

Presentation to Ad Hoc Advisory Committee

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Topics

- Update of Supply Reliability Analysis
 - Postponed to July meeting
- Analysis of Rate Impacts

Reliability Analysis Updating

- Following my presentation last month, I received two items of feedback:
 - A zoom call with Fallbrook and rainbow on May 21.
 - The main thrust was a request that I extend my analysis to cover MWD IRP Scenarios A & C, which I will do.
 - A memo from SDCWA dated 5-24-2021.
 - I also received EMWD's Draft 2020 UWMP
- I decided to put off the update of the Reliability Analysis to our July meeting.
 - I don't have Rainbow's Draft 2020 UWMP.
 - I would like to have any final updates to the 2020 UWMPs for SDCWA, EMWD, and FPUD.
- The analysis I presented last month considers the supply reliability of SDCWA and EMWD, but it does not address the supply reliability of MWD.
 - Although my information on that question is limited, since it is not transparent in the IRP analysis, I will address it to the best of my ability in the Analysis Update for July.

Analysis of Rate Impacts - outline

1. Introduction
2. Questions to be Addressed
3. Fixed Costs as the Key Factor
4. FPUD and RMWD Compared to Other SDCWA Member Agencies
5. SDCWA Revenue Structure
6. Reduction in SDCWA Revenue Under Current Rates
7. SDCWA Cost Structure
8. Impact on SDCWA Costs

1. Introduction

- I present here my preliminary analysis of the impact on SDCWA's water rates.
- Specifically, I analyze the net impact of FPUD and RMWD exit on SDCA annual net revenue.
- To complete this, I will go on subsequently to analyze:
 - The impact on SDCWA rates and charges
 - The impact on FPUD and RMWD water rates
- This is a work in progress.
- Corrections and comments are welcomed.

2. Questions to be addressed

To assess the impact on SDCWA water rates if FPUD and RMWD both exit SDCWA, one first needs to answer two questions:

- (1) If FPUD and RMWD both exit the SDCWA service area, how does that affect the amount of revenue received annually by SDCWA? There are two components to this revenue: the volumetric payments (how does the volumetric revenue received by SDCWA change if it sells a unit more of water, or a unit less, to its member agencies?) and other fees and charges paid to SDCWA (how do those revenues change?).
- (2) If FPUD and RMWD both exit the SDCWA service area, how does that affect the costs incurred by SDCWA to operate its water supply system? Some of those costs may be volumetric (what is the marginal cost to SDCWA to supply an additional unit more of water, or a unit less?) Some of the costs are non-volumetric.

Given answers to those questions, one can then address the third question:

- (3) If FPUD and RMWD both exit the SDCWA service area, how does that affect the water rates and charges levied by SDCWA on the remaining agencies within its service area?

3. Fixed Costs as the Key Factor

- This can be illustrated with a simple example involving MWD. Suppose SDCWA takes delivery of one acre-foot less of untreated water from MWD. For that water, SDCWA would have paid MWD (today) a total of \$777. SDCWA saves an expenditure of \$777 by receiving an acre-foot of water less from MWD, and MWD loses \$777 of revenue.
- MWD would also avoid some costs by delivering an acre-foot less to SDCWA, but certainly less than \$777. For example, it would not actually avoid \$373 in conveyance/ distribution costs since most of those are fixed costs which remain the same regardless of whether MWD delivers an acre-foot of water more, or less. Similarly, some quantum of the supply rate and of the system power rate reflects fixed costs that MWD does not avoid incurring when it delivers an acre-foot less to SDCWA.

- Therefore, the change is not revenue neutral for MWD: it receives \$777 less of revenue but its costs fall by less than \$777.
- In addition to the presence of fixed costs, another factor that could make the change not revenue neutral for MWD is the presence of fixed contractual purchase commitment. Suppose that MWD's system power rate of \$161 is entirely a variable cost (i.e., it reflects just the actual cost of electricity in \$/kWh multiplied by the particular amount of electricity (kWh) required for MWD to convey an acre-foot of water to SDCWA), but MWD has a contractual commitment to purchase 5,000 kWh of electricity from the State Water Project (SWP). For MWD, the \$161 becomes, in effect a fixed cost, because MWD is committed to purchasing a fixed amount of kWh regardless of whether it actually needs that much electricity to convey water to SDCWA.

In summary:

- Purchase commitments turn costs into fixed costs.
- And, however they arise, fixed costs are financially harmful to a supplier when its sales decline.

4. FPUD and RMWD Compared to Other SDCWA Member Agencies

- FPUD and RMWD accounted for 1.7%² of the population served by SDCWA in FY 2020 and 8.1%³ of the acreage in SDCWA's service area.
- In FY2020, FPUD and RMWD together received 6.43% of the water delivered by SDCWA in FY 2020 to member agencies, which represents a higher rate of usage per capita, but not per acre, than the average across all member agencies.
- One third – 33.6% -- of the water delivered by SDCWA to FPUD and RMWD in FY 2020 was for agricultural use, compared to the overall member agency average of 6.7%.
- Agricultural use of SDCWA delivered water by FPUD and RMWD accounted for 32.0% of total agricultural use by SDCWA member agencies.
- M&I use of SDCWA delivered water by FPUD and RMWD accounted for 4.58% of total M&I use by SDCWA member agencies.
- Thus, agricultural use per capita of SDCWA delivered water in FPUD and RMWD is higher than in other member agencies, and M&I use per capita of SDCWA delivered water in FPUD and RMWD was also higher than in other member agencies.

5. SDCWA Revenue Structure

TABLE 1 SDCWA WATER RATES AND CHARGES CY 2021		
ITEM		
CHARGED TO MEMBER AGENCIES		
a	M&I Water supply rate (\$/AF)	\$940
b	Agricultural water supply rate (\$/AF)	\$777
c	Transportation rate (\$/AF)	\$150
d	Treatment rate (\$/AF)	\$295
e	Customer Service Charge - Total, all member agencies (\$)	\$25.6M
f	Storage Charge - Total, all member agencies (\$)	\$60.0M
g	Supply Reliability Charge - Total, all member agencies (\$)	\$38.84M
h	Infrastructure Access Charge (\$/meter equivalent)	\$4.24
CHARGED TO PROPERTIES IN SERVICE AREA		
i	Water Availability Standby Charge (per property in service area)	\$10
j	Ad Valorem Property Tax	VARIES
k	System Capacity Charge per new meter less than 1" (\$)	\$5,301
l	Treatment Capacity Charge per new meter less than 1" (\$)	\$147

SDCWA WATER SALES FY20 ADOPTED BUDGET*				SDCWA WATER SALES FY20 ACTUAL**			
ITEM	VOLUME (AF)	REVENUE (\$)	Unit value (\$/AF)	ITEM	VOLUME (AF)**	REVENUE (\$)***	Percent
COMMODITY				COMMODITY			
Melded Supply Rate	369,662	\$338,899,318		Melded Supply Rate	323,061		
Melded Treatment Rate	157,302	\$43,679,404		Melded Treatment Rate	129,363		
Transportation Rate	408,524	\$52,875,767		Transportation Rate			
TSAWR	38,862	\$35,627,048		TSAWR	23,370		
Subtotal Commodity	408,524	\$471,081,537	\$1,153	Subtotal Commodity***	346,431	\$399,480,197	75.9%
FIXED				FIXED			
Storage Charge		\$65,000,000		Storage Charge		\$65,000,000	
Customer Service Charge		\$25,600,000		Customer Service Charge		\$25,600,000	
Supply Reliability Charge		\$33,815,000		Supply Reliability Charge		\$33,815,000	
Subtotal Fixed		\$124,415,000		Subtotal Fixed		\$124,415,000	23.6%
Subtotal Water Authority		\$595,496,537		Subtotal Water Authority			
PASS THROUGHS		\$39,598,690		PASS THROUGHS		\$39,598,690	
ADJUSTMENTS		(\$2,523,408)		ADJUSTMENTS***		\$2,290,287	0.4%
TOTAL WATER SALES		\$632,571,819		TOTAL WATER SALES**		\$565,784,174	
				TOTAL (excluding PassThroughs)***		\$526,185,484	100.0%
SOURCES				SOURCES			
* SDCWA Adopted Budget FY 2021 & 2022, Table 4, p.28.							
**SDCWA Comprehensive Annual Financial Report FY 2020, pp. 79, 109.							
*** My estimate/assumption							

TABLE 3 SDCWA REVENUES FY 2020 ACTUAL*

	ITEM	\$ Thousands	Percent
	WATER RELATED		
a	Commodity Rates**	\$399,480	62.5%
b	Fixed Charges**	\$124,415	19.5%
c	Infrastructure Access Charge*	\$36,942	5.8%
d	Availability Standby Charge*	\$11,164	1.7%
e	Capacity Charges*	\$17,983	2.8%
	Subtotal	\$589,984	92.3%
	WATER PASSTHROUGHS**	\$39,599	
	OTHER REVENUE & INCOME*		
f	Property Taxes & In-lieu Charges	\$15,526	2.4%
	Investment Income	\$6,789	1.1%
	Hydroelectric Revenue	\$3,192	0.5%
	All Other Income/Revenue	\$23,831	3.7%
	Subtotal	\$49,338	7.7%
	TOTAL	\$678,921	
	TOTAL (excluding Water Passthroughs)	\$639,322	100.0%
	SOURCES:		
	*SDCWA Comprehensive Annual Financial Report FY 2020, pp. 79, 110.		
	** Table 2 above		

6. Reduction in SDCWA Revenue under Current Rates

TABLE 4 REDUCTION IN SDCWA ANNUAL REVENUE IF FPUD & RMWD EXIT				
Item	Unit Rate	Quantity Change (AF)	Agency Share	Revenue Reduction (\$)
M&I Water supply				
Water Supply	\$940	14,795		\$13,907,300
Transportation	\$150	14,795		\$2,219,250
Treatment	\$295	14,795		\$4,364,525
Ag Water supply				
Supply	\$777	7,484		\$5,815,068
Transportation	\$150	7,484		\$1,122,600
Treatment	\$295	7,484		\$2,207,780
Subtotal - volumetric charges				\$29,636,523
Customer Service Charge*	\$136,361/mo			\$1,632,516
Storage Charge*	\$212,651/mo			\$2,551,812
Supply Reliability Charge*	\$136,361/mo			\$1,636,332
Infrastructure Access*	\$112,415/mo			\$1,348,980
Subtotal - charges				\$7,169,640
Property Taxes				
Availability Standby Charge				
System Capacity Charge				
Treatment Capacity Charge				
TOTAL				\$36,806,163

* <https://www.sdcwa.org/member-agencies/rate-allocation/> Consulted 6-7-2021

7. SDCWA Cost Structure

TABLE 5 SDCWA WATER SUPPLY EXPENSES FY20 ADOPTED BUDGET				
	ITEM	VOLUME (AF)	EXPENDITURE (\$)	Unit cost (\$/AF)
	MWD SUPPLIES			
a	Full Service Untreated Water	73,212	\$54,106,572	\$739
b	Untreated TSAWR	38,862	\$28,860,673	\$743
	Subtotal MWD	112,074	\$82,967,245	
	QSA SUPPLIES			
c	IID	176,250	\$118,570,000	\$673
d	All-American & Coachella Canals	78,200	\$1,133,150	\$14
e	MWD Wheeling Cost	254,450	\$119,183,750	\$468
f	QSA Mitigation		\$4,711,000	
	Subtotal QSA	254,450	\$243,597,900	\$957
g	CARSLBAD DESAL PLANT	42,000	\$97,933,920	\$2,332
	TOTAL SUPPLY	408,524		
	TREATMENT			
h	MWD	31,681	\$10,119,883	\$319
i	SDCWA	67,621	\$19,171,185	\$284
j	Helix	16,000	\$2,000,000	\$125
k	Carlsbad Desal Plant	42,000	\$11,672,640	\$278
	Subtotal Treatment	157,302	\$42,963,708	\$273
	ADJUSTMENTS			
l	TSAWR Supply Credit	38,862	\$6,766,375	\$174
m	Groundwater Storage Facility Costs		\$505,361	
n	Reclamation Credits SDCWA	17,208	\$2,976,960	\$173
o	Evaporation & Seepage	9,996	\$7,427,028	
p	Other		\$1,000,000	
	Subtotal Adjustments		\$18,675,724	
	WATER SUPPLY EXPENSES		\$486,138,497	
SOURCE: SDCWA Adopted Budget FY 2021 & 2022, Table 4, p.29.				

TABLE 6 SDCWA EXPENDITURES FY20 ADOPTED BUDGET

ITEM	\$ Thousands	Percent
Water Supply Expenses	\$486,138	61.7%
Operating Departments*	\$54,252	6.9%
Debt Service*	\$148,716	18.9%
CIP Expenditures*	\$81,111	10.3%
Equipment Replacements*	\$3,012	0.4%
Grant Expenditures*	\$13,162	1.7%
Other Expenditures*	\$1,944	0.2%
TOTAL	\$788,335	100.0%
* FY20 obtained by halving FY20 & 21 amount in Table 1.		
SOURCE: SDCWA Adopted Budget FY 2021 & 2022, Table 1, p.26.		

- A simplistic calculation would note that SDCWA actually delivered 62,093 AF less than planned in FY 2020, and had an actual expenditure of \$68,750,684 less than planned. Dividing one number by the other suggests an avoided supply cost of about \$1,107/AF.

8. Impact on SCDWA Costs

- Of all the cost items in Table 6, the reductions would most likely be associated only with the first item, water supply expenses, and not with any other item.
- The water supply costs, itemized in Table 5, cover (i) obtaining water from a source, (ii) conveying it to a member agency, and (iii) treating it to meet drinking water quality standards.
- Starting with the transportation rate, (ii), the rate proposed by Carollo for transportation in CY 2021 was \$164/AF; the rate actually adopted by the SDCWA Board was \$150/AF. Carollo's estimate was intended to cover the revenue requirement for the transportation function which was then reduced by a proposed draw from reserves. Without knowing any of the details, I will use the transportation rate of \$164/AF as my estimate of the savings to SDCWA from transporting one acre-foot less to an agency such as FPUD or RMWD.
- With regard to the treatment cost, (iii), Carollo proposed a treatment rate of \$295/AF, and the SDCWA Board adopted that rate.

TABLE 7 WATER SOURCES AND COSTS		
Water source	Minimum Quantity (AF)	Unit Cost (\$/AF)
IID	277,700	\$1,028
Carlsbad Desal	42,000	\$2,752
MWD	na	\$777

- Once SDCWA delivers 319,700, MWD is the source of marginal water delivered by SDCWA.
- If SDCWA delivers 22,279 AF less, this is water that would have been obtained by SDCWA from MWD at a unit cost of \$777/AF.

TABLE 8 EXPENDITURE FOREGONE BY SDCWA	
Water acquisition cost (\$/AF)	\$777
Transportation cost (\$/AF)	\$164
Treatment cost (\$/AF)	\$295
TOTAL	\$1,236
22,279 af @ \$1,236	\$27,536,844

Versus a revenue reduction of \$36.8+ M.

Analysis to come

- Correct any errors in analysis presented today.
- Translate impact on SDCWA net revenue to an impact on SDCWA rates and charges.
- Analyze rate impact on FPUD and RMWD.