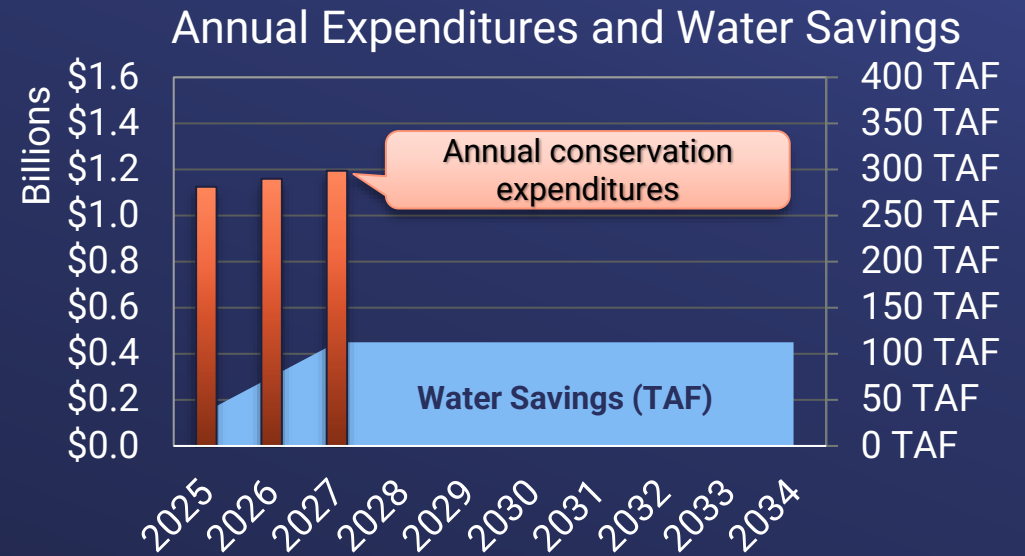
Front-loaded expenditures for water savings over the lifetime

If the water demand are lower than the projected, or the water supply situation improves, MWD can adjust or remove the conservation program along the way.

ORIGINAL CONSERVATION PLAN



ADJUSTED CONSERVATION PLAN



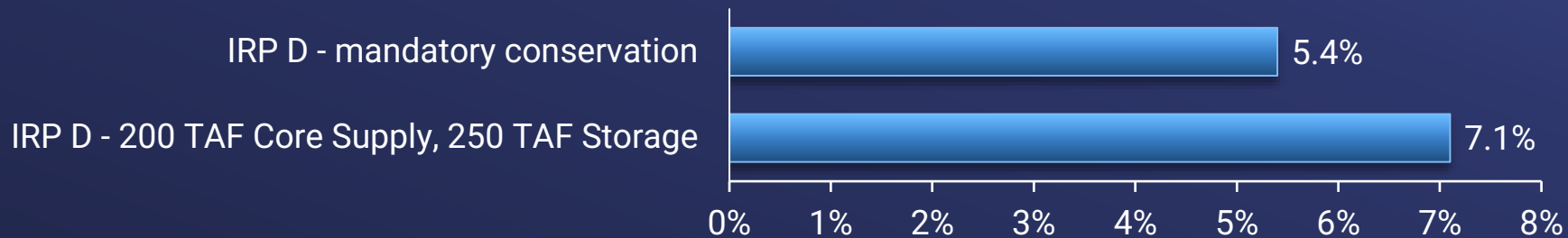
Mandatory Conservation Scenario

Mandatory conservation in response to long-term structural imbalance between supply and demand

Scenario Assumptions

- Assumes regulatory action mandating conservation
- No new resource development – new supply or incentivized conservation
- Mandatory conservation is no cost to Metropolitan (\$0/AF in the model)
- Begin with projected demand in IRP D and reduce gradually to meet 2032 resource development goal - 300 TAF

Overall Annual Rate Increases (%) 2025-2032*



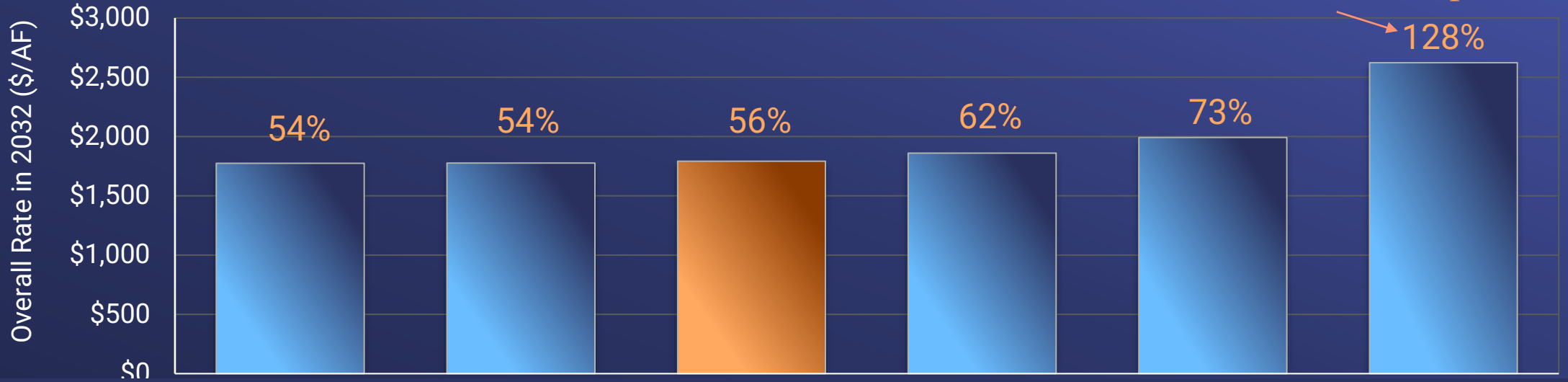
Observations:

1. Lowest rate impact as there is no financial cost to Metropolitan for mandatory conservation. However, member agencies and their customers will incur compliance and enforcement costs.
2. What are the implications of mandatory conservation on economic growth and quality of life for region?

**Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.*

Projected 2032 Overall Rate by IRP Scenario

Cumulative overall rate increase from 2024 adopted rate



	IRP B, No Storage	IRP C, No Storage	10-year forecast from 2023/24 Budget	IRP A, No Storage	IRP D, 250 TAF Storage	Plan for IRP D, Observed IRP A Demand
Core Supply	30 TAF	15 TAF	N/A	0	200 TAF	200 TAF
Storage	0	0	N/A	0	182 TAF	182 TAF
Water Demand	IRP B 1.46 MAF	IRP C 1.35 MAF	Budget 1.58 MAF	IRP A 1.24 MAF	IRP D 1.66 MAF	IRP A 1.24 MAF

*Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.

Long-Range Finance Plan Needs Assessment

Capital Financing Considerations

Development of Financial Plans

- A financial plan needs to consider all of Metropolitan's key financial tenets for success:
 - Affordability
 - Flexibility
 - Compliance with financial policies
 - Financial sustainability
- Feasibility of financial plans is determined by:
 - Fully-funding Metropolitan's CIP
 - Maintenance of minimum credit rating levels
 - Meeting debt service coverage ratio targets
 - Meeting liquidity / reserve targets

Primary means of funding capital

	Benefits	Considerations
Grant Funding	<ul style="list-style-type: none">• “Free” money -- often the cheapest form of funding	<ul style="list-style-type: none">• Typically paid on a reimbursement basis• Often contain a local-match requirement• Federal grants may “federalize” the project receiving grant funds
PAYGO Funding	<ul style="list-style-type: none">• Flexible• Avoids bond interest expense; but has an opportunity cost of investment earnings• No contractual obligations with lenders• Lowers rates over time	<ul style="list-style-type: none">• Project costs borne entirely by existing or past customers• Project delivery delays may occur if insufficient PAYGO funding exists
Debt Funding	<ul style="list-style-type: none">• Allows acceleration of future funds for project capital funding• Intergenerational equity	<ul style="list-style-type: none">• Cost of borrowing is interest• Contractual obligations to lenders• Reduced future flexibility

Debt Financing Overview

Metropolitan has or can issue several types of debt:

- Revenue Bonds (primary means of debt financing)
- General Obligation Bonds (historically issued for SWP costs)
- Certificates of Participation (JPA financings and/or if Revenue Bond capacity is unavailable)

When issuing debt, Metropolitan takes into consideration several factors:

- Amount and timing of when debt is needed
- Impact on credit ratings
- Current market interest rates
- Compliance with rate covenants and additional bonds tests
- Overall Metropolitan debt capacity

Rating Agency Considerations

- Rating are perhaps the single-most important element of determining borrowing costs
- With strong credit ratings, MWD borrows at cost- effective interest rates
- Ratings are assigned by independent Rating Agencies that analyze the fundamentals of a debt issuance representing the likelihood of timely repayment of debt service
- Each Rating Agency has its own specific criteria to measure creditworthiness

MWD's Credit Ratings			
	S&P	Moody's	Fitch
Senior Lien	AAA	Aa1	AA+
Subordinate Lien	AA+	-	AA+
GO Bonds	AAA	Aaa	-

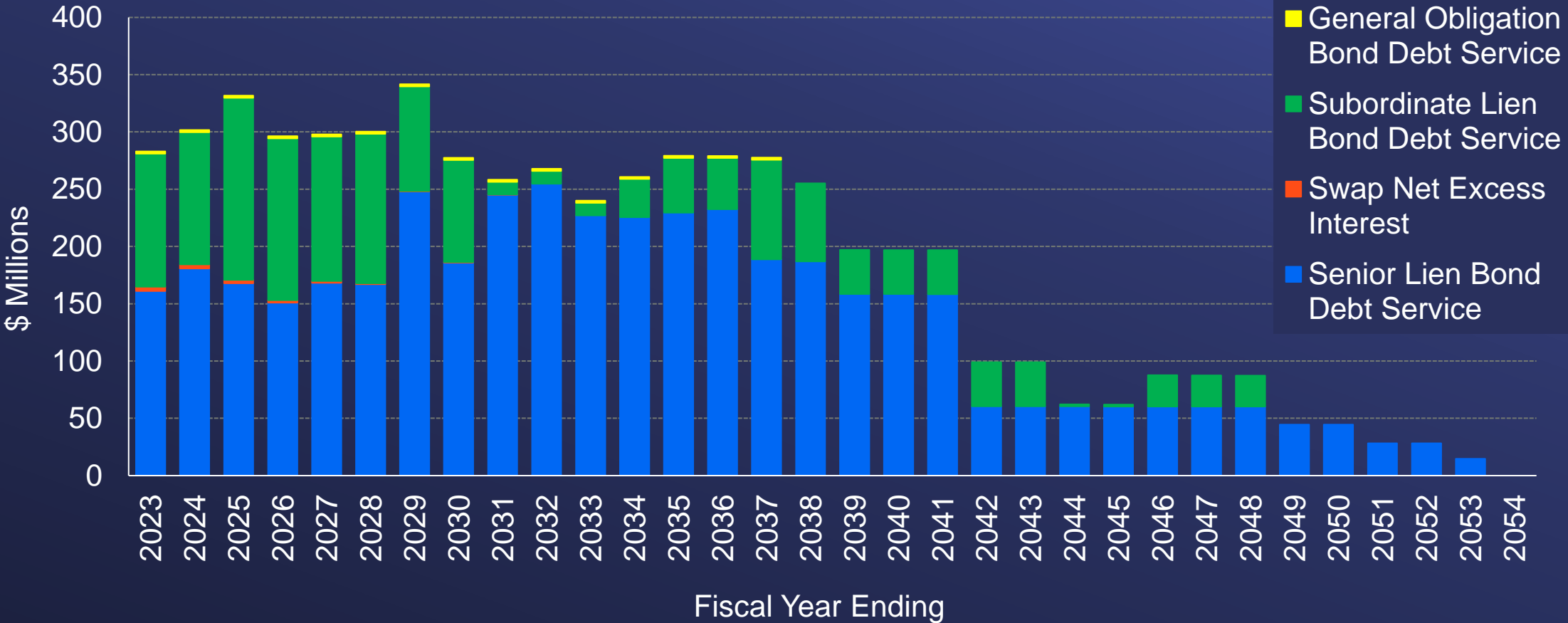
S&P's Water Utility Scorecard			
Enterprise Risk Profile (50% of Final Rating)		Financial Risk Profile (50% of Final Rating)	
Factor	Weight	Factor	Weight
Economic Fundamentals	45%	All-in Coverage	40%
Industry Risk	20%	Liquidity & Reserves	40%
Market Position	25%	Debt & Liabilities	10%
Operational Management	10%	Financial Management	10%

Debt Service Coverage

Debt service coverage is important to ratings, compliance with legal covenants, and financial health

- Debt service coverage is an important calculation measuring the robustness of Metropolitan's ability to repay debt
 - Debt service coverage is calculated as $\frac{\text{Net Operating Revenues}}{\text{Debt Service}}$
 - Fixed charge coverage is calculated as $\frac{\text{Net Operating Revenues}}{\text{All Debt Service} + \text{SWP Capital Payments}}$
 - Metropolitan targets debt service coverage of 2.0x and fixed charge coverage of 1.2x to support maintenance of strong credit ratings
- Additional Bonds Test ("ABT")
 - In order to issue new money debt, Metropolitan must demonstrate that it will at least meet certain minimum debt service coverage ratios post-issuance

Metropolitan Existing Debt Portfolio



Other Funding Options & Approaches

	Description
Federal and State Grants	<ul style="list-style-type: none"> • Grant funds can potentially be used to offset costs that otherwise would be recovered through rates and charges • Most grants are dispensed on a reimbursement basis; hence, cashflow liquidity is a potential concern for many smaller governmental entities • Some federal and state programs require a local match, which may vary by program but generally range between 10 percent to 50 percent of the eligible project costs for reimbursement • Some federal and state programs provide a matching subsidy to the ultimate customer, such as with conservation programs
Federal and State Loans	<ul style="list-style-type: none"> • WIFIA funding provides low-cost, flexible funding for eligible projects • State loans such as SRF and IEDB loans can provide low-cost funding • Benefits and considerations should be weighed carefully
Voter Approved General Obligation Bonds	<ul style="list-style-type: none"> • Voter-approved general obligation bond would provide property tax secured debt to fund capital projects • Alleviate future pressure on rates
Set MWD Property Tax Rate to Fund a Higher Targeted Amount of SWP Costs	<ul style="list-style-type: none"> • MWD is authorized to levy a property tax to fund State Water Contract (SWC) obligations • Current rate of 0.0035% is the lowest tax rate ever levied but only fund 30% of MWD's SWC expenditures • MWD can explore options of funding more SWC costs with property taxes, as originally intended and approved by voters

Long-Range Finance Plan Needs Assessment

Conclusions & Next Steps

LRFP Needs Assessment

Conclusions

- Developing additional core supply and storage to meet higher supply reliability identified in Scenario D will result in higher rate increases than the adopted FY 2022/23 and FY 2023/24 budget 10-year forecast
- Underdevelopment of water supply resources while experiencing high water demand will result in water supply shortages
 - Up to 300 TAF with 10-23% probability of shortage in Scenario D
 - Water supply shortages will incur economic costs
- Development of core supply and storage to meet projected demand could result in substantially higher rates if future water demand does not materialize

LRFP Needs Assessment

Conclusions... cont.

- A preliminary estimate places annual conservation costs at greater than \$1 billion per year through 2032 to be 100% reliable under IRP D scenario
 - Metropolitan's ability to fund this level of conservation is questionable, given financing limitations and potential rate burdens
 - Moreover, it is not clear if the amount of conservation required can be realized at the incentive level assumed
- Investing in conservation also locks in lower water demands that will increase water rates
- However, unlike the construction of additional resources conservation spending does not create a new fixed cost so if Metropolitan observes a natural reduction in demands conservation spending can be reduced
- Mandatory conservation would result in the lowest average rate impacts for IRP D scenario, but member agencies would incur compliance and enforcement costs

LRFP Needs Assessment

Conclusions... cont.

- In contrast, capital project investments for core supply and storage can:
 - (1) take many years to complete
 - (2) have significant upfront costs (although typically can be bond financed to spread these costs over time)
 - (3) often have ongoing O&M expenses
 - (4) Incur refurbishment and replacement costs over time
- However, capital project investments typically offer predictable supply reliability enhancement opportunities that can be indispensable in periods of protracted drought

Next Steps: LRFP & CAMP4W Process



- Determine what level of resource development the Board wants to pursue considering resiliency, reliability, financial sustainability, affordability and equity objectives
- Evaluate rate impacts for specific projects and portfolios of projects that meet the Board-approved reliability objectives
- Through PWSC lens, evaluate business model options and financing strategies that help to meet Board objectives

LRFP Needs Assessment

Updated LRFP Timeline

- August 2023
 - Draft LRFP Needs Assessment introduced at FAIRP
- September 2023
 - Member Agency Manager Meeting
 - CAMP4W workshop on LRFP & business model
- October 2023
 - Incorporate feedback and bring revised LRFP Needs Assessment to FAIRP & Board
- October 2023 & beyond
 - Continued feedback loop with CAMP4W & finalize LRFP in FY 2024/25

