

LONG-RANGE LOCAL VS. IMPORTED WATER ECONOMICS

Board of Directors

October 12, 2023



What are the goals for today's special Board meeting:

1. Understand current projections for potential Lake Hodges dam replacement
 - Timeframe
 - Cost
 - Potential financing
 - Per AF cost of water yield
2. Long-range San Diego County Water Authority (SDCWA) projections per AF
3. Understand Olivenhain Municipal Water District's (OMWD) brackish water desalination projections
 - Timeframe
 - Cost
 - Per AF cost of water yield
4. SDCWA efforts to re-shape their cost recovery & impacts on local water projects
5. Non-economic benefits of local water

Lake Hodges Dam Replacement

- Santa Fe Irrigation District (SFID) and San Dieguito Water District (SDWD) are responsible for 25% of the replacement cost of Lake Hodges Dam.
- Based upon local water-sharing agreements between SFID and SDWD, SFID would be responsible for approximately 14.3% of any total cost of replacement, while SDWD would be responsible for 11.2%.
- Though there are significant legal implications that have yet to be determined, assuming that these percentages for the replacement/rehabilitation of the dam were to remain, the question is:

Key Question: Will local water per acre-foot (AF) still be cheaper than imported water based on all factors to consider/known currently?

Lake Hodges Dam Replacement

- Based on the City's estimates, it will be approximately 10-12 years before a new dam can be constructed. This extensive timeline is based on California Environmental Quality Act compliance, planning, bidding, and construction, among other items (includes Army Corp permit – longest process).
- Some of the most significant inputs that need to be projected are:
 - Replacement cost of the dam in current dollars;
 - Annual inflation rate for capital projects to determine cost in future dollars;
 - SFID's financing strategy / requirements for the cost of the new dam (grants, financing type, amortization period, etc.);
 - Estimated annual yield in AF when new dam is in place;
 - Operation and maintenance costs for pumping for SFID for Lake Hodges water, etc.;
 - Long-range imported water inflation rate for SDCWA.

Lake Hodges Dam Replacement – Preliminary Assumptions

- The cost of a new dam, downstream from the current Lake Hodges' dam, is the City and DSOD's preferred alternative to restore Lake Hodges' capacity.
- Per DSOD's recommendation, this would be a roller compacted concrete dam, the same as the construction of the San Vicente dam raise & Olivenhain dam.
- The City has estimated that construction of Lake Hodges' dam would cost approximately \$275 million in 2023 dollars.
- Assuming construction design, planning, permitting, and construction would take 12 years and an average inflation rate of 3% per year for construction and soft costs; the cost would approximately \$390 million.
- SFID and SDWD's financial obligation would be 25% of this amount or \$97.5 million. Of this amount, SFID would be responsible for 57.33% or \$55.9 million, with SDWD responsible for the remaining \$41.6 million. This can be considered the "mid" scenario.
- A number of other inflationary factors may increase (i.e., continued high levels of inflation, high demand for capital projects, and a change in construction estimates) or decrease (i.e., reduced inflation, continued down economy) this cost significantly. For illustrative purposes, a "low" scenario of 25% less than this estimate can be considered (totaling \$295 million in future dollars or \$42.3 million for SFID), with a 50% increases in costs for a "high" scenario (totaling \$590 million in future dollars or \$84.5 million for SFID).

Lake Hodges Dam Replacement - Financing

- The City of San Diego, as the owner of the dam, will be responsible for establishing the vehicle used to finance the construction of the new dam.
- How SFID, SDWD, and SDCWA will be involved in this vehicle is to be determined, including whether that be a jointly established financing authority, a pledge for payments, etc. Regardless of the vehicle, the financial responsibility for all participating entities will not change.
 - Planning costs may be financed through debt
- The most conservative approach to determining SFID's financial responsibility would be to assume that no grant funding would be available to offset costs (though grant funding would be aggressively sought by all parties).

Lake Hodges Dam Replacement - Financing

- The typical financing opportunities that currently exist for replacement of the dam and their respective attributes are as follows:

Revenue Bond

Amortization	30 years
Interest Rate*	30yr Treasury Bond
Add'l Considerations:	High issuance costs, higher reserves, capitalized interest

State Revolving Fund Loan / Federal Program (i.e. Corps of Engineers)

Amortization	35 years
Interest Rate*	0.5% - 1.0% less than Revenue Bond
Add'l Considerations:	Low issuance costs, lower reserves, capitalized interest

** Dependent on current market, credit rating, and continued tax-exempt status*

- The most advantageous borrowing strategy would be to maximize State and Federal lending programs, including state revolving fund (SRF) loans and programs such as the current Corps Water Infrastructure Financing Program (CWIFP). These loans have extended amortization terms, lower interest rates, and lower issuance costs.
- The other financing option is a typical revenue bond, which is secured by the cash flows from the entity that issues the debt. However, the amortization term is typically capped at 30 years, has a higher interest rate, and has additional caveats to issuance including higher required reserves and issuance costs.

Lake Hodges Dam Replacement - Financing

- With the typical inability for SRF and Federal programs to fully finance a project, in addition to their popularity, the projection for local water costs are based on financing being a blend of 50% SRF and 50% revenue bonds to be conservative.
- The estimated interest rates based on current conditions and a AAA rating is 5.0% for tax-exempt revenue bonds and 2.5% for SRF. We can consider this a “mid” scenario even though current interest rates are at a multi-decade high due to a flat yield curve.
- A “low” scenario would be 3.5% for revenue bonds and 1.75% for SRF, and a “high” scenario of 6.0% for revenue bonds and 4.0% for SRF.
 - However, please note that the “mid” and “high” scenarios would more than likely be economically refunded at some point for a lower interest rate and maintaining these rates for the life of the bonds in these scenarios are highly unlikely

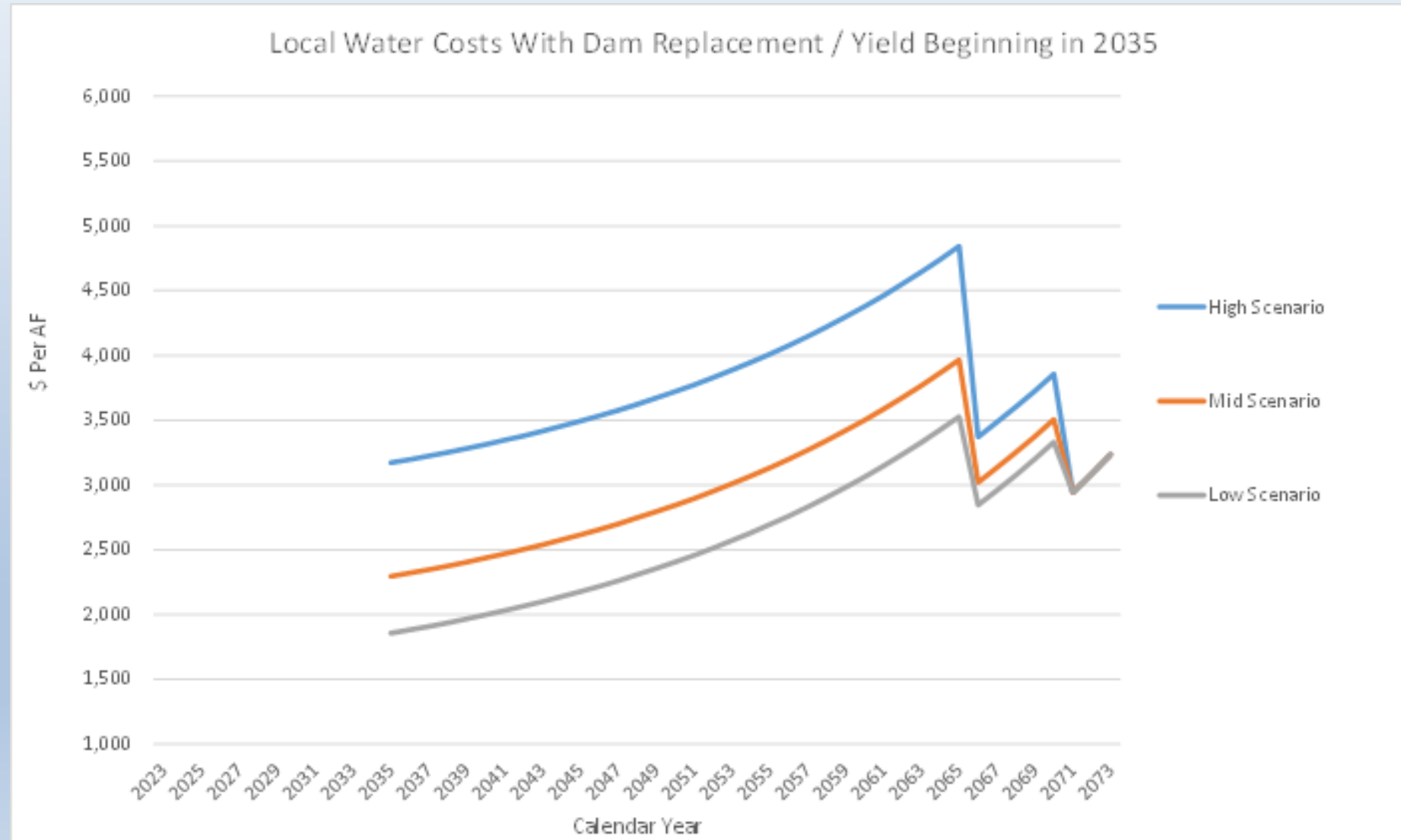
Lake Hodges Dam Replacement – Local Water Yield & Costs

- With the replacement of the dam, it can be estimated that the previous full elevation of 315' would be restored and that the Districts' (SFID and SDWD) storage would be 5,000 AF.
- The average annual inflow for Lake Hodges between 2009 and 2019 is approximately 10,500 AF – of which, the Districts would be entitled to 5,250 AF & SFID would be entitled to 3,010 AF.
- To yield this local water amount, the District's will be required to pump local water through both the Cielo and San Dieguito pump stations & to pay for regular operation and maintenance costs for Lake Hodges dam.
 - The most recent costs per AF for local water transportation was approximately \$265 per AF, which is projected to increase 5% per year due to electricity and repair costs.
- Additionally, the Districts have been paying a combined \$135,000 per year for operation and maintenance costs per year to the City of San Diego, which is projected to increase 3% per year.

Lake Hodges Dam Replacement

		2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
LOCAL WATER SCENARIOS											
Low Scenario	SRF Bond Debt Service	\$ 1,582,017	\$ 1,582,017	\$ 1,582,017	\$ 1,582,017	\$ 1,582,017	\$ 1,582,017	\$ 1,582,017	\$ 1,582,017	\$ 1,582,017	\$ 1,582,017
	Revenue Bond Debt Service	2,378,486	2,378,486	2,378,486	2,378,486	2,378,486	2,378,486	2,378,486	2,378,486	2,378,486	2,378,486
	O&M	192,478	198,252	204,200	210,326	216,635	223,134	229,828	236,723	243,825	251,140
	Pumping / Maintenance	1,432,465	1,504,088	1,579,292	1,658,257	1,741,170	1,828,228	1,919,640	2,015,622	2,116,403	2,222,223
	Total	\$ 5,585,445	\$ 5,662,842	\$ 5,743,994	\$ 5,829,085	\$ 5,918,307	\$ 6,011,865	\$ 6,109,970	\$ 6,212,847	\$ 6,320,730	\$ 6,433,865
	AF of Local Water Yield	3,010	3,010	3,010	3,010	3,010	3,010	3,010	3,010	3,010	3,010
	\$/AF	\$ 1,856	\$ 1,881	\$ 1,908	\$ 1,937	\$ 1,966	\$ 1,997	\$ 2,030	\$ 2,064	\$ 2,100	\$ 2,137
Mid Scenario	SRF Bond Debt Service	\$ 2,109,355	\$ 2,109,355	\$ 2,109,355	\$ 2,109,355	\$ 2,109,355	\$ 2,109,355	\$ 2,109,355	\$ 2,109,355	\$ 2,109,355	\$ 2,109,355
	Revenue Bond Debt Service	3,171,314	3,171,314	3,171,314	3,171,314	3,171,314	3,171,314	3,171,314	3,171,314	3,171,314	3,171,314
	O&M	192,478	198,252	204,200	210,326	216,635	223,134	229,828	236,723	243,825	251,140
	Pumping / Maintenance	1,432,465	1,504,088	1,579,292	1,658,257	1,741,170	1,828,228	1,919,640	2,015,622	2,116,403	2,222,223
	Total	\$ 6,905,612	\$ 6,983,010	\$ 7,064,162	\$ 7,149,252	\$ 7,238,475	\$ 7,332,032	\$ 7,430,138	\$ 7,533,015	\$ 7,640,898	\$ 7,754,032
	AF of Local Water Yield	3,010	3,010	3,010	3,010	3,010	3,010	3,010	3,010	3,010	3,010
	\$/AF	\$ 2,294	\$ 2,320	\$ 2,347	\$ 2,375	\$ 2,405	\$ 2,436	\$ 2,468	\$ 2,503	\$ 2,539	\$ 2,576
High Scenario	SRF Bond Debt Service	\$ 3,164,033	\$ 3,164,033	\$ 3,164,033	\$ 3,164,033	\$ 3,164,033	\$ 3,164,033	\$ 3,164,033	\$ 3,164,033	\$ 3,164,033	\$ 3,164,033
	Revenue Bond Debt Service	4,756,971	4,756,971	4,756,971	4,756,971	4,756,971	4,756,971	4,756,971	4,756,971	4,756,971	4,756,971
	O&M	192,478	198,252	204,200	210,326	216,635	223,134	229,828	236,723	243,825	251,140
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	Total	\$ 9,545,947	\$ 9,623,344	\$ 9,704,496	\$ 9,789,587	\$ 9,878,810	\$ 9,972,367	\$10,070,473	\$ 10,173,350	\$ 10,281,232	\$ 10,394,367
	AF of Local Water Yield	3,010	3,010	3,010	3,010	3,010	3,010	3,010	3,010	3,010	3,010
	\$/AF	\$ 3,171	\$ 3,197	\$ 3,224	\$ 3,252	\$ 3,282	\$ 3,313	\$ 3,346	\$ 3,380	\$ 3,416	\$ 3,453

Lake Hodges Dam Replacement



SDCWA Untreated Increase Per AF

- The current long-range water price increases from SDCWA range between approximately 2.5-11+% each year until 2031
 - Provided by in SDCWA's most recent long-range finance plan from 2021
 - SDCWA has not updated since (detachment / roll-off implications / take-or-pay constrictions / desalination cost increases / fixed vs. variable discussions)

"All-In" Rate Adjustments									
	CY '23	CY '24	CY '25	CY '26	CY '27	CY '28	CY '29	CY '30	CY '31
1D - High	8.5%	9.5%	10.9%	9.9%	8.9%	5.7%	5.3%	3.4%	3.4%
2D - High	11.3%	9.7%	10.3%	7.5%	6.4%	5.2%	4.8%	4.4%	4.4%
3D - High	8.2%	9.2%	11.2%	9.7%	7.3%	6.6%	6.6%	3.7%	3.7%
1D - Low	5.9%	4.7%	4.8%	5.2%	3.7%	3.3%	3.3%	3.4%	3.4%
2D - Low	5.9%	3.7%	5.3%	4.5%	3.0%	3.5%	2.6%	2.7%	4.1%
3D - Low	6.2%	4.4%	6.0%	5.9%	3.5%	2.8%	2.8%	3.0%	3.0%

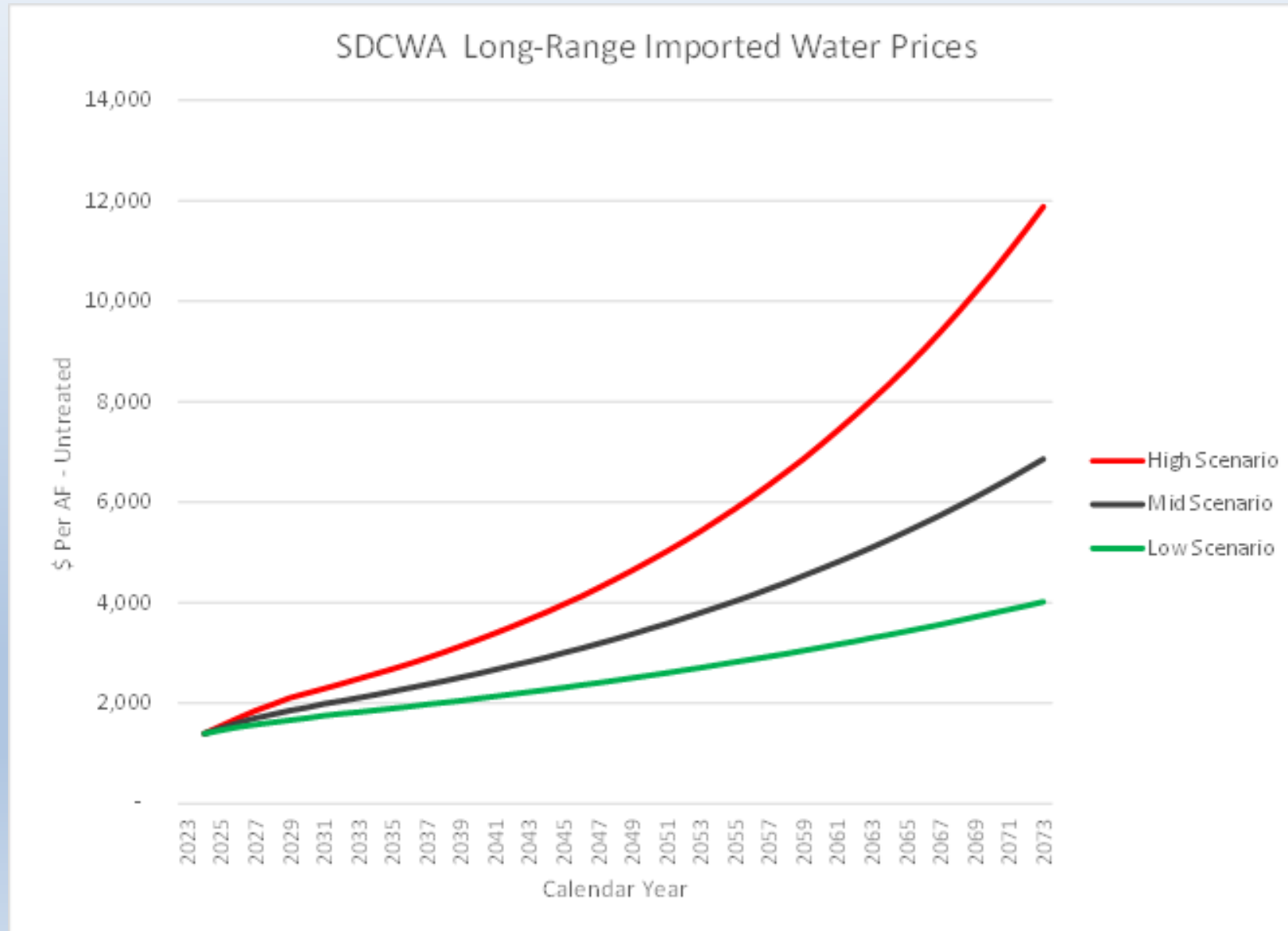
SDCWA Untreated Increase Per AF

- As seen during the 2024 SDCWA budget adoption, there continues to be a vague outlook for SDCWA rate increases and how they will be assessed to member agencies. However, the LRFPP has been used to develop projections through CY31.
- After this, a long run “high”, “mid”, and “low” scenarios are used to forecast imported water rates.
 - A long-run “high” rate increase scenario would be above long-run inflation rates (which average approximately 2-3% per year in the long-run), or 4%;
 - A “mid” rate increase scenario would be 3% (higher inflation); and
 - A “low” would be 2% (lower inflation).
- For context, the average increase per year for untreated / imported water from SDCWA over the last 50 years has been 6.5%. These increases over the last 50 years included advances in distribution, treatment, supply reliability, and other significant projects. With water reuse projects continuing to gain popularity, water treatment requirements advancing, population growth, aging infrastructure, enhanced regulatory requirements, and other cost drivers – there will be continuous price increases.
- At what point price increases are no longer feasible / affordable is unknown.

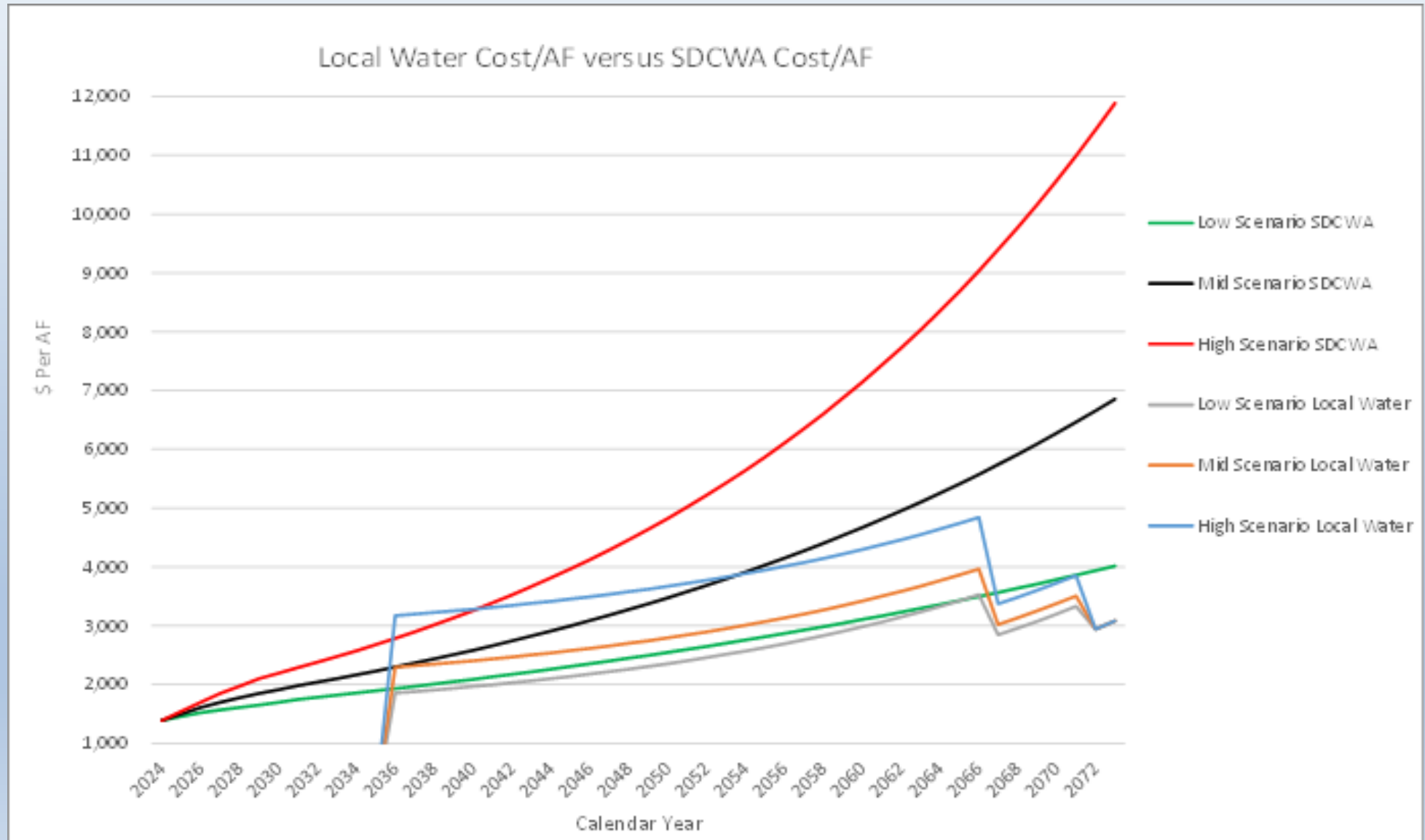
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SDCWA Untreated Increase Per AF



SDCWA Untreated Increase Per AF vs. Lake Hodges Scenarios



OMWD Brackish Groundwater Desalination

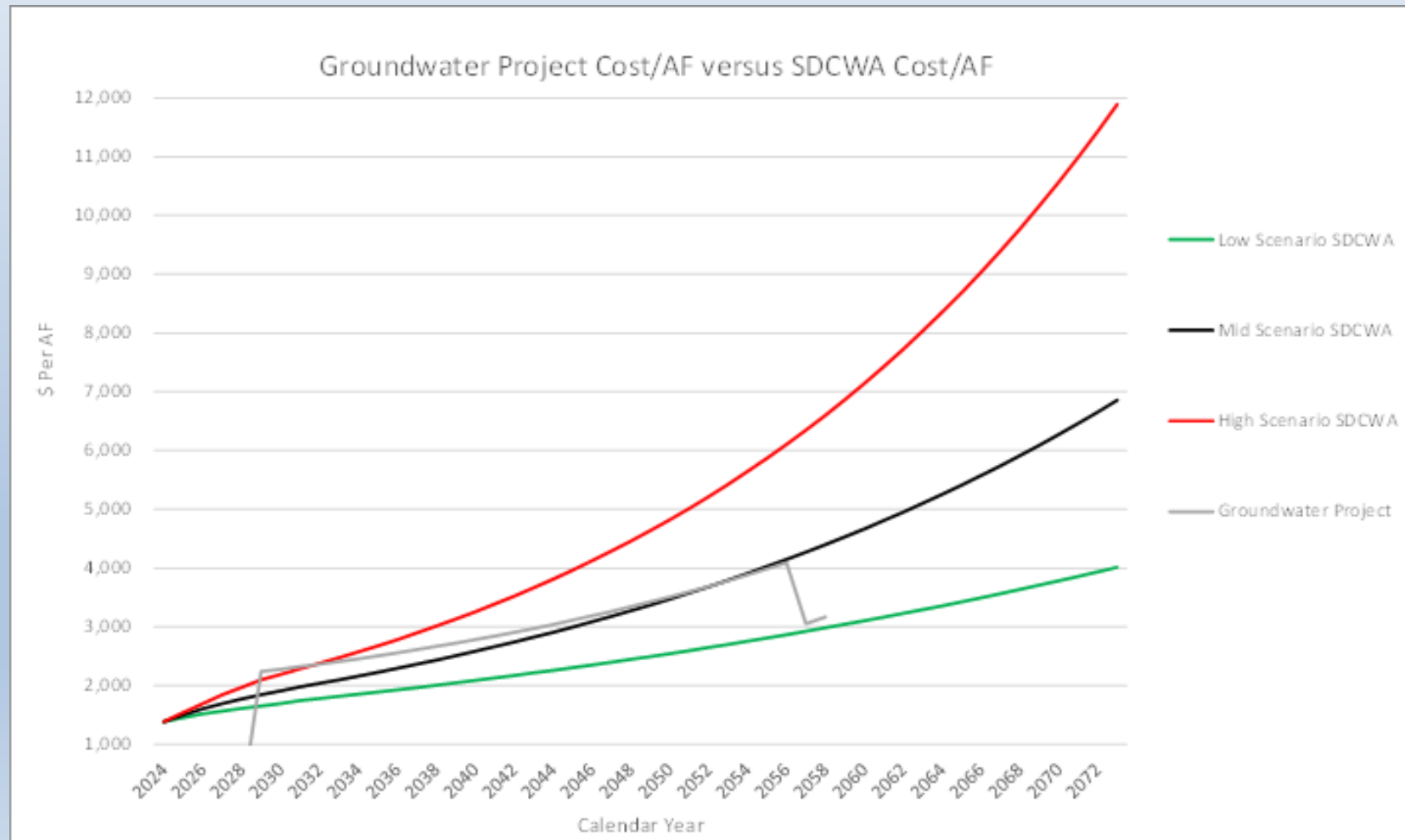
- The San Dieguito Valley Brackish Groundwater Desalination Project (“Groundwater Project”) is a potential local water source that OMWD is currently exploring.
- Since 2012 OMWD has been gathering data about the feasibility of a groundwater desalination project in the San Elijo and / or San Dieguito groundwater basins. Based on information gathered, a one to two million gallons per day of brackish water desalination project has been identified in the San Dieguito groundwater basin.
- OMWD estimates that the project could conservatively yield 1.5 MGD based on the technical studies and the pilot project outcomes, which equates to approximately 1,600 AF per year of treated water (approximately 400 AF is removed as brine or lost in production).
- Olivenhain has projected construction costs (\$51 million), financing mechanisms (traditional revenue bonds), operating costs (~\$1.7 million in 2029), and grant opportunities (25% capital offset), which has yielded their overall per AF cost projections.
- The total capital and operating cost in 2029 (first year of estimated full operation) is projected to be \$3.5 million to produce 1,600 AF, or \$2,240 per AF.

OMWD Brackish Groundwater Desalination

- It should be noted that these SDCWA costs per AF are for untreated water, while the Groundwater Project would produce treated water.
- Any water received by the District from the project would go to offsetting untreated water demands, as the District only purchases approximately 500 AF of treated water per year to meet customer demands when the R.E. Badger treatment plant is down for maintenance one to two times per year.
- This project would produce a steady level of treated water throughout the year & would not allow the District to rely on this water source solely during these time periods.
- Additionally, there would only be a marginal level of savings at the plant due to a reduction in the amount of water being treated, due to a reduction in chemical and energy consumption.

OMWD Brackish Groundwater Desalination

- OMWD's projections for a cost / AF for the estimated useful life of the project is shown as follows, as compared to SDCWA's previously outlined projections



OMWD Brackish Groundwater Desalination

- OMWD and their consultants have estimated that the Groundwater Project has a \$31 million economic advantage as compared to continuing to solely rely on SDCWA for the 1,600 AF of treated water on an annual basis.
- This economic advantage was compared to SDCWA treated water prices; which is a different situation than the District has.
- Utilizing OMWD's same inputs in their estimates, while using the untreated SDCWA water rate, there is still a \$5 million estimated economic advantage over the life of the project based on current assumptions (not including any savings at the plant).



SDCWA's fixed vs. variable potential adjustments

SDCWA Fixed vs. Variable Cost Recovery

- Projections do not consider the current process underway by SDCWA to potentially shift a portion of their current variable water sales to fixed charges.
- This is an effort for SDCWA to ensure revenue sufficiency as member agencies develop their own water sources through potable reuse (or effects of conservation in general).
- This dramatically alters the financial forecasting for any local water project, as avoided costs (project value) are overwhelmingly through the variable charge.
- SDCWA Board directed Staff to develop option(s) for consideration for potential implementation in CY25.
- Currently, SDCWA recovers approximately 26% of its costs through the fixed charge. However, SDCWA established the Member Agency Rate Workgroup (MARW) in 2022 to have feedback provided by the 24 member agencies on what might be a more sustainable fixed cost recovery percentage.
- After multiple meetings, the recommendation (which was not a consensus, and at time, contentious) from the MARW is that for a fixed revenue target of approximately 32 – 36%. Assuming the outcome is the middle-point of 34% for fixed cost recovery, shifting 8% of variable revenue to fixed charges would look like the following revenues for SDCWA.

SDCWA Fixed vs. Variable Cost Recovery

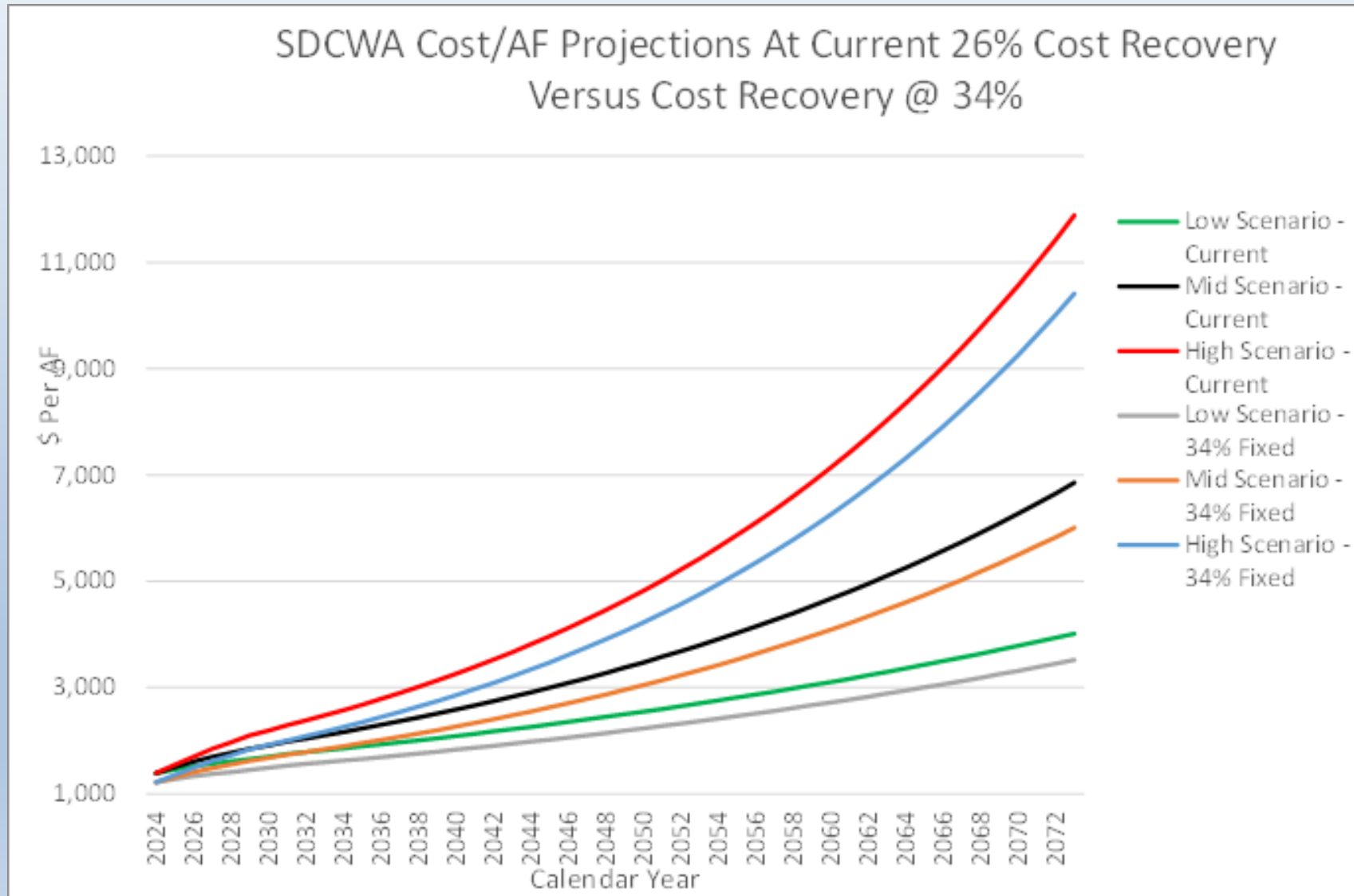
	Revenue Type (\$ in millions)	CY24 Charges - Adopted	% of Total Revenue	CY24 Charges - Modified*	% of Total Revenue
Fixed	Customer Service	\$ 28.6	4.0%	\$ 28.6	4.0%
	Storage	63.0	8.8%	63.0	8.8%
	Supply Reliability	43.4	6.1%	43.4	6.1%
	Infrastructure Access Charge	49.6	6.9%	108.0	15.1%
	Subtotal	\$ 184.6	25.8%	\$ 243.0	34.0%
Variable	Untreated Supply	\$ 407.9	57.1%	\$ 349.5	48.9%
	Transportation	65.0	9.1%	65.0	9.1%
	Treatment	57.1	8.0%	57.1	8.0%
		\$ 530.0	74.2%	\$ 471.6	66.0%
TOTAL REVENUE		\$ 714.6	100.0%	\$ 714.6	100.0%

* No proposal has been made as to which category of charge to increase the fixed revenue to 34% - done in infrastructure access charge for discussion purposes & removed from untreated supply

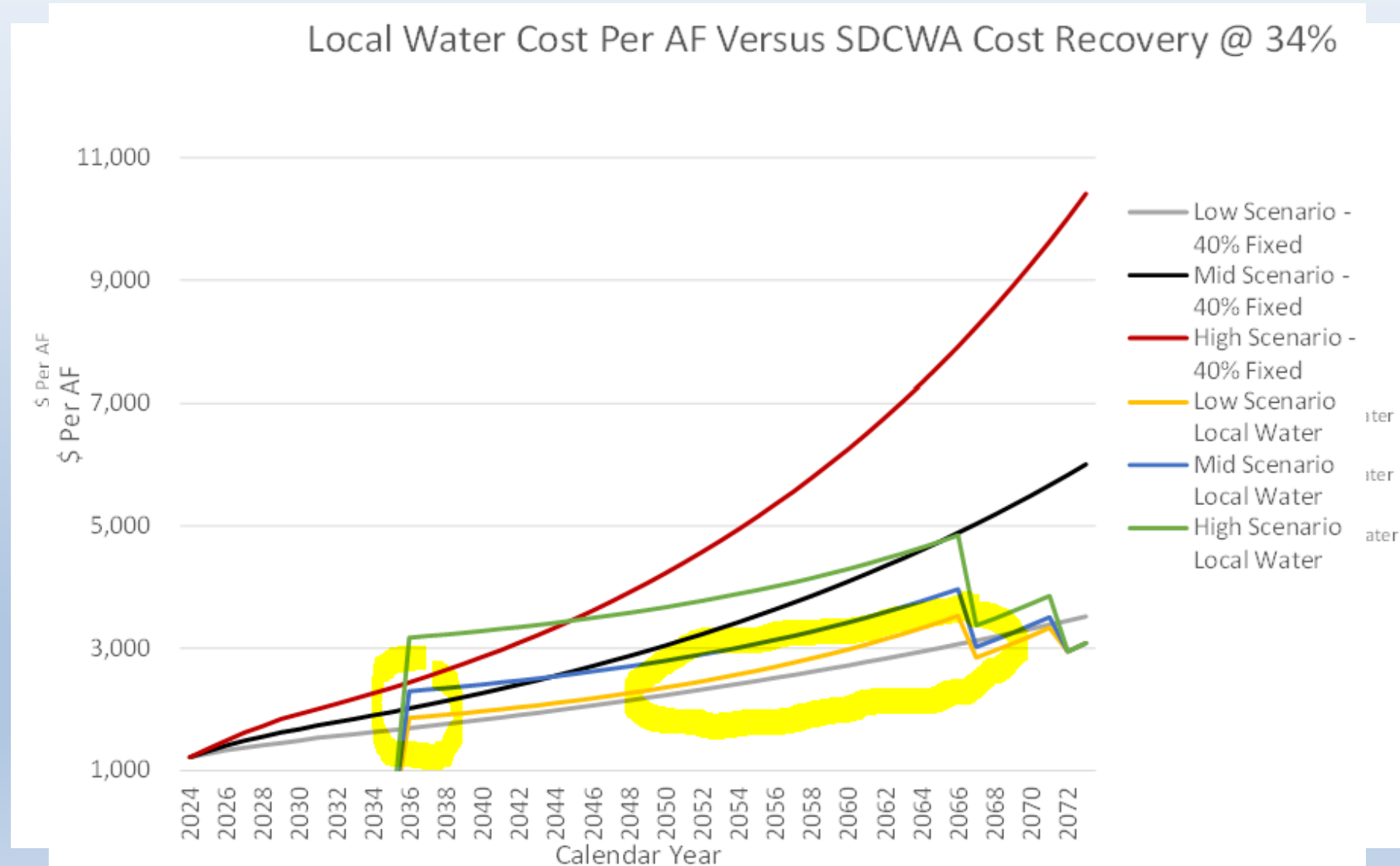
SDCWA Fixed vs. Variable Cost Recovery

	CY24	CY24
Untreated Water Costs	Charges -	Charges -
	Adopted	Modified*
Untreated Supply (\$ in mil.)	\$ 407.9	\$ 349.5
Est. M&I Sales (AF)	339,954	339,954
Sub-Total \$ / AF	\$ 1,199.99	\$ 1,028.20
Transportation Costs (\$ in mil.)	\$ 65.0	\$ 65.0
Est. AF Subject to Transport	344,447	344,447
Sub-Total \$ / AF	\$ 188.71	\$ 188.71
TOTAL \$ / AF	\$ 1,388.69	\$ 1,216.91

SDCWA Fixed vs. Variable Cost Recovery



Lake Hodges Est. \$ / AF vs. SDCWA Est. \$ / AF



SDCWA Fixed vs. Variable Cost Recovery

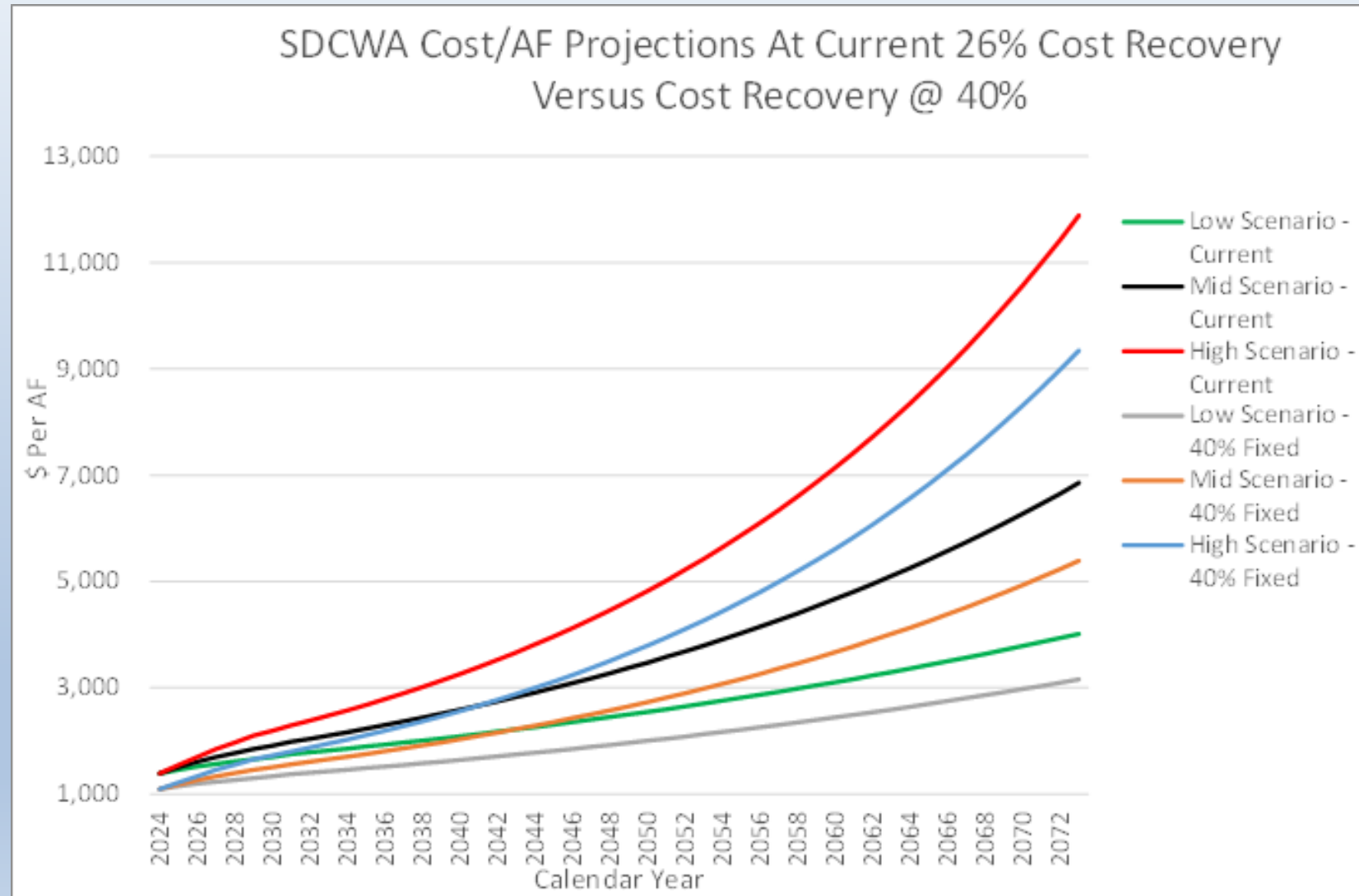
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Fixed	Customer Service	\$ 28.6	4.0%	\$ 28.6	4.0%
	Storage	63.0	8.8%	63.0	8.8%
	Supply Reliability	43.4	6.1%	43.4	6.1%
	Infrastructure Access Charge	49.6	6.9%	150.5	21.1%
	Subtotal	\$ 184.6	25.8%	\$ 285.5	40.0%
Variable	Untreated Supply	\$ 407.9	57.1%	\$ 307.0	43.0%
	Transportation	65.0	9.1%	65.0	9.1%
	Treatment	57.1	8.0%	57.1	8.0%
		\$ 530.0	74.2%	\$ 429.1	60.0%
	TOTAL REVENUE	\$ 714.6	100.0%	\$ 714.6	100.0%

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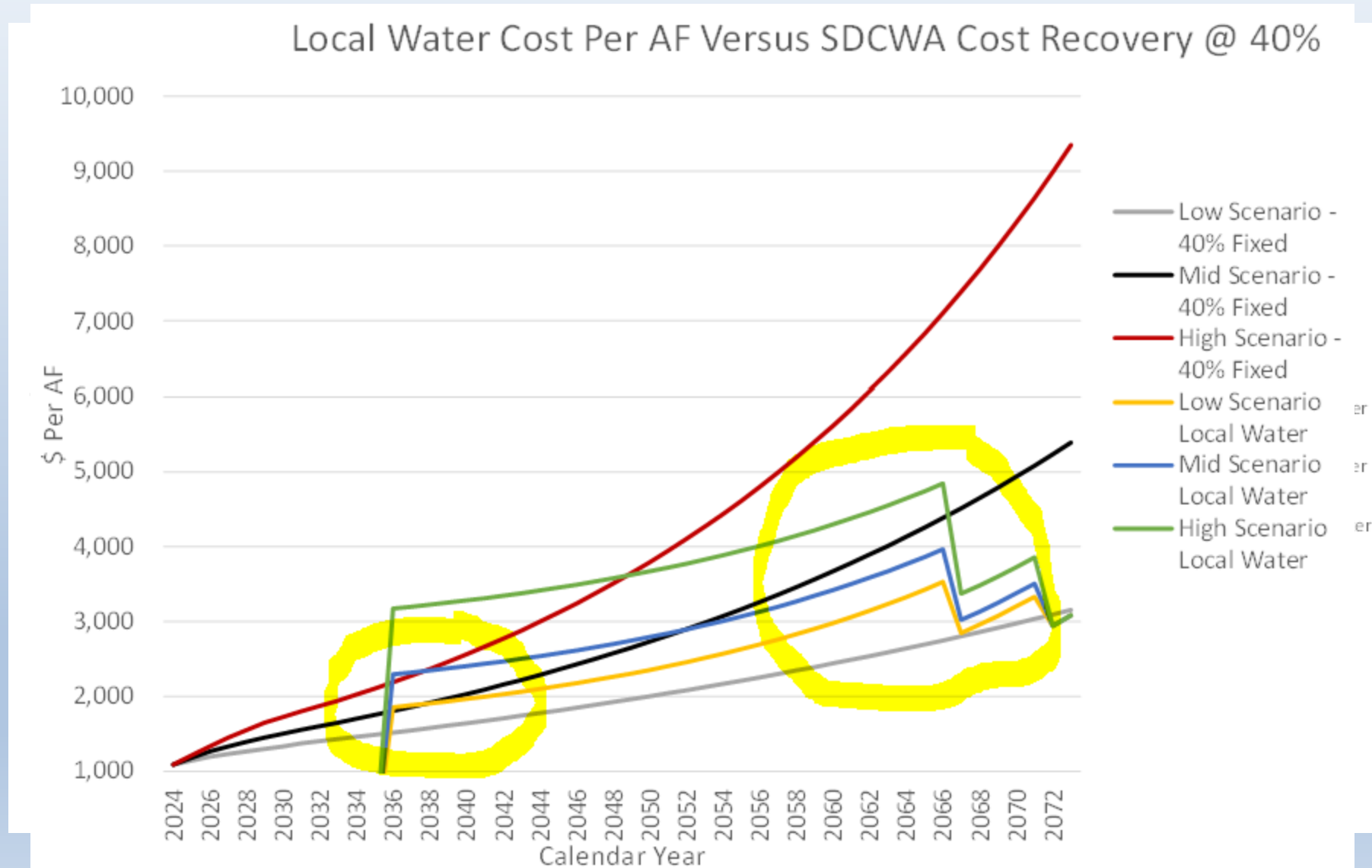
SDCWA Fixed vs. Variable Cost Recovery

Untreated Water Costs	CY24 Charges - Adopted	CY24 Charges - Modified*
Untreated Supply (\$ in mil.)	\$ 407.9	\$ 307.0
Est. M&I Sales (AF)	339,954	339,954
Sub-Total \$ / AF	\$ 1,199.99	\$ 903.18
Transportation Costs (\$ in mil.)	\$ 65.0	\$ 65.0
Est. AF Subject to Transport	344,447	344,447
Sub-Total \$ / AF	\$ 188.71	\$ 188.71
TOTAL \$ / AF	\$ 1,388.69	\$ 1,091.89

SDCWA Fixed vs. Variable Cost Recovery



SDCWA Fixed vs. Variable Cost Recovery



Non-Economic Benefits / Conclusion

- There are several non-economic benefits and impacts for every local water project, with local control being one of the most significant benefits.
- Though the supply reliability of every project individually is debatable, a diversified water portfolio undoubtedly increases overall reliability, at a cost.
- Local water projects provide a hedge against potential impacts from climate change, emergencies that may reduce or eliminate imported supplies, and fostering a sense of ownership from the community / ratepayers. However, SDCWA has invested a significant amount of money in their own supply reliability (desalination, storage, high priority water rights (Quantification Settlement Agreement), etc.) that will need to be balanced with any project(s) that the District were to undertake.

This is the first in a series of meetings in ongoing discussions about both Lake Hodges and Olivenhain's Groundwater Project. Staff is requesting the Board ask any questions and provide general comment on how these projects may move the District's Strategic Plan's goal of sustainable, cost-effective water resources forward.