THE COST OF WATER IN SAN DIEGO: THE IID WATER TRANSFER AND SDCWA WATER RATES

FINAL REPORT

Los Angeles County Economic Development Corporation

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Los Angeles County Economic Development Corporation
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This report was commissioned by Western Municipal Water District, Eastern Municipal Water District, West Basin Municipal Water District, Inland Empire Utilities Agency, Three Valleys Municipal Water District, Municipal Water District of Orange County and the Los Angeles City Department of Water and Power.

The LAEDC Economic and Policy Analysis Group offers objective economic and policy research for public agencies and private firms. The group focuses on economic impact studies, regional industry analyses, economic forecasts and issue studies, particularly in water, transportation, infrastructure and environmental policy.

Executive Summary

The purpose of this report is three-fold: (1) to estimate the cost to the San Diego County Water Authority (SDCWA) of water obtained under the SDCWA-Imperial Irrigation District (IID) Water Transfer and related agreements; (2) to compile a 10-year history of SDCWA water rate increases compared to Metropolitan Water District rate increases over the same period; and (3) to analyze SDCWA's rate structure and identify SDCWA policy drivers and decisions that may have contributed to increases in the cost of SDCWA water deliveries in recent years.

The report relies upon publicly-available information reported by the SDCWA, IID, Metropolitan Water District of Southern California (MWD) and other public agencies.

The report's major findings are as follows:

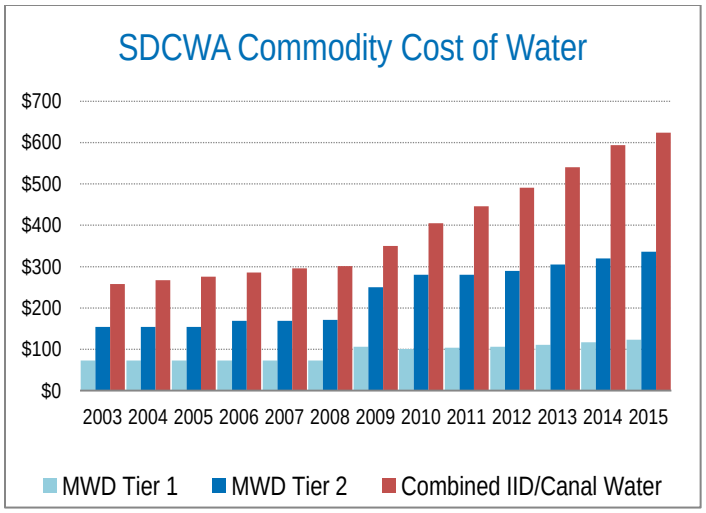
- *The effective cost to SDCWA of water under the transfer agreements has on average been higher than buying the equivalent amount from MWD during the period from 2003 through 2010. During the next five years, the average per acre-foot cost of water under the transfer agreements is projected to be higher than purchasing an equivalent amount from MWD at Tier 1 rates, but substantially less than purchases at Tier 2 rates.*

We examine the cost of the first eight years of the SDCWA-IID water transfer (2003-10), and present projections for the following five years (2011-15). In particular, we estimate the effective price per acre-foot paid by SDCWA for water procured under the various agreements governing the transfer and compare this amount to the price of a similar amount of water that may have been purchased from MWD utilizing the same infrastructure.

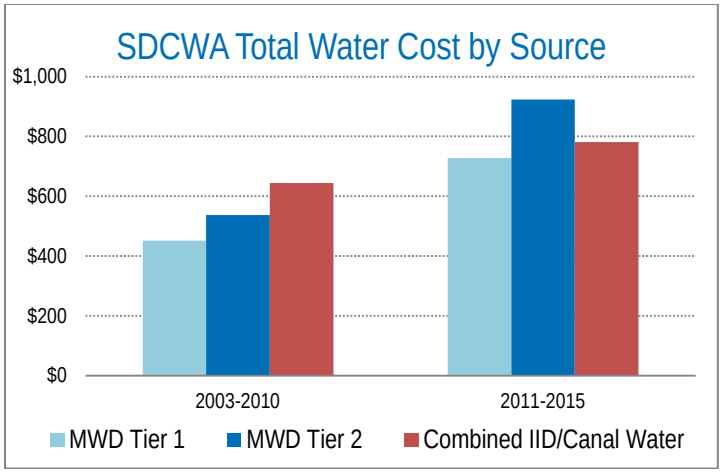
There are three components of the cost to SDCWA of the water deliveries associated with the IID-SDCWA transfer, which we present in turn. First, we consider the cost of water purchased from IID and exchanged by MWD, which includes payments to IID for the water and to MWD to exchange it (for an equivalent amount of water delivered to San Diego). Next, we estimate the cost of the water conserved by lining the canals, which consists of the construction costs of the canal lining projects and the cost paid to MWD to exchange the

water. Finally, we turn to the ancillary payments made by SDCWA as a condition of the transfer, such as those for local (economic) mitigation and restoration of the Salton Sea.

The exhibit below presents the commodity cost of water (i.e., the cost of the water alone) from three sources. MWD Tier 2 rates are included for comparison purposes although SDCWA has rarely purchased sufficient water from MWD for these rates to apply. The cost of water under the transfer agreements combines water conserved from canal lining (which is essentially at no cost) with water from IID.



The commodity cost of water is an incomplete picture of water costs to SDCWA. The exhibit below presents the total cost of water from the three sources. In the case of water delivered under the IID transfer agreements, the total cost of water includes the exchange rate paid to MWD and SDCWA's share of the construction costs for the lining of the canal. In the case of MWD water, total water costs include water supply surcharges, system access fees, water stewardship charges, system power charges and SDCWA's share of the readiness-to-serve charges and capacity charges.



From 2003 to 2010, the average cost to SDCWA per acre-foot of water delivered under the transfer agreements is $644/af. During the same period, MWD Tier I water (untreated) cost on average $451/af while MWD Tier 2 water (untreated) cost on average $537/af.

From 2011 to 2015, the average cost to SDCWA per acre-foot of water delivered under the transfer agreement is projected to be $781/af. During the same period, the projected average cost of MWD Tier 1 water (untreated) is $728/af while the projected average cost of MWD Tier 2 water (untreated) is $923/af.

Implicit in this finding is the assumption that MWD would be willing and able to supply SDCWA an equivalent number of acre-feet of water at Tier 1 and, where applicable, Tier 2 rates, which may have been the case for the years 2003 through 2011. However, we have not assessed the viability (or potential additional associated costs) of MWD taking the steps necessary to ensure such deliveries. Nor have we assessed whether the assumption would be valid beyond 2015 as water deliveries under the IID-SDCWA transfer continue to increase. We note, however, that a decline in imported water supplies motivated MWD to implement an allocation plan from May of 2009 through April of 2011that could have temporarily impacted water deliveries to member agencies if not for conservation efforts and a general decline in the economic environment.

- *Comparing SDCWA and MWD water rates from 2003 to 2010, the water supply rates for Tiers 1 and 2 (treated and untreated) for both agencies were the same in 2003. The cumulative increase in Tier 2 rates for treated and untreated water has tracked closely between the two agencies and in 2010 were still the same or only very slightly different. In contrast, SDCWA water supply rates for Tier 1treated and untreated water have increased more quickly than MWD rates since 2003.*

During the period 2003 to 2010, SDCWA Tier 1 rates per acre-foot rose 83 percent for treated water and 63 percent for untreated water. During the same period, MWD Tier 1 rates rose 72 percent for treated water and 49 percent for untreated water. In 2010, SDCWA supply rates for Tier 1 treated water were $46 per acre-foot higher than MWD treated water (a 6.6 percent premium) and $48 per acre-foot higher than MWD untreated water (a 9.9 percent premium).

- *The rate SDCWA charged its member agencies increased from 2003 to 2010 by between 62 percent and 91 percent, depending upon the type of water purchased. Full service Tier 1 untreated water increased by $342 per acre-foot to $786 per acre-foot—an overall increase of 77 percent—while Tier 1 treated water increased by $475per acre-foot to $1,001per acre-foot—an increase of 90 percent.*

The SDCWA water supply charges do not represent a complete water rate picture, since SDCWA member agencies also pay transportation, customer service, storage charges and a share of the readiness-to-serve and capacity charges levied by MWD. From 2003 to 2010, the transportation cost increased by 22 percent, from $55/af to $67/af, but SDCWA's cost per acre-foot for MWD RTS and capacity charges increased by 331 percent from a

combined $19/af to almost $81/af. During the same period, SDCWA average customer service and storage charges rose 140 percent from $44/af to nearly $106/af.

There are several components of the increase in the average SDCWA customer service and storage charges per acre-foot. First, the customer service charge has shown an average increase of approximately four annually, tracking increases in the cost of employee wages and benefits plus growth in the conservation program. Second, the storage charge, which pays the debt service on the $1.6 billion Emergency Storage Project, has more than doubled since 2003.

Third, sales of water have been quite variable, falling as much as fifteen percent in one year and increasing as much in another. On the whole, however, over the eight-year period there has been a downward trend in water sales, causing a rise in the average fixed charge per acre-foot as fixed costs are being allocated over fewer units of water sold.

Fourth, SDCWA continues to invest in major capital projects including storage and other water reliability projects, investments which in effect increase its fixed costs. Higher fixed costs will necessarily translate into increased water rates.

- *Regarding policy drivers, the SDCWA rate increases reflect higher water supply rates, transportation charges and fixed costs. Metropolitan Water District rate increases represent the largest, but not the sole, cost driver. Reduced water deliveries (and thus falling volume of water sold), higher fixed costs and the higher supply rate of water account for between one sixth and one third of the rate increases for SDCWA member agencies.*

The increasing cost of SDCWA's water supply accounted for between 58 percent and 71 percent of the total increase in water rates from 2003 to 2010, depending upon whether the water was Tier 1 or Tier 2, treated or untreated. For full service Tier 1 untreated water, for example, the water supply charges contributed 60 percent of the overall increase: rising MWD rates accounted for 46 percent of the total cost increase and SDCWA increases accounted for an additional 14 percent of the total increase. The SDCWA increase may reflect the higher cost of water from the IID transfer, but may also include a share of its increased fixed costs that it is essentially bundling into its water supply rates.

Increases in MWD readiness-to-serve and capacity charges accounted for between 13 percent and 19 percent of the total increase in SDCWA water rates from 2003 to 2010. For full service Tier 1 untreated water, for example, MWD RTS and capacity charges accounted for 18 percent of the total increase. The increase reflects higher MWD costs and fewer acre-feet bought. Since the RTS is based on a rolling 10-year average of purchases, the per-acre foot charges could rise for some years during a period of declining purchases even if the total RTS cost was constant. However, over the longer term, declining MWD purchases as IID transfer water increases will reduce the 10-year average and thus the share of the RTS assessed will fall.

Higher transportation charges accounted for 3-4 percent of the overall increase in SDCWA water rates from 2003 to 2010. For full service Tier 1 untreated water, for example, transportation charges accounted for 3.5 percent of the total increase.

Increases in the agency's fixed costs accounted for between 13 percent and 19 percent of the total increase SDCWA water rates from 2003 to 2010. For full service Tier 1 untreated water, for example, higher fixed costs (including customer service and storage charges) accounted for 18 percent of the total increase. The higher fixed costs reflect both an absolute increase in fixed costs and the need to spread the fixed costs over a smaller number of acre-feet. These factors have similarly affected most other water agencies in Southern California faced with declining sales, including MWD.

Overall, MWD increases in water supply and fixed charges accounted for between 64 percent and 84 percent of the total increase in SDCWA rates, while SDCWA increases (in water supply rates, transportation charges and fixed costs) accounted for between 16 percent and 36 percent of the total increase.

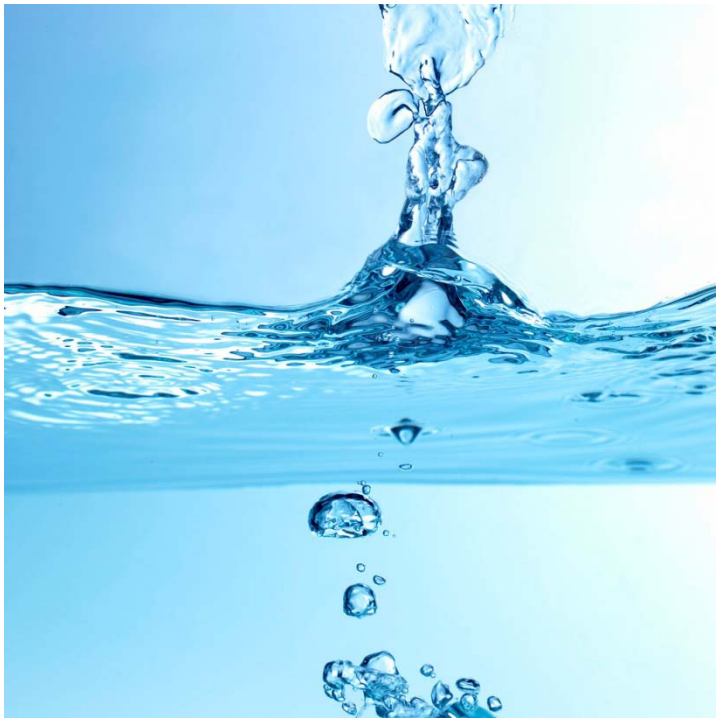
SDCWA rates may continue to rise based on the agency's mix of water supply and increases in capital costs. However, greater reliance on IID transfer water going forward will reduce other SDCWA costs, including its share of MWD's RTS and capacity charges (under the current agreement).

The per acre-foot cost to SDCWA of water under the transfer agreements has on average been higher than buying the equivalent amount from MWD during the period from 2003 through 2010. During the next five years, the average per acre-foot cost of water under the transfer agreements is projected to be higher than purchasing an equivalent amount from MWD at Tier 1 rates, but substantially less than purchases at Tier 2 rates, assuming that MWD would be able and willing to supply these amounts at current rates.

Recent SDCWA capital projects, designed to increase reliability of water supply and reduce dependence on water imported by MWD, have resulted in substantial new costs. We estimate that total SDCWA debt outstanding from 2003 to 2010 grew from $864 million to $2.45 billion—an increase of 198 percent. These costs will grow at a faster rate starting in 2015 as principal payments on the debt become due, although some costs will be offset as older debt is retired.

I Cost of the SDCWA-IID Water Transfer

Introduction



While the initial agreement for the rural-to-urban water transfer between the Imperial Irrigation District (IID) and the San Diego County Water Authority (SDCWA) was signed in April 1998, the water transfer was only made possible by several agreements signed in October 2003. These agreements include the Quantification Settlement Agreement (QSA), the Exchange Agreement, and the Allocation Agreement, reached between IID, SDCWA and several other entities, including the United States of America, the Coachella Valley Water District (CVWD) and the Metropolitan Water District of Southern California (MWD).

The QSA was prompted by then-Secretary of the Interior Gale Norton's declaration that California must restrict itself to its 4.4 million acre-feet allotment of Colorado River water or face cutbacks. The QSA "settles a variety of long-standing disputes regarding the priority, use, and transfer of Colorado River water and established the terms for further distribution of Colorado River water…for up to seventy-five (75) years based upon the water budgets set forth therein."[1] Specifically, the QSA allows for the transfer of up to 300,000 acre-feet of water annually from IID to SDCWA, CVWD and MWD, including the IID-SDCWA transfer.

Water is moved from the Imperial Valley to San Diego under the terms of the Amended and Restated Agreement between the Metropolitan Water District of Southern California and the San Diego County Water Authority for the Exchange of Water (Exchange Agreement). The Exchange Agreement creates a virtual "pipe within a pipe" for San Diego by guaranteeing capacity not subject to availability. In practice, for a fee called the "exchange rate," MWD takes delivery of IID water at its Lake Havasu intake inlet on the Colorado River and delivers an equivalent amount of water to SDCWA at one of five San Diego pipelines.[2] The exchange rate is equivalent to MWD's standard conveyance rate applicable to all member agencies for transporting Colorado River water to the district's service area, except that water moved under the Exchange Agreement is exempt from calculations of the MWD readiness-

to-serve charge, a cost shared among MWD members based on average water deliveries over a 10-year period. This designation has the effect of excluding SDCWA's deliveries under the transfer agreement from the calculation of SDCWA's share of the RTS, thus reducing the agency's cost.[3]

SDCWA signed the Exchange Agreement (which had been the subject of disagreement and litigation) in part because the separate Allocation Agreement granted it rights for 110 years to water conserved by the lining of the All-American and Coachella canals, the construction of which was largely underwritten by the State of California. In October of 2003, SDCWA deferred its pursuit of a more favorable exchange rate on the IID transfer to secure the canal lining water by executing a 5-year tolling agreement with MWD. This tolling agreement expired in October of 2008, and on June 11, 2010, SDWCA filed a lawsuit challenging the prevailing MWD exchange rate.

In this section, we examine the effective price per acre-foot paid by SDCWA for water procured under the various agreements governing the transfer over the first eight years of the transfer (2003-2010). Thereafter, we present projections for the next five years (2011-15). For both periods, we compare these prices to the prices of similar amounts of water had they been purchased from MWD.

We find that the effective cost to SDCWA of water under the transfer agreements has on average been higher than buying the equivalent amount from MWD during the period from 2003 through 2010. During the next five years, the average per acre-foot cost of water under the transfer agreements is projected to be higher than purchasing an equivalent amount from MWD at Tier 1 rates, but substantially less than purchases at Tier 2 rates.

This finding assumes that MWD would be willing and able to supply SDCWA an equivalent number of acre-feet of water at Tier 1 and, where applicable, Tier 2 rates, which may have been the case for the years 2003 through 2010. However, we have not assessed the viability of MWD taking the steps necessary to ensure such deliveries. Nor have we assessed whether the assumption would be valid beyond 2015 as water deliveries under the IID-SDCWA transfer continue to increase.

Water Deliveries

Under the terms of the water conservation and transfer agreements that make up the IID-SDCWA transfer, IID will conserve up to 200,000 acre-feet of water annually from its Colorado River allotment for transfer to San Diego. IID has sole discretion in determining how to conserve the water, with the caveat that water may be conserved by fallowing farmland only during the first fifteen years of the deal. The transfer will be in effect for 45 years, after which it may be renewed for an additional 30 years. The volume of IID water transferred each year will ramp up gradually until reaching the full 200,000 acre-feet in 2021.

SDCWA will also receive, for 110 years, 56,200 acre-feet of water conserved annually by the lining of the All-American Canal and 21,500 acre-feet conserved each year by the lining of the Coachella Canal. Lining these earthen canals with concrete prevents losses due to

seepage. In addition to the water for SDCWA, a further 16,000 acre-feet of water conserved by the lining projects has been allocated to several bands of Mission Indians in northern San Diego County to settle a long-standing dispute over water rights.

The volume of annual water deliveries from 2003 through 2015 under the agreements covering the IID-SDCWA transfer is shown in Exhibit 1-1.

Exhibit 1-1
IID-SDCWA Transfer -- Annual Deliveries of Water from all Sources

Calendar Year	IID-SDCWA Transfer (af)	All-American Canal Lining Project (af)	Coachella Canal Lining Project (af)	Water from Canal Lining Projects (af)	Total IID and Canal Water Supplied (af)
2003	10,000	-	-		10,000
2004	20,000	-	-		20,000
2005	30,000	-	-		30,000
2006	40,000	-	-		40,000
2007	50,000	-	21,500	21,500	71,500
2008	50,000	8,000	21,500	29,500	79,500
2009	60,000	54,000	21,500	75,500	135,500
2010	70,000	56,200	21,500	77,700	147,700
Total '03-'10	330,000	118,200	86,000	204,200	534,200
2011	80,000	56,200	21,500	77,700	157,700
2012	90,000	56,200	21,500	77,700	167,700
2013	100,000	56,200	21,500	77,700	177,700
2014	100,000	56,200	21,500	77,700	177,700
2015	100,000	56,200	21,500	77,700	177,700
Total '11-'15	470,000	281,000	107,500	388,500	858,500

The steady increase in the volume of water in the IID-SDCWA transfer column is based on the IID-SDCWA Water Transfer Agreement Delivery Schedule. The water conserved from the canal lining projects is based on the Allocation Agreement. The ramp-up in water from the lining of the All-American Canal reflects the completion of that project in phases. We have not assessed the probability that IID will be willing and able to deliver the transfer water as scheduled under the agreements.

SDCWA Cost of Water Deliveries

There are three components of the cost to SDCWA of the water deliveries associated with the IID-SDCWA transfer, which we present in turn. First, we consider the cost of water purchased from IID and exchanged by MWD, which includes payments to IID for the water and to MWD to exchange it (for an equivalent amount of water delivered to San Diego). Next, we estimate the cost of the water conserved by lining the canals, which consists of the construction costs for the canal lining projects and the cost paid to MWD to exchange the

water. Finally, we turn to the ancillary payments made by SDCWA as a condition of the transfer, such as those for local (economic) mitigation and restoration of the Salton Sea.

Cost of IID Water

Exhibit 1-2 presents the amount of IID water transferred annually to SDCWA, and the corresponding payments to IID (for the water) and to MWD (for its exchange).

Exhibit 1-2
SDCWA Payments to IID and MWD for IID Water

Calendar Year	Water Delivered (af)	IID Rate ($/af)	Payments to IID ($mil)	Exchange Rate ($/af)	Payments to MWD ($mil)	Total ($mil)
2003	10,000	$258	$2.58	$253	$2.53	$5.11
2004	20,000	267	5.34	253	5.06	10.40
2005	30,000	276	8.28	258	7.74	16.02
2006	40,000	286	11.44	258	10.32	21.76
2007	50,000	296	14.80	258	12.90	27.70
2008	50,000	301	15.15	278	13.90	29.05
2009	60,000	350	27.0	278/314	17.40	44.40
2010	70,000	405	28.35	314	21.98	50.33
Total '03-'10	330,000	--	$112.94	--	$91.83	$204.77

The transfer volume is from Exhibit 1-1. The IID rates are based on the Fifth Amendment to the SDCWA-IID Transfer Agreement (December 21, 2009). The rate paid in calendar year 2009 was increased six months into the year from $347 per acre-foot to $353 per acre-foot; the rate in the table is the annual average. The amounts paid to IID reflect payments for water in the year it was delivered.

We have included the actual MWD exchange rate for 2003 through 2010. This exchange rate also increased mid-year in 2009, from $278/af through August 31 to $314/af beginning September 1. Over the eight years from 2003 to 2010, we estimate that SDCWA paid $204.8 million for 330,000 acre-feet of water under the transfer agreements.

Cost of Conserved Canal Water

The water conserved by the lining of the canals comes at no commodity cost, but SDCWA incurred construction costs and must make payments to MWD to convey the water. Exhibit 1-3 shows construction costs of the lining of the canals. The projects built new concrete-lined canals parallel to the existing earthen ones and then diverted water to the new canals. According to the state's Strategic Growth Plan Bond Accountability website, the All-American Canal lining project cost $250.39 million. SDCWA paid approximately 32 percent of the cost, with the state paid the remainder. According to SDCWA press releases, the

Coachella Canal lining project cost $119.7 million. SDCWA paid approximately 30 percent of this cost, and the California Department of Water Resources paid the remainder.

Exhibit 1-3
Canal Lining Costs

	All-American Canal ($mil)	Coachella Canal ($mil)	Total ($mil)
State of California	$126.00	-	$126.0
Proposition 84	34.74	-	34.74
Other State Bond	9.65	-	9.65
CA Dept of Water Resources	-	$83.60	83.60
SDCWA	80.0	36.10	116.10
Subtotal	$250.39	$119.70	$370.09
Interest	375.59	179.55	555.14
Total	$625.98	$299.25	$925.23

We added estimated interest based on a 30-year bond at 5 percent (a typical rate for long-term California government bonds) to reflect the financing cost of this investment. In Exhibit 1-4, we spread the total construction costs over the total 8.55 million acre-feet of water granted to SDCWA under the Apportionment Agreement to arrive at an estimate of construction cost per acre-foot of water.

Exhibit 1-4
SDCWA Construction Cost Per Acre-Foot of Conserved Canal Water

	Both Canals ($mil)	Cost per AF ($/af)
Water Provided Annually (af)	77,700	-
Years Water Supplied	110	-
Total Water Supplied (af)	8,547,000	-
Construction Costs (including interest)	$925.23	-
SDCWA Share	$290.25	$34.0

The total construction cost including interest was $925.2 million, of which SDCWA paid approximately $290 million (31 percent), for 8.55 million acre-feet of water, or about $34/af.

Exhibit 1-5 presents SDCWA payments for water conserved by the lining of the All-American and Coachella canals. The conserved water, which otherwise would have gone to MWD, was assigned to SDCWA for 110 years under the Allocation Agreement.[4]

The volume of conserved water is based on the Allocation Agreement (see Exhibit 1-1). The Exchange Agreement covers the conveyance of the conserved water. The rates are copied from Exhibit 1-2, except 2009 for which we have combined the two rates in effect that year into the annual average.

Exhibit 1-5
SDCWA Payments for Conserved Canal Water

Calendar Year	Water Delivered (af)	Water Charges ($)	Exchange Rate ($/af)	Payments to MWD ($mil)	Construction Cost ($/af)	Total ($mil)	Unit Cost ($/af)
2003	--	--	--	--	--	--	--
2004	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	--
2007	21,500	0	$258	$5.55	$34	$6.28	$292
2008	29,500	0	278	8.20	34	9.20	312
2009	75,500	0	287	21.67	34	24.23	321
2010	77,700	0	314	24.40	34	27.04	348
Total '03-'10	204,200	--	--	$59.81	--	$66.75	$327

Other Costs Associated with the Transfer

SDCWA makes additional payments to offset the expected third-party impacts of the transfer of water from rural Imperial Valley to urban San Diego. These mitigation payments, taken from QSA Water Conservation and Transfer Project Annual Implementation Report(s), are presented in Exhibit 1-6.

Exhibit 1-6
Other SDCWA Payments for the IID-SDCWA Transfer

Calendar Year	Local Entity ($mil)	HCP/NCCP ($mil)	QSA JPA ($mil)	Salton Sea Restoration Fund ($mil)	Other Payments ($mil)	Total ($mil)
2003	$0.10	$0.0	$2.34	$0.00	$5.44	$7.88
2004	2.05	0.0	1.03	0.00	1.11	4.19
2005	3.11	2.0	1.10	11.78	1.11	19.10
2006	5.25	0.0	1.31	0.00	1.11	7.68
2007	0.00	0.0	5.60	0.00	1.11	6.71
2008	6.00	0.0	4.36	0.00	1.11	11.47
2009	0.00	0.0	8.14	0.00	1.11	9.25
2010	2.94	0.0	2.77	0.00	1.11	6.82
Total '03-'10	$19.45	$2.0	$26.66	$11.78	$13.22	$73.11

IID established a "Local Entity" to administer the receipt and disbursement of socioeconomic impact mitigation payments made by SDCWA and IID, i.e. funds intended to mitigate the impact of fallowing farmland in the Imperial Valley to conserve water for transfer. Under the terms of a settlement agreement with IID in 2007, SDCWA will contribute a total of $40 million to address third party impacts of fallowing through 2017. The $40 million will consist of the $10.48 million already paid at the time of the settlement, a $6 million payment in 2008, and annual payments of $2.94 million, 2010 through 2017.[5]

Natural Community Conservation Planning (NCCP) is a specific type of Habitat Conservation Program (HCP), one which aims for a cooperative, "ecosystem approach to planning for the protection and perpetuation of biological diversity."[6] The NCCP and other HCPs are run by the California Department of Fish and Game's Habitat Conservation Planning Branch.

The Quantification Settlement Agreement (QSA) Joint Powers Authority (JPA) administers funding for environmental mitigation related to QSA water transfers, including the SDCWA-IID transfer, and is comprised of representatives from the California Department of Fish and Game (DFG), CVWD, IID and SDCWA.[7] The Salton Sea Restoration Fund (SSRF) was established by the state legislature as part of the QSA. Administered by DFG, the SSRF is used for environmental and engineering studies and other activities related to the restoration of the Salton Sea.[8]

SDCWA also made three other payments related to the IID transfer. In 2003, SDCWA deposited $4,329,343 in an escrow account for use by the Bureau of Reclamation for the on-river mitigation program associated with the transfer and canal lining projects. In 2007, SDCWA pre-paid $10 million towards future deliveries so that IID could invest in water conservation programs. This payment is scheduled to be returned to SDCWA as 180 equal credits of $55,556 towards payments for IID water beginning at the end of 2018. In 2010, SDCWA paid IID $50 million towards future water deliveries as part of the overall cost of the agreement. We have split the cost of this payment across the 45-year term of the initial water transfer, yielding $1.11 million annually.

Our understanding of the costs of the water transfer is based on publicly-available data sources. There may have been ancillary payments (or rescindments) which were not disclosed and which may impact our estimates.

Summary of SDCWA Costs of Water from IID-SDCWA Transfer

The next two exhibits show the effective cost to SDCWA of water under the IID-SDCWA transfer agreements. Exhibit 1-7 combines the cost of IID water (Exhibit 1-2) and the other payments associated with the transfer (Exhibit 1-6) and divides by the amount of water provided (Exhibit 1-1) to arrive at the effective cost to SDCWA per acre-foot of IID water.

During the first eight years of the transfer, the lumpiness of the payments for environmental and economic planning, mitigation and restoration creates a wide range for the annual estimates of the effective cost per acre-foot of IID water. The average cost for the 330,000 acre-feet delivered from 2003 to 2010 was $842 per acre-foot.

Exhibit 1-7 SDCWA Cost of IID Water ($ per Acre-Foot)					
Calendar Year	Water Delivered (af)	Water & Conveyance Charges ($mil)	Other Costs ($mil)	Total Cost ($mil)	Unit Cost ($/af)
2003	10,000	$5.11	$7.88	$12.99	$1,299
2004	20,000	10.40	4.19	14.59	730
2005	30,000	16.02	19.10	35.12	1,171
2006	40,000	21.76	7.68	29.44	736
2007	50,000	27.70	6.71	34.41	688
2008	50,000	29.05	11.47	40.52	810
2009	60,000	44.40	9.25	53.65	894
2010	70,000	50.33	6.82	57.15	816
2003-10 Totals	330,000	$204.77	$73.11	$277.88	$842

In Exhibit 1-8, we account for the supply of conserved canal water (Exhibit 1-1) and its cost (Exhibit 1-5) to estimate the effective cost to SDCWA of all water procured under the aegis of the IID-SDCWA transfer.

Exhibit 1-8 SDCWA Cost of IID Water and Conserved Canal Water ($ per Acre-Foot)					
Calendar Year	Total Water Delivered (af)	Cost of Water from IID Transfer ($mil)	Cost of Water from Canal Lining ($mil)	Total Cost ($mil)	Unit Cost ($/af)
2003	10,000	$12.99	--	$12.99	$1,299
2004	20,000	14.59	--	14.59	730
2005	30,000	35.12	--	35.12	1,171
2006	40,000	29.44	--	29.44	736
2007	71,500	34.41	$6.28	39.96	559
2008	79,500	40.52	9.20	49.72	625
2009	135,500	53.65	24.23	77.89	575
2010	147,700	57.15	27.04	84.19	570
2003-10 Totals	534,200	$277.88	$66.75	$343.90	$644

Adding the conserved canal water lowers the effective price per acre-foot of all water supplied under the IID-SDCWA transfer agreements. For the conserved water, SDCWA pays only the exchange rate (to convey the water) and its portion of the lining projects' construction costs. (Note, however, that we have not included expected operations and maintenance costs, or other costs that have not been revealed publicly.)

Taken together, we estimate that the cost of water delivered from 2003 to 2010 under the transfer agreements averaged $644 per acre-foot.

Projected Future Cost of SDCWA Water Deliveries

Using publicly-available data, we estimate the projected future cost of SDCWA water deliveries for the next five years, taking each component examined above in turn.

Exhibit 1-9 presents the amount of IID water to be transferred annually to SDCWA, and the corresponding payments to IID (for the water) and to MWD (for its exchange).

Exhibit 1-9
Projected SDCWA Payments to IID and MWD for IID Water

Calendar Year	Water to be Delivered (af)	IID Rate ($/af)	Payments to IID ($mil)	Exchange Rate ($/af)	Payments to MWD ($mil)	Total ($mil)
2011	80,000	446	35.68	372	29.76	65.44
2012	90,000	491	44.19	396	35.64	79.83
2013	100,000	540	54.0	416	41.58	95.58
2014	100,000	594	59.40	437	43.66	103.06
2015	100,000	624	62.40	458	45.84	108.24
Total '11-'15	470,000	--	$255.67	--	$196.48	$452.15

The transfer volume is from Exhibit 1-1. The projected IID rates are based on the Fifth Amendment to the SDCWA-IID Transfer Agreement (December 21, 2009). Projected MWD exchange rates are assumed to increase at a five percent annually based on projections given in the MWD 2010 Long Range Finance Plan.[9]

Exhibit 1-10 presents projected SDCWA payments for the water conserved by lining the All-American and Coachella canals.

Exhibit 1-10
Projected SDCWA Payments for Conserved Canal Water

Calendar Year	Water to be Delivered (af)	Water Charges ($)	Exchange Rate ($/af)	Payments to MWD ($mil)	Construction Cost ($/af)	Total ($mil)	Unit Cost ($/af)
2011	77,700	0	$372	$28.90	$34	$31.54	$406
2012	77,700	0	396	30.77	34	33.41	430
2013	77,700	0	416	32.32	34	34.96	450
2014	77,700	0	437	33.95	34	36.59	471
2015	77,700	0	458	35.59	34	38.23	492
Total '11-'15	388,500	0	--	$161.54	--	$174.73	$450

The volume of conserved water is from Exhibit 1-1. The Allocation Agreement granted the described volume of conserved water to SDCWA, which is reflected in no additional cost for the water itself. The projected MWD exchange rate is as above (Exhibit 1-9). The

construction cost is our estimate of SDCWA's share of the lining project, plus interest, as derived above (see Exhibits 1-3 and 1-4).

Other costs associated with the transfer, as discussed above, projected for the five-year period, are presented in Exhibit 1-11.

Exhibit 1-11
Other Projected SDCWA Payments for the IID-SDCWA Transfer

Calendar Year	Local Entity ($mil)	QSA JPA ($mil)	Other Payments ($mil)	Total ($mil)
2011	$2.94	$3.08	$1.11	$7.14
2012	2.94	3.50	1.11	7.55
2013	2.94	5.25	1.11	9.31
2014	2.94	5.29	1.11	9.34
2015	2.94	6.08	1.11	10.13
Total '11-'15	$14.70	$23.20	$5.56	$43.46

The Local Entity cost for this period consists of annual payments of $2.94 million for each year from 2010 through 2017.[10] The QSA JPA costs and other payments, including the annual amortization of the $50 million prepayment, are as derived above (see Exhibit 1-6 and accompanying text).

Summary of Projected SDCWA Costs

Exhibit 1-12 combines the projected cost of IID water (Exhibit 1-9) and the other payments associated with the transfer (Exhibit 1-11) and divides by the amount of water to be provided (Exhibit 1-1) to arrive at the projected effective cost to SDCWA per acre-foot of IID water.

Exhibit 1-12
Projected SDCWA Cost of IID Water ($ per Acre-Foot)

Calendar Year	Water to be Delivered (af)	Water & Conveyance Charges ($mil)	Other Costs ($mil)	Total Cost ($mil)	Unit Cost ($/af)
2011	80,000	$65.44	$7.14	$72.58	$907
2012	90,000	79.83	7.55	87.38	970
2013	100,000	95.58	9.31	104.89	1,049
2014	100,000	103.06	9.34	112.40	1,124
2015	100,000	108.24	10.131	118.37	1,184
Total '11-'15	470,000	$452.15	$43.46	$495.61	$1,054

In Exhibit 1-13 we add in the supply of conserved canal water (Exhibit 1-1) and its cost (Exhibit 1-10) to estimate the projected effective cost to SDCWA of all water procured under the aegis of the IID-SDCWA transfer.

Exhibit 1-13
Projected SDCWA Cost of IID Water and Conserved Canal Water ($ per Acre-Foot)

Calendar Year	Water to be Delivered (af)	Cost of Water from IID Transfer ($mil)	Cost of Water from Canal Lining ($mil)	Total Cost ($mil)	Unit Cost ($/af)
2011	157,700	$72.58	$31.54	$104.12	$660
2012	167,700	87.38	33.41	120.79	720
2013	177,700	104.89	34.96	139.85	787
2014	177,700	112.40	36.59	149.00	838
2015	177,700	118.37	38.23	156.59	881
Total '11-'15	858,500	$495.61	$174.73	$670.34	$781

Taken together, we estimate that the projected cost of water to be delivered from 2011 to 2015 under the transfer agreements will average $781 per acre-foot.

Comparison of SDCWA Water Costs by Source

In Exhibit 1-14, we compare the cost of water supplied to SDCWA from various sources. SDCWA has rarely purchased enough water from MWD that it has been subject to Tier 2 rates, but these are included for comparison purposes, particularly since it is possible that under the status quo, SDCWA would be at least partially subject to Tier 2 rates.

The Tier 1 supply rate covers the cost of maintaining a reliable amount of supply, while the Tier 2 supply rate is set at MWD's cost of developing additional supply to encourage efficient use of local resources. MWD member agencies can purchase up to 90 percent of their initial base firm demand (i.e., their highest annual delivery of water from MWD between fiscal years 1989-90 and 2001-02, inclusive) at the Tier 1 supply rate provided they have signed a purchase order commitment. Deliveries that exceed 90 percent of the initial base firm demand in a year are subject to the Tier 2 supply rate.[11]

The comparison here is strictly the cost of the water itself, exclusive of any additional charges such as system access, transportation and environmental mitigation fees.

Exhibit 1-14 SDCWA Commodity Cost of Water by Source ($ per Acre-Foot)			
Calendar Year	MWD Tier 1 Supply Charge ($/af)	MWD Tier 2 Supply Charge ($/af)	IID Transfer and Canal Water ($/af)
2003	$73	$154	$258
2004	73	154	267
2005	73	154	276
2006	73	169	286
2007	73	169	296
2008	73	171	301
2009	106	250	350
2010	101	280	405
2003-10	$89	$219	$324
2011	104	280	446
2012	106	290	491
2013	111	305	540
2014	117	320	594
2015	123	336	624
'11-'15	$112	$307	$544

The MWD Tier 1 and Tier 2 supply charges from 2003 through 2012 are MWD supply rates, (i.e., the cost-of-water component in the full service rates, to which water supply surcharges, system access fees, water stewardship charges, system power charges and treatment surcharges are added). The supply charges were projected for 2013 through 2015 based on a five percent annual increase.[12] The 2003-2010 and 2011-2015 rate totals are weighted averages calculated as if MWD Tier 1 or Tier 2 supplies had been substituted for actual SDCWA water deliveries from IID and conserved canal water.

The IID water charges are the amount paid by SDCWA to IID for water under the transfer agreement. The 2003-2010 and 2011-2015 rate totals are weighted averages based on actual and scheduled deliveries of water.

To allow a more comprehensive comparison between the cost of water supplies from the various sources, we estimate the total cost of water deliveries including, in the case of MWD water, water supply surcharges, system access fees, water stewardship charges, system power charges and SDCWA's share of the RTS, and, in the case of water delivered under the IID transfer agreements, the exchange rate paid to MWD. The latter has been estimated above.

System charges and surcharges for MWD untreated water supplies are shown in Exhibit 1-15 (a detailed description of these charges is presented in the following section).

Exhibit 1-15 MWD Water Rates, 2003-2012	
Effective Date	System Charges and Surcharges for Untreated Water
1/1/2003	$253
1/1/2004	253
1/1/2005	258
1/1/2006	258
1/1/2007	258
1/1/2008	278
1/1/2009	303
9/1/2009	383
1/1/2010	383
1/1/2011	423
1/1/2012	454

In addition to these charges and surcharges, MWD member agencies are subject to MWD's capacity charge (CC) and readiness-to-serve charge (RTS). These are shown in Exhibit 1-16. The capacity charge is based on an agency's peak summer day demand (between May 1 and September 30) during a three-calendar-year period. The RTS is allocated proportionately among all MWD member agencies based on their average share of all MWD deliveries (with a few exceptions) over the most recent 10 years.[13]

Exhibit 1-16 Other MWD Charges, 2003-2010			
Calendar Year	Capacity Charge ($/cubic foot second)	Readiness-to-Serve Charge ($mil)	Secured Property Tax Rate
2003	$6,100	$80	0.0067%
2004	6,100	80	0.0061%
2005	6,800	80	0.0058%
2006	6,800	80	0.0052%
2007	6,800	80	0.0047%
2008	6,800	82	0.0045%
2009	6,800	92	0.0043%
2010	7,200	114	0.0043%
2011	7,200	125	0.0037%
2012	7,400	146	*

* Not available

Exhibit 1-17 shows the share of these charges paid by SDCWA from 2003 to 2011.

Exhibit 1-17 SDCWA Share of MWD Capacity and Readiness-to-Serve Charges, 2003-2011						
Fiscal Year	MWD Water Purchased (AF)	Capacity Charge ($mil)	RTS ($mil)	Capacity Charge ($/AF)	RTS ($/AF)	Total ($/AF)
2003	613,916	$2.25	$9.26	$3.67	$15.08	$18.75
2004	638,178	6.21	9.40	9.73	14.73	24.45
2005	530,501	8.36	9.76	15.76	18.40	34.16
2006	541,833	8.81	9.26	16.26	17.10	33.36
2007	609,397	8.81	9.37	14.46	15.38	29.84
2008	562,152	8.81	9.78	15.68	17.40	33.08
2009	478,048	8.81	10.87	18.43	22.73	41.16
2010	331,825	9.33	17.48	28.12	52.68	80.80
2011	223,005	9.20	18.60	41.27	83.39	124.67

The cost of the fixed charges per acre-foot paid by SDCWA have been rising because the MWD charges have increased, as shown in Exhibit 1-16, and because SDCWA's purchases of MWD water have been declining. Since the RTS is based on a rolling 10-year average of purchases, the per-acre foot charges would rise during a period of declining purchases even if the total RTS cost was constant. However, over the longer term, declining purchases will reduce the 10-year average and thus the share of the RTS assessed.

Combining the water supply costs, the system charges and surcharges, and SDCWA's share of MWD's capacity charge and readiness-to-serve charge yields the total supply costs for water from MWD. This is shown in Exhibit 1-18.

Exhibit 1-18 MWD Water Rates, 2003-2011						
Effective Date	Supply Rates ($/af)				Total Supply Rates for Untreated Water ($/af)	
	Tier 1	Tier 2	System Charges and Surcharges for Untreated	SDWCA Share of MWD CC and RTS	Tier 1	Tier 2
1/1/2003	$73	$154	$253	$19	$345	$426
1/1/2004	73	154	253	24	350	431
1/1/2005	73	154	258	34	365	446
1/1/2006	73	169	258	33	364	460
1/1/2007	73	169	258	30	361	457
1/1/2008	73	171	278	33	384	482
1/1/2009	109	250	303	41	453	605
9/1/2009	101	250	383	41	565	605
1/1/2010	101	280	383	81	565	675
1/1/2011	104	280	423	125	652	828

Exhibit 1-19 summarizes the total cost to SDCWA of water from five available sources. Here we are comparing the full cost of untreated water, including transportation charges, system access charges, the authority's share of MWD fixed RTS and CC and any mitigation costs.

Exhibit 1-19
Comparison of SDCWA Water Cost by Source
($ per Acre-Foot)

Calendar Year	Canal Lining ($/af)	IID Transfer ($/af)	Combined IID Transfer and Canal Water ($/af)	MWD Tier 1 Untreated ($/af)	MWD Tier 2 Untreated ($/af)
2003	--	$1,299	$1,299	$345	$426
2004	--	730	730	350	431
2005	--	1,171	1,171	365	446
2006	--	736	736	364	460
2007	$292	688	559	361	457
2008	312	810	625	384	482
2009	321	894	575	481	605
2010	348	816	570	565	675
2003-10	$327	$842	$644	$451	$537
2011	406	907	660	652	828
2012	430	971	720	691	875
2013	450	1,049	787	726	919
2014	471	1,124	838	762	965
2015	492	1,184	881	800	1,013
'11-'15	$450	$1,054	$781	$728	$923

The effective cost of the IID and canal lining water is from Exhibits 1-5, 1-7 and 1-8; the projected costs for water under the transfer agreements are from Exhibits 1-10, 1-12 and 1-13.

The MWD Tier 2 supply rates for untreated water from 2003 to 2012 are from MWD and are presented in Exhibit 1-18. Projected rates for MWD for 2013 through 2015 were estimated based on an assumed increase of five percent annually. This is likely an underestimate because the expected water deliveries to SDCWA would increase over the period, and, in conjunction with increasing RTS and CC costs to MWD, SDCWA's share of these costs would likely increase at a rate higher than 5 percent per year.

The 2003-2010 and 2011-2015 averages shown are weighted averages based on actual and scheduled annual deliveries of water from all sources under the IID-SDCWA transfer agreements.

The comparison in Exhibit 1-19 assumes that MWD would be willing and able to supply SDCWA an equivalent number of acre-feet of water at Tier 1 and, where applicable, Tier 2 rates. Based on MWD's Water Surplus and Drought Management reports, this was may have been the case for the years 2003 to 2011. During these years an equivalent volume to transfers from IID could conceivably have been delivered by foregoing the creation of the conservation surplus in Lake Mead, withdrawing water from Diamond Valley Lake, maximizing the number of acres of farmland fallowed in Palo Verde Valley, and in 2005 only, by reducing deliveries to the Desert Water-Coachella Valley Service Connection.[14] However, we have not assessed the viability (or potential additional associated costs) of MWD taking these steps. Nor have we assessed whether the assumption would be valid beyond 2015 as water deliveries under the IID-SDCWA transfer continue to increase.

The comparison also does not consider differences in long-term reliability among the sources. We note, however, that a decline in imported water supplies motivated MWD to implement an allocation plan from May of 2009 through April of 2011that could have temporarily impacted water deliveries to member agencies if not for conservation efforts and a general decline in the economic environment.

II SDCWA and MWD Water Rates Comparison

In this section we compare the SDCWA and MWD water rates since 2003. The choice of 2003 as the reference year reflects the shift in rate structures at both water agencies that year. We start with MWD water rates from 2003 through 2012, and then turn to the various components of SDCWA rates from 2003 through 2010.

All figures in this section are presented in nominal (non-inflation-adjusted) dollars. Cumulative inflation from 2003 through 2010, based on the U.S. Consumer Price Index, was approximately 18.5 percent (i.e., $100.00 in 2003 had the same purchasing power as $118.51 in 2010). The exhibits show that the cumulative increases in SDCWA and MWD water rates have exceeded inflation, in some cases considerably.

MWD Rates

Exhibit 2-1 shows MWD water rates, 2003 through 2012.[15]

Exhibit 2-1
MWD Water Rates, 2003-2012

Effective Date	Supply Rates ($/af)							
	Tier 1	Tier 2	System Charges and Surcharges					
			A	B	C	D	E	F
1/1/2003	$73	$154			$141	$23	$89	$82
1/1/2004	73	154			163	30	60	92
1/1/2005	73	154			152	25	81	112
1/1/2006	73	169			152	25	81	122
1/1/2007	73	169			143	25	90	147
1/1/2008	73	171			143	25	110	157
1/1/2009	109	250	$25	$0	143	25	110	167
9/1/2009	101	250	0	69	154	41	119	217
1/1/2010	101	280	0	69	154	41	119	217
1/1/2011	104	280	0	51	204	41	127	217
1/1/2012	106	290	0	58	217	43	136	234

Key:
A Water Supply Surcharge
B Delta Supply Surcharge
C System Access
D Water Stewardship
E System Power
F Treatment Surcharge

The Tier 1 supply rate covers the of cost of maintaining a reliable amount of supply, while the Tier 2 supply rate is set at Metropolitan's cost of developing additional supply to

encourage efficient use of local resources.[16] To these base rates are added various system charges and surcharges. The *supply surcharges* – the Delta supply surcharge and its forerunner, the water supply surcharge – reflect the additional supply costs due to the pumping restrictions on the State Water Project. The *system access rate* covers a portion of delivery costs. The *water stewardship rate* funds conservation, water recycling, groundwater clean-up and other local resource management programs. The *system power rate* is based on the cost of pumping water to Southern California. The *treatment surcharge* recovers the costs of treating imported water.

The full service water rates, which include the system charges and surcharges, are shown in Exhibit 2-2.

Exhibit 2-2
MWD Full Service Water Rates ($/af) and Annual Percentage Increase (%), 2003-2012

Effective Date	Untreated				Treated			
	Tier 1		Tier 2		Tier 1		Tier 2	
1/1/2003	$326	--	$407	--	$408	--	$489	--
1/1/2004	326	0.0%	407	0.0%	418	2.5%	499	2.0%
1/1/2005	331	1.5%	412	1.2%	443	6.0%	524	5.0%
1/1/2006	331	0.0%	427	3.6%	453	2.3%	549	4.8%
1/1/2007	331	0.0%	427	0.0%	478	5.5%	574	4.6%
1/1/2008	351	6.0%	449	5.2%	508	6.3%	606	5.6%
1/1/2009	412	17.4%	528	17.6%	579	14.0%	695	14.7%
9/1/2009	484	17.5%	564	6.8%	701	21.1%	781	12.4%
1/1/2010	484	0.0%	594	5.3%	701	0.0%	811	3.8%
1/1/2011	527	8.9%	652	9.8%	744	6.1%	869	7.2%
1/1/2012	560	6.3%	686	5.2%	794	6.7%	920	5.9%

The annual increase in water rates has varied considerably over the 10 years from 2003 to 2012, but the trend has been upward. By 2012, MWD full service water rates will have increased by at least two-thirds since 2003. The rates for untreated water will have increased by 71.8 percent for Tier 1 and by 68.6 percent for Tier 2 water. The rates will have increased even more for treated water: Tier 1 treated rates will have almost doubled, rising by 94.6 percent since 2003, while Tier 2 rates will be 88.1 percent higher.

Exhibit 2-3 reprints (from Exhibit 1-16) other MWD rates. The capacity charge is based on an agency's peak summer day demand (between May 1 and September 30) during a three-calendar-year period. The RTS, discussed above, is allocated proportionately among all MWD member agencies based on their average share of all MWD deliveries (with a few exceptions) over the most recent 10 years.

Exhibit 2-3 Other MWD Rates, 2003-2010			
Calendar Year	Capacity Charge ($/cubic foot second)	Readiness-to-Serve Charge ($mil)	Secured Property Tax Rate
2003	$6,100	$80	0.0067%
2004	$6,100	$80	0.0061%
2005	$6,800	$80	0.0058%
2006	$6,800	$80	0.0052%
2007	$6,800	$80	0.0047%
2008	$6,800	$82	0.0045%
2009	$6,800	$92	0.0043%
2010	$7,200	$114	0.0043%
2011	$7,200	$125	0.0037%
2012	$7,400	$146	*

* Not available

Exhibit 2-4 reprints (from Exhibit 1-17) the share of MWD's capacity charge and readiness-to-serve charge paid by SDCWA from 2003 to 2011.

Exhibit 2-4 SDCWA Share of MWD Capacity and Readiness-to-Serve Charges, 2003-2011						
Fiscal Year	MWD Water Purchased (AF)	Capacity Charge ($mil)	RTS ($mil)	Capacity Charge ($/AF)	RTS ($/AF)	Total ($/AF)
2003	613,916	$2.25	$9.26	$3.67	$15.08	$18.75
2004	638,178	6.21	9.40	9.73	14.73	24.45
2005	530,501	8.36	9.76	15.76	18.40	34.16
2006	541,833	8.81	9.26	16.26	17.10	33.36
2007	609,397	8.81	9.37	14.46	15.38	29.84
2008	562,152	8.81	9.78	15.68	17.40	33.08
2009	478,048	8.81	10.87	18.43	22.73	41.16
2010	331,825	9.33	17.48	28.12	52.68	80.80
2011	223,005	9.20	18.60	41.27	83.39	124.67

The cost of the fixed charges per acre-foot paid by SDCWA have been rising because the MWD charges have increased, as shown in Exhibit 2-3, and because SDCWA's purchases of MWD water have been declining. Since the RTS is based on a rolling 10-year average of purchases, the per-acre foot charges would rise during a period of declining purchases even if the total RTS cost was constant. However, over the longer term, declining purchases will reduce the 10-year average and thus the share of the RTS assessed.

Exhibit 2-5 adds the fixed charges in Exhibit 2-4 to the full service water rates presented in Exhibit 2-2.

Exhibit 2-5
Estimated Rates Paid by SDCWA for MWD Water
Including Fixed Charges
($ per Acre-Foot)

Calendar Year	Full Service Tier 1		Full Service Tier 2	
	Untreated	Treated	Untreated	Treated
2003	$345	$427	$426	$508
2004	350	442	431	523
2005	365	477	446	558
2006	364	486	460	582
2007	361	508	457	604
2008	384	541	482	639
2009	453	742	605	822
2010	565	782	675	892
2003 to 2010				
Difference	$220	$355	$249	$384
% Change	63.8%	83.1%	58.5%	75.6%

SDCWA Rates

In 2003, SDCWA overhauled its water rates in response to an analysis and subsequent lawsuit by the Economic Study Group (ESG), a group of six SDCWA member agencies from north San Diego County (Fallbrook, Rainbow, Vallecitos, Valley Center, Vista, and Yuima). The ESG argued for an unbundled water rate that would isolate transportation charges so that water rates paid by member agencies would more closely reflect actual use of the aqueduct system. SDCWA replaced a single per-acre-foot charge with separate charges for supply (water cost), transportation, customer service (general administration, overhead, and conservation) and storage. We consider each of these member agency charges before turning to SDCWA charges for the end users of the water. All data in this section are extracted from SDCWA annual financial reports.

Water Supply Charges

Exhibit 2-6 shows the full service Tier 1 and Tier 2 supply rates for treated and untreated water.

Exhibit 2-6 SDCWA Water Supply Charges & Annual Percentage Increase, 2003-2010								
Effective Date	Full Service Rate ($/af)							
	Untreated				Treated			
	Tier 1		Tier 2		Tier 1		Tier 2	
1/1/2003	$326	-	$407	--	$408	--	$489	--
1/1/2004	326	0.0%	407	0.0%	418	2.5%	499	2.0%
1/1/2005	349	7.1%	412	1.2%	461	10.3%	524	5.0%
1/1/2006	360	3.2%	427	3.6%	485	5.2%	552	5.3%
1/1/2007	365	1.4%	427	0.0%	512	5.6%	574	4.0%
1/1/2008	390	6.8%	449	5.2%	554	8.2%	606	5.6%
1/1/2009*	463	18.7%	528	17.6%	631	13.9%	695	14.7%
1/1/2010	532	14.9%	594	12.5%	747	18.4%	809	16.4%

* Reflects the mid-year price increase effective September 1, 2009.

Exhibit 2-7 compares MWD water rates and SDCWA water supply charges since 2003. The water supply rates for both agencies were the same in 2003. The cumulative increase in Tier 2 rates for treated and untreated water has tracked closely between the two agencies and in 2010 were still the same or only very slightly different. In contrast, SDCWA water supply charges for Tier 1 treated and untreated water have increased more quickly than MWD rates since 2003. In 2010, SDCWA supply rates for Tier 1 treated water were $48 per acre-foot higher than MWD for untreated water (a 6.6 percent premium) and $46 per acre-foot higher for treated water (a 9.9 percent premium).

Exhibit 2-7 Comparison of MWD Water Rates and SDCWA Water Supply Charges, 2003-2010								
Effective Rate	*MWD Water Rates*				*SDCWA Water Supply Charges*			
	Untreated		Treated		Untreated		Treated	
	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2
1/1/2003	$326	$407	$408	$489	$326	$407	$408	$489
1/1/2004	326	407	418	499	326	407	418	499
1/1/2005	331	412	443	524	349	412	461	524
1/1/2006	331	427	453	549	360	427	485	552
1/1/2007	331	427	478	574	365	427	512	574
1/1/2008	351	449	508	606	390	449	554	606
1/1/2009*	484	564	701	781	463	528	631	695
1/1/2010	484	594	701	811	532	594	747	809
2003 to 2010								
Difference	$158	$187	$293	$322	$206	$187	$339	$320
% Change	48.5%	45.9%	71.8%	65.8%	63.2%	45.9%	83.1%	65.4%

* Reflects the mid-year price increase effective September 1, 2009.

Transportation, Customer Service, and Storage Charges

The water supply charges do not present a complete picture, however, since SDCWA member agencies also pay transportation, customer service and storage charges. Exhibit 2-8 shows the SDCWA transportation rate charged to member agencies per acre-foot of water purchased, along with the annual and cumulative percentage change since 2003.

Exhibit 2-8
SDCWA Water Transportation Charges, 2003-2010
($ per Acre-Foot)

Effective Date	Transportation Rate (per af)	Annual Percentage Change
1/1/2003	$55	--
1/1/2004	55	0.0%
1/1/2005	55	0.0%
1/1/2006	60	9.1%
1/1/2007	60	0.0%
1/1/2008	60	0.0%
1/1/2009*	64	6.7%
1/1/2010	67	4.5%
2003 to 2010		
Difference	$12	--
% Change	21.8%	--

* Reflects the mid-year price increase effective September 1, 2009.

The transportation rate increased by 21.8 percent from 2003 to 2010, based on a $5 increase in 2006 an increase of $7 between 2008 and 2010.

Exhibit 2-9 shows the fixed charges paid by SDCWA member agencies. The customer service charges are apportioned to member agencies based on the average deliveries during the previous three years. The storage charge is calculated the same way, except that it excludes agricultural water.

There are several components of the increase in the average SDCWA customer service and storage charges per acre-foot, which have risen by 140 percent since 2003. First, the customer service charge has shown an average increase of approximately four percent annually, tracking increases in the cost of employee wages and benefits plus growth in the conservation program.

Second, the storage charge, which pays the debt service on the $1.6 billion Emergency Storage Project, has more than doubled since 2003.

Exhibit 2-9
SDCWA Customer Service and Storage Charges, 2003-2010
($ per Acre-Foot)

Effective Date	Fixed Charges ($ mil)		Water Sold (af)	Average Fixed Charges ($ per af Sold)	Annual % Change
	Customer Service	Storage			
1/1/2003	$13.75	$13.38	614,939	$44.12	--
1/1/2004	13.60	14.60	644,247	43.77	-0.8%
1/1/2005	13.60	14.60	551,888	51.10	16.7%
1/1/2006	14.20	17.70	581,888	54.82	7.3%
1/1/2007	14.20	17.70	660,455	48.30	-11.9%
1/1/2008	15.20	22.20	613,095	61.00	26.3%
1/1/2009*	16.00	23.00	557,762	69.92	14.6%
1/1/2010	18.00	34.00	490,829	105.94	51.5%
2003 to 2010					
Difference	$4.25	$20.62	-124,110	$61.83	--
% Change	30.9%	154.2%	-20.2%	140.1%	--

*Average fixed charges under the two different rate structures in effect in 2009 estimated based on annual water deliveries.

Third, sales of water have been quite variable, falling as much as fifteen percent in one year and increasing as much in another. On the whole, however, over the eight-year period there has been a downward trend in water sales, causing a rise in the average fixed charge per acre-foot as fixed costs are being allocated over fewer units of water sold.

Fourth, SDCWA continues to invest in major capital projects including storage and other water reliability projects, investments which in effect increase its fixed costs. Higher fixed costs will necessarily translate into increased water rates.

Exhibit 2-10 combines the water charges in Exhibits 2-4 (SDCWA's share of MWD RTS and capacity charges, which are passed through to its member agencies), 2-6 (SDCWA water supply rates), 2-8 (SDCWA transportation charges) and 2-9 (SDCWA customer service and storage charges) to create an estimate of the average rate per acre-foot of water.

Exhibit 2-10 Estimated SDCWA Water Rates, Including Fixed Charges ($ per Acre-Foot)				
Calendar Year	Full Service Tier 1		Full Service Tier 2	
	Untreated	Treated	Untreated	Treated
2003	$444	$526	$525	$607
2004	449	541	530	622
2005	489	601	552	664
2006	508	633	575	700
2007	503	650	565	712
2008	544	708	603	760
2009	638	806	703	870
2010	786	1,001	848	1,063
2003 to 2010				
Difference	$342	$475	$323	$456
% Change	77.08%	90.36%	61.56%	75.16%

Exhibit 2-11 presents a summary comparison of SDCWA and MWD water rates in 2010 from Exhibits 2-5 and 2-10.

Exhibit 2-11 Comparison of SDCWA and MWD Water Rates, 2010 ($ per Acre-Foot)				
Water Agency	Full Service Tier 1		Full Service Tier 2	
	Untreated	Treated	Untreated	Treated
SDCWA	$786	$ 1,001	$848	$1,063
MWD	$565	$782	$675	$892
Difference in 2010				
Difference	$221	$219	$173	$171

Components of SDCWA Water Rate Increases

The rates SDCWA charges its member agencies increased from 2003 to 2010 by between $323 per acre-foot to $475 per acre-foot. The increase in water rates reflect higher water supply rates, MWD fixed charges, transportation charges and SDCWA fixed costs, as shown in Exhibit 2-12.

Exhibit 2-12 Estimated Components of SDCWA Water Rates Increases ($/af)				
SDCWA Water Rate Component	2003 to 2010 Increase			
	Full Service Tier 1		Full Service Tier 2	
	Untreated	Treated	Untreated	Treated
Water Supply Rates	$206	$339	$187	$320
MWD Increase	$158	$293	$187	$322
SDCWA Increase	$48	$46	$0	-$2
MWD RTS and Capacity Charges	$62	$62	$62	$62
Transportation Charges	$12	$12	$12	$12
Fixed Costs	$62	$62	$62	$62
MWD Total	$220	$355	$249	$384
SDCWA Total	$122	$120	$74	$72
Total	$342	$475	$323	$456

The change in water supply rates is from Exhibit 2-7. It is decomposed into the increasing cost of MWD supplies to the SDCWA and the increase in SDCWA water supply rates over-and-above those of MWD (Exhibit 2-7). The SDCWA component of the increasing water supply rates reflects, at least in part, the higher cost of water obtained under the IID-SDCWA transfer (Exhibits 1-14 and 1-18), but may also include a share of its increased fixed costs that it is essentially bundling into its water supply rates.

The higher transportation charges are from Exhibit 2-8. The higher fixed costs are from Exhibit 2-9.

Exhibit 2-13 shows the share of the overall increase in SDCWA water rates contributed by component for 2003 to 2010.

The increasing cost of SDCWA's water supply accounts for at least 57.9 percent of the increase in water rates from 2003 to 2010. For full service Tier 1 untreated water, for example, the water supply charges contributed to 60.2 percent of the overall increase.

Rising MWD rates accounted for 46.2 percent of the total cost increase and SDCWA increases accounted for an additional 14.1 percent of the total increase. The SDCWA increase may reflect the higher cost of water from the IID transfer, but may include other factors, such as a share of its increased fixed costs that it may be bundling into its water

supply rates. Note that SDCWA did not add any increase beyond those imposed by MWD to Tier 2 supply charges.

Exhibit 2-13
Estimated Components of SDCWA Water Rates Increases ($/af)

SDCWA Water Rate Component	2003 to 2010 Increase			
	Full Service Tier 1		Full Service Tier 2	
	Untreated	Treated	Untreated	Treated
Water Supply Rates	60.2%	71.4%	57.9%	70.2%
MWD Increase	46.2%	61.7%	57.9%	70.6%
SDCWA Increase	14.0%	9.7%	0%	-0.4%
MWD RTS and Capacity Charges	18.1%	13.1%	19.2%	13.6%
Transportation Charges	3.5%	2.5%	3.7%	2.6%
Fixed Costs	18.1%	13.1%	19.2%	13.6%
MWD Total	64.3%	74.7%	77.1%	84.2%
SDCWA Total	35.7%	27.4%	22.9%	15.8%
Total	100.0%	100.0%	100.0%	100.0%

The rising cost of MWD RTS and capacity charges was responsible for between 13.1 percent and 19.2 percent of the increase in SDCWA water rates.

Higher transportation charges accounted for between 2.5 percent and 3.7 percent of the overall increase in SDCWA water rates.

Higher fixed costs accounted for between 13.1 percent and 19.2 percent of the overall increase in SDCWA water rates. The higher fixed costs reflect both an absolute increase in fixed costs and the need to spread the fixed costs over a smaller number of acre-feet.

Note that the MWD increases are being driven in part by the same need to spread fixed costs over a declining volume of sales, which fell 673,000 acre-feet (29.6 percent) from 2.27 million acre-feet sold in 2003 to 1.60 million acre-feet sold in 2010.

Additional Charges for Water Users

Water users pay SDCWA member agencies for the water they received and additional water charges in the form of standby, capacity and infrastructure charges. These fees are presented in Exhibit 2-14.

Exhibit 2-14
San Diego County Water Authority Charges -- Customers (End Users)

Effective Date	Variable Charges				
	Standby ($)	Capacity ($)	Secured Tax Rate	Unsecured Tax Rate	Infrastructure Access ($)
1/1/2003	$10	$2,004	0.00075	0.00083	1.00
1/1/2004	10	2,004	0.00067	0.00075	1.15
1/1/2005	10	2,465	0	0	1.15
1/1/2006	10	4,313	0	0	1.48
1/1/2007	10	4,492	0	0	1.56
1/1/2008	10	4,492	0	0	1.70
1/1/2009*	10	4,492	0	0	1.90
1/1/2010	10	4,492	0	0	2.02
2003 to 2010					
Difference	$0	$2,488	--	--	$1.02
% Change	0.0%	124.2%	--	--	102.0%

* Reflects the mid-year price increase effective September 1, 2009.

The standby charge, which is levied on property owners per parcel or per acre, whichever is greater, has remained unchanged since 2003. The capacity charge, a fee collected per equivalent meter for the installation of new or larger retail water meters connected to the water system, more than doubled from $2,004 in 2003 to $4,492 in 2010. During the same time period, the infrastructure access charge, a monthly per equivalent meter fee collected from water users to finance the cost of new infrastructure construction, doubled from $1.00 to $2.02.

III SDCWA Expenses

In this section, we examine SDCWA's expenses to see which components have increased since 2003. We start by looking at trends in total SDCWA expenses (operating expense, interest expense, other expenses, non-operating expenses) and break out the components of operating expenses (cost of water sold, operations and maintenance, planning, general and administrative, and depreciation and amortization). We also present information on SDCWA capital projects, debt, and debt service. All information in this section is taken from annual reports and other publicly-released documents. Other corporate data which were not disclosed at time of writing may impact our estimates.

The operating expenses, particularly the cost of water sold, are important because the cost of SDCWA water supplies is rising and accounts for the largest share of overall rate increases since 2003, as shown in Exhibits 2-9 and 2-10. The increase in the cost of water reflects both the rising cost of water supplied by MWD and the growing share of total SDCWA supplies made up by even more costly water obtained from the IID-SDCWA transfer.

The capital projects, debt and debt service are important because SDCWA is increasing its fixed costs by investing in major capital projects including storage and other water reliability projects. Higher fixed costs will necessarily translate into increased water rates. At the same time, declining water sales will lead to higher fixed costs because of the need to spread the fixed costs across fewer unit sales of water. These two drivers — increased investment in capital projects combined with decreased consumption (water sales) — will cause rates to increase even if the cost of purchased water remains unchanged.

We do not attempt to forecast whether the expenses will continue increasing. Some expenses, such as those associated with planning the Emergency Storage Project, will slow and eventually fall as the project nears completion.

Trends in Total SDCWA Expenses

In this section we present SDCWA expenses, 2003 to 2010, starting with Exhibit 3-5. We also provide details on the largest components of higher expenses: operating expenses (Exhibit 3-6) and interest expense. We explore the latter in a look at SDCWA capital projects, debt, and debt service (Exhibits 3-7, 3-8, and 3-9).

Total expenses increased $107 million (35 percent), from 2003 to 2010. Operating expenses, with a $94.7 million increase, was the single largest driver and accounted for almost 89 percent of the growth in total expenses. The next largest increase was in interest expenses, which were $13.4 million (52 percent) higher in 2010 than in 2003 and were higher still in 2005 and 2006 to 2009, inclusive. Higher interest expenses made up slightly less than 13 percent of the increase in total expenses.

Exhibit 3-5 SDCWA Expenses, 2003-2010 ($ millions)					
Year	Total Operating Expenses	Interest Expense	Other Expenses	Total Non-Operating Expenses	Total Expenses
2003	$266.8	$25.6	$14.3	$39.9	$306.7
2004	$284.4	$29.1	$12.4	$41.5	$325.9
2005	$269.3	$46.1	$0.6	$46.7	$316.0
2006	$285.4	$36.3	$3.6	$39.9	$325.3
2007	$324.7	$49.3	$6.8	$56.0	$380.7
2008	$327.9	$52.2	$7.0	$59.1	$387.1
2009	$342.6	$40.8	$7.2	$48.0	$390.6
2010	$361.4	$39.0	$13.3	$52.3	$413.7
2003 to 2010					
Difference	$94.7	$13.4	-$1.0	$12.4	$107.0
% Change	35.5%	52.3%	-7.0%	31.0%	34.9%

Exhibit 3-6 provides greater detail for SDCWA operating expenses.

Exhibit 3-6 SDCWA Operating Expenses, 2003-2010 ($ millions)						
Year	Cost of Water Sold	Operations and Maintenance	Planning	General and Administrative	Depreciation and Amortization	Total Operating Expenses
2003	$224.3	$9.1	$4.9	$10.9	$17.6	$266.8
2004	$241.1	$9.5	$5.2	$10.6	$17.9	$284.4
2005	$216.6	$12.6	$6.8	$11.9	$21.4	$269.3
2006	$233.7	$11.6	$7.1	$10.9	$22.1	$285.4
2007	$266.3	$13.9	$7.8	$12.8	$23.8	$324.7
2008	$262.5	$14.5	$8.9	$13.6	$28.5	$327.9
2009	$269.8	$17.4	$10.0	$15.3	$30.0	$342.6
2010	$291.4	$15.5	$8.7	$15.3	$30.7	$361.4
2003 to 2010						
Difference	$67.0	$6.4	$3.8	$4.4	$13.0	$94.7
% Change	29.9%	71.0%	77.9%	40.3%	73.7%	35.5%

All operating expenses increased during the period, with planning growing the fastest due to work related to the capital program (described below). In absolute terms, the cost of water sold was the largest component of the increase in operating expenses, growing $67 million (30 percent). Overall, the cost of water sold accounted for 71 percent of the increase in operating expenses and 63 percent of the increase in total SDCWA expenses (Exhibit 3-5).

Trends in Capital Projects, Debt, and Debt Service

SDCWA debt has been increasing, mostly due to the Emergency Storage Project (ESP) and the Carry-over Storage Project (CSP).

The ESP is a 14-year, $1.5 billion program to add 90,100 acre-feet of storage at the Hodges, Olivenhain, and San Vicente reservoirs for emergency use, plus pumping stations and pipeline extensions to facilitate distribution of the water. The project would make it possible to store enough water locally to supply San Diego County for six months in the event of an interruption to imports such as an earthquake in the Bay-Delta.

Under the ESP, the height of the 220-foot San Vicente Dam would have been raised, adding 52,000 acre-feet of storage to the 90,000 acre-foot reservoir behind it. The CSP replaced this element of the ESP with a more ambitious 4-year project to raise the height of the dam by 117 feet, adding 152,000 acre-feet of storage.

Exhibit 3-7
SDCWA Capital Projects, 2003-2010
($ millions)

Year	Total Capital Assets Not Depreciated	Total Other Assets Net Depreciation	Net Capital Assets
2003	$413.4	$781.7	$1,195.1
2004	$310.2	$992.1	$1,302.3
2005	$335.1	$1,060.9	$1,395.9
2006	$493.9	$1,176.1	$1,670.0
2007	$735.2	$1,234.9	$1,970.0
2008	$1,065.5	$1,249.9	$2,315.4
2009	$1,316.8	$1,288.4	$2,605.2
2010	$1,219.4	$1,615.7	$2,835.1
2003 to 2010			
Difference	$806.0	$834.0	$1,640.0
% Change	195.0%	106.7%	137.2%

Exhibit 3-8 SDCWA Debt Outstanding, 2003-2010 ($ millions)	
Year	Total Debt
2003	$863.9
2004	$833.6
2005	$1,161.4
2006	$1,129.8
2007	$1,446.2
2008	$1,906.3
2009	$1,886.5
2010	$2,453.8
2003 to 2010	
Difference	$1,710.2
% Change	198.0%

SDCWA debt outstanding increased by $1.7 billion between 2003 and 2010, almost tripling from $864 million to $2.4 billion in 8 years. Based on San Diego County's population and demographics, the agency's debt as a percentage of county personal income rose from 0.80 percent to 1.87 percent and its debt per capita increased from $295 to $762.

Exhibit 3-9 SDCWA Senior Lien Debt Service, 2003-2010 ($ millions)			
Year	Principal	Interest	Total
2003	$27.1	$38.7	$65.8
2004	$28.6	$37.8	$66.4
2005	$30.7	$47.6	$78.3
2006	$31.6	$51.8	$83.4
2007	$33.7	$50.2	$83.9
2008	$34.7	$48.4	$83.0
2009	$19.8	$53.2	$73.1
2010	$6.4	$73.1	$79.4
2003 to 2010			
Difference	-$20.7	$34.4	$13.7
% Change	-76.5%	88.8%	20.8%

SDCWA annual debt service increased $13.7 million from $65.8 million in 2003 to $79.4 million in 2010. In addition, SDCWA debt service costs will continue growing over the next decade as it begins to make principal payments on outstanding debt on which the agency has made interest-only payments up until now. Between 2010 and 2015, SDCWA will begin making principal payments on Certificates of Participation (COPs) issued in 2005 and 2008. These principal payments are projected to add approximately $20 million a year in additional costs. Beginning in 2015, the agency is also scheduled to begin making principal payments on water revenue bonds issued in 2004 and 2010. The cost of principal payments on these bonds is projected to total nearly $60 million for the period 2016-2020, although some of these costs will be offset by the retirement of older debt during the same period.

Endnotes

[1] Amended and Restated Agreement between the Metropolitan Water District of Southern California and the San Diego County Water Authority for the Exchange of Water (October 10, 2003). http://www.sdcwa.org/sites/default/files/files/QSA_amend-mwd-sdcwa.pdf

[2]Ibid.

[3] On the calculation of the RTS charge, see *The Metropolitan Water District Administrative Code,* § 4402(March 9, 2011). For the treatment of the transferred water as local water, see Amended and Restated Agreement between the Metropolitan Water District of Southern California and the San Diego County Water Authority for the Exchange of Water (October 10, 2003). On the importance of the local water designation during times of shortage, see for example, the MWD letter to Governor Gray Davis (June 24, 2003). http://www.imperialgroup.info/PDF/MWD_to_GD_QSA.pdf

[4] Under the Allocation Agreement, one of several agreements associated with the Quantification Settlement Agreement, the conserved water would be allocated to MWD unless SDCWA selected that QSA-related option (and related agreements). See, for example, MWD Board Letter 5-1 for the September 23, 2003 meeting, Attachment 2, p.3 and Attachment 3, p. 15.

[5]http://www.sdcwa.org/water-authority-and-imperial-irrigation-district-settle-arbitration-over-socioeconomic-impacts-water

[6]http://www.dfg.ca.gov/habcon/ Other Habitat Conservation Programs include California Endangered Species Act Permitting (CESA), California Environmental Quality Act Review (CEQA), Lake and Streambed Alteration Program (LSA) and Conservation and Mitigation Banking.

[7]Quantification Settlement Agreement Joint Power Authority Fiscal Year 2011 budget .http://www.sdcwa.org/sites/default/files/files/JPABudget_FY2011.pdf

[8]http://bondaccountability.resources.ca.gov/plevel1.aspx?id=84&pid=4 Other activities include the "protection of the fish and wildlife dependent on the sea; implementation of conservation measures necessary to protect the fish and wildlife species dependent on the sea, including adaptive management measures; implementation of the preferred Salton Sea restoration alternative; and administrative, technical, and public outreach costs related to the development and the selection of the preferred Salton Sea restoration alternative." The SSRF receives funding from the state (Proposition 84), SDCWA, IID and CVWD.

[9]The MWD 2010 Long Range Finance Plan states that "Metropolitan's objective is to provide manageable average annual increases in rates and charges at approximately 5.6 percent per year" (December 1, 2010, p.8). The forecast rate increases for 2013, 2014 and 2015 are 4.83%, 4.97%, and 5.08%, respectively, with slightly higher increases thereafter. The actual increases, 2013 through 2015, may be greater depending on MWD water sales and other factors.

[10]http://www.sdcwa.org/water-authority-and-imperial-irrigation-district-settle-arbitration-over-socioeconomic-impacts-water

[11] The calculation of initial base firm demand excludes interruptible service and several other categories of deliveries. Agencies have to commit to purchase 60 percent of their base demand times the number of years of the agreement, where base demand is the higher of their initial base firm demand or the average annual delivery of water from MWD during the most recent ten fiscal years. The 10-year average excludes the same categories of deliveries as the calculation of initial base firm demand. The first purchase orders cover the 10 years from

January 1, 2003 through December 31, 2012 and offer "substantially the same terms" for all member agencies. *The Metropolitan Water District Administrative Code,* §§ 4120, 4121, 4122 and 4404(March 9, 2011).

[12] See note 3, above.

[13]*The Metropolitan Water District Administrative Code,* §§ 4402 and 4403 (March 9, 2011).

[14] MWD letters to the Board of Directors, Water Planning, Quality and Resource Committee regarding "Water Surplus and Management Plan report on water supply and demand" (2003 through 2011).

[15]http://www.mwdh2o.com/mwdh2o/pages/finance/finance_02.html

[16]http://www.mwdh2o.com/mwdh2o/pages/finance/finance_03.html All definitions from MWD webpage describing water rates and charges.