



December 2, 2015

Attention: Imported Water Committee

Bay Delta Conservation Plan/California WaterFix: Potential Cost Impact to the Water Authority. (Presentation)

Purpose

To provide an update on the potential range of cost impacts of the Bay Delta Conservation Plan/California WaterFix to the Water Authority.

Background

The Sacramento-San Joaquin Bay-Delta is an important estuary that supports many fish, wildlife and plant species. It is also an important water source for Californians. About two-thirds of California residents and more than 40 percent of irrigated farmland receive at least some of their water supplies from the Delta. In normal years, on average, the Water Authority gets about 19 percent of its supplies from the Delta via the State Water Project through the Metropolitan Water District of Southern California (MWD).

The decline of the Delta ecosystem and resultant lawsuits and court decisions has severely impacted Delta water deliveries. Over the past nine years, state and federal agencies jointly worked on a potential Delta solution called the Bay Delta Conservation Plan (BDCP). The BDCP was a federal Habitat Conservation Plan (HCP) and State Natural Community Conservation Plan (NCCP) designed to obtain long-term permits from regulatory agencies that would allow water export facilities to be operated in a more stable and reliable manner over a 50-year permit period. The BDCP included a massive tunnel water conveyance system as well as an ambitious habitat conservation plan intended to meet the state's mandated co-equal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem.

The BDCP and associated environmental documents were circulated for comments in December 2013. The Water Authority conducted a multi-discipline staff review of the documents. Since the Water Authority adopted its Bay-Delta Principles in February 2012, the Imported Water Committee received 34 board memos and staff briefings and hosted five workshops inviting stakeholders to present their perspectives. The Water Authority submitted formal comments through the environmental review process in May and July of 2014. The Water Authority also submitted several letters seeking clarifications on the proposed project's cost and benefits to the Water Authority's ratepayers during the BDCP process.

In July 2015, the Lead Agencies (the Bureau of Reclamation and the Department of Water Resources) abandoned the long-term permitting approach and released partially revised environmental documents to the BDCP, which separated the water conveyance facility from habitat restoration. The water conveyance component -- now called California WaterFix -- remains largely similar to the previous project envisioned under BDCP. However -- and critically

-- the revised project abandons the HCP/NCCP approach and the 50-year operating permits. The Water Authority submitted its comments on the recirculated environmental documents on October 30, 2015 (Attachment 2).

Previous Board Memos Related to BDCP Costs: January 23, 2014 Bay Delta Conservation Plan: Preliminary Assessment of Financing Risk Parameters and February 19, 2014 Bay-Delta Conservation Plan: Economic and Financial Risk Assessment to the Water Authority.

Discussion

This report provides an update of potential cost impacts from the proposed Delta fix solution to the Water Authority. Because the project cost for the water facilities remains largely the same, this report utilizes the debt service analysis performed in the February 19, 2014 report, but alters the analysis to include potential cost impacts to the Water Authority based on the recent MWD rate case trial court decisions to provide a point of reference. In addition, this report analyzes potential costs to the Water Authority under a “water-follows-cost” scenario. Because cost allocation has yet to be agreed upon and discussions/negotiations are on-going, a wide range of potential outcomes are possible. Results from this report should be viewed with that important caveat in mind, and in companion with the February 2014 report.

Since the revised project no longer seeks long-term permit assurances, the \$7.8 billion habitat restoration envisioned under the previous BDCP is significantly reduced and is being pursued separately. The preferred water conveyance project described under the BDCP/California WaterFix is similar to the prior preferred alternative: three 3,000 cubic feet per second intakes on the Sacramento River in the north Delta, two 30-mile tunnels to the existing water export facilities in the south Delta. Although no detailed cost estimates were provided with the revised environmental documents, the California WaterFix website places the capital project cost at \$14.9 billion.¹

The most critical factor in determining how much water will be available for export from the Delta is how much water must flow out of the Delta and into San Francisco Bay for environmental purposes. Permits that allow for low outflow to the Bay make more water available to exporters like MWD. Permits that require high outflows, conversely, make less water available for export.

Without a habitat conservation plan approach, gone is the decision tree process envisioned in the BDCP that facilitated the “Low Outflow” scenario. A new operational scheme called “H3+” -- which includes new spring outflow conditions yet to be defined -- is being proposed.

The Water Authority’s February 2014 report evaluated potential cost impacts to the Water Authority under two cost allocation scenarios among water contractors: 1) traditional Table A approach; and 2) urban contractors pay 90 percent of the project cost but receive only the water yields proportional to their respective historic yields. An analysis of cost impacts to the water contractors should the public portion of the habitat restoration cost be shifted to the contractors,

¹ The BDCP lists capital cost for the tunnels at \$14.34 billion in 2012 dollars.

with cost allocation assumed under the traditional Table A approach, was performed in the February 2014 report as well. A summary of that analysis (“Scenario 1²”) can be found in Table 1.

Table 1. February 2014 Cost Allocation to Water Authority Analysis

Description	9,000 cfs twin tunnels	
	High Outflow (H4)	Low Outflow (H1)
Water Authority Share of Total Capital Cost	\$1,066M	
Water Authority Share of Annualized Cost	\$70M	
Water Authority Share of Incremental Delta Fix Yield (PR)	55 TAF	78 TAF
Unit Cost to Water Authority (\$/AF)	\$1,278	\$901

Since the February 2014 report, cost allocation discussions continued (although not finalized nor agreed upon). A new concept – subscribed-capacity approach – was described in a September 23, 2014 MWD PowerPoint presentation.³ Under this approach, the project cost is paid by contractors’ subscription to the project capacity; in return, the participating contractors will receive project yields proportional to their subscriptions. In other words, with this scenario, if MWD were the only entity signed up to pay for the project, it would pay 100 percent of the project’s costs and receive 100 percent of the project yield.

With no more project cost estimate details available to the Water Authority, this report evaluates a range of potential project cost increases, as well as cost impacts assuming three capacity subscription schemes: 1) traditional Table A; 2) urban contractors pay 90 percent of the project cost and receive proportional share of the project yield; and 3) MWD pays all of the project cost and receives all of the project yields. It is important to note that this report does not, and due to lack of MWD operations models, cannot assess whether MWD could beneficially use all of the water afforded under the higher subscription scenarios. In fact, it is highly unlikely that MWD would be able to beneficially use or sell the entire project yield should it choose to pay for the entire project. This is a limitation of this analysis; however, this analysis does indicate a range of annual obligations MWD may incur under the scenarios/assumptions presented. Because the manner in which MWD recovers project cost on its water rates matters to the Water Authority,⁴ including how MWD implements the trial court’s decision on preferential rights calculation, which has a direct correlation on supply benefit, this report evaluates two scenarios: 1) status quo MWD cost recovery; and 2) trial court decision.

See Table 2 for a summary of the cost impact analysis on the Water Authority and Attachment 1 for detailed support analysis.

² Assumes SWP pays 55 percent of the cost, with MWD’s share proportional to its Table A amount.

³ MWD Presentation, dated September 23, 2014
<http://edmsidm.mwdh2o.com/idmweb/cache/MWD%20EDMS/003735248-1.pdf>

⁴ MWD currently places about 85 percent of its SWP costs on its transportation rates; because the Water Authority relies on MWD’s transportation services to convey the QSA supplies, how MWD assesses BDCP related costs can have a profound impact on the Water Authority.

Table 2. Cost Impact Analysis to the Water Authority under “Water follows Money” Approach

	Cost Allocation	SWP/CVP: 55/45	Urban/Ag: 90/10	MWD: 100%
\$15 Billion	Annualized Share of Capital	\$40,334,464	\$83,531,489	\$160,120,937
		\$74,906,862	\$155,129,909	\$297,367,455
	Water Rate Impact, \$/AF	\$71	\$146	\$281
		\$131	\$272	\$521
	Monthly Cost per Average Household	\$3	\$6	\$12
		\$5	\$11	\$22
\$22.5 Billion	Annualized Share of Capital	\$60,501,696	\$125,297,234	\$240,181,406
		\$112,360,293	\$232,694,863	\$446,051,182
	Water Rate Impact, \$/AF	\$106	\$220	\$421
		\$197	\$408	\$782
	Monthly Cost per Average Household	\$4	\$9	\$18
		\$8	\$17	\$33
\$30 Billion	Annualized Share of Capital	\$80,668,928	\$167,062,979	\$320,241,874
		\$149,813,724	\$310,259,818	\$594,734,909
	Water Rate Impact, \$/AF	\$141	\$293	\$561
		\$263	\$544	\$1,042
	Monthly Cost per Average Household	\$6	\$12	\$23
		\$11	\$23	\$43

	= Trial Court Decision
	= Status Quo

Conclusions

The Water Authority supports a Delta fix. However, with the cost allocation discussions still in flux, it remains unclear what the current WaterFix solution would provide to the Water Authority in terms of reliability and at what cost. In addition, depending on what rate component(s) from which MWD may choose to recover its share of the cost, and how the Water Authority’s preferential right to MWD water is modified following the rate litigation, the added complexity further complicates the potential cost impact of this project to the Water Authority.

The results from this analysis, coupled with the February 2014 analysis, demonstrate that the range of cost impacts could vary widely depending on how project costs are allocated and how much incremental water could be expected from the project. And with the “water follows money” method, how much water MWD can realistically receive to take full advantage of the project yields, especially when interests from other large contractors wane, is an important

consideration. Recent comments submitted through the environmental review process by key agricultural agencies⁵ seem to indicate their support for the project is dependent on project producing more yields than suggested.

Recent California Natural Resource Agency's assurance to the Water Authority board that it does not expect any agency to support a project without a complete understanding of the cost and clear financing plan is welcomed. The Lead Agencies are expected to certify the environmental documents by Mid-2016. It is expected that before the environmental documents are certified, cost allocation among the contractors will be finalized because the project will be funded by water contractors. Staff will continue to monitor this project and report to the board as developments warrant.

Prepared by: Amy Chen, Director of MWD Program
Dan Denham, Colorado River Program Director
Reviewed by: Glenn Farrel, Government Relations Manager
Approved by: Dennis Cushman, Assistant General Manager

Attachment 1: Bay Delta Conservation Plan/California WaterFix Potential Cost Impact Analysis

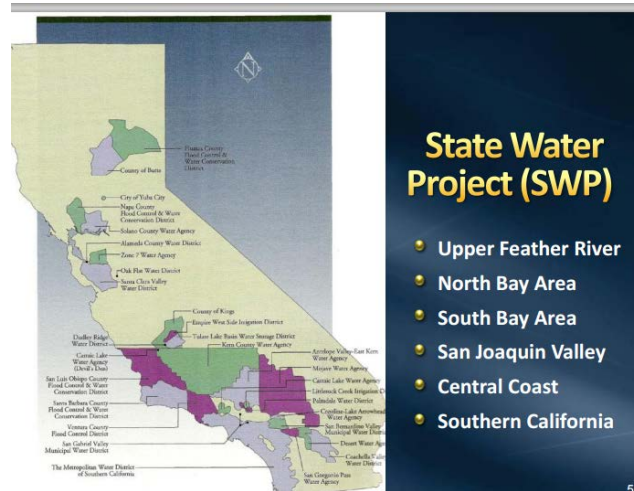
Attachment 2: Water Authority Comments on Partially Recirculated Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement, October 30, 2015

⁵ "We believe that for the long-term health of the State of California, a solution is necessary. Therefore, we hope that as the process continues, the operational criteria will be reflective of the needs of the entire state because the current path would result in tens of millions of dollars of investment with nothing to show for it." Statement by San Luis & Delta Mendota Water Agency & Westlands Water District dated October 30, 2015.

CORRECTED
(12/10/2015)

Bay Delta Conservation Plan/California WaterFix Potential Cost Impact Analysis

This report provides a periodic update of potential cost impacts from the proposed Delta fix solution to the Water Authority. Because the project cost allocation has still yet to be agreed upon and discussions/negotiations are still on-going, this report covers a wide range of potential outcomes. Until details of the cost allocation and resultant incremental yields are known, the results of this analysis can only be used as a basic reference. The scenarios covered under this report differ from those reviewed in the February 19, 2014 report. Results of this report should be viewed in conjunction with the February report to provide a fuller picture.



In July, the Bureau of Reclamation and the Department of Water Resources released revisions to the Bay Delta Conservation Plan in the form of a Partially Recirculated Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS), which added three new alternatives, including Alternative 4A, dubbed the California WaterFix. The RDEIR/SDEIS identified Alternative 4A as the new preferred alternative. This followed Governor Brown's April announcement that decoupled the BDCP's water conveyance and ecosystem restoration objectives into two distinct efforts -- California WaterFix and California EcoRestore.



The revised documents now rely on the more conventional permitting approach of consultation and biological opinions rather than pursuing a habitat conservation plan strategy. With this new permitting approach -- no longer seeking long-term permit assurances -- habitat restoration envisioned under the previous BDCP is significantly reduced and is being pursued separately under the California EcoRestore program.

Similar to its predecessor, BDCP Alternative 4, Alternative 4A is a dual conveyance alternative with proposed north

Delta diversion and existing south Delta intakes. Alternative 4A includes three 3,000 cubic feet per second intakes on the Sacramento River in the north Delta, two 30-mile long tunnels to the existing water export facilities in the south Delta, as well as 2,300 acres of habitat restoration and up to 13,000 acres of habitat protection (e.g., conservation easements) to mitigate construction and operation of the facilities. Key changes incorporated in Alternative 4A include: elimination of three pumping facilities; reduction in construction and associated impacts on Staten Island; a reduction in water quality impacts; and reduced use of private property.

Operational components of Alternative 4A are described as similar, but not identical to those described under BDCP's preferred Alternative 4. Gone is the decision tree process to determine the outflow criteria, which means the "Low Outflow"¹ scenario that afforded the most promising water export yield from the prior BDCP Alternative 4 proposal is no longer incorporated. Instead, Alternative 4A includes a new criterion for spring outflow, which is coupled with the fall outflow requirements specified in the USFSW 2008 biological opinion. This new operational scheme, dubbed "H3+," falls within the range of Alternative 4 H3² and H4³ ("High Outflow") outcomes, according to the RDEIR/SDEIS.

Project Cost

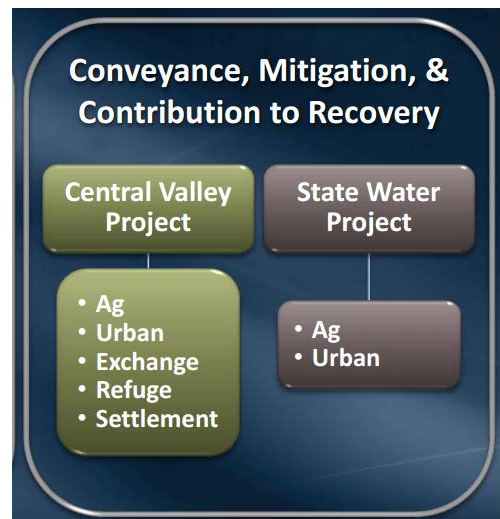
Although the recirculated documents analyzed two other alternatives -- a single intake 3,000 cfs facility and a five-intake 15,000 cfs facility -- this cost impact report focuses on the three-intake 9,000 cfs preferred alternative. The State's California WaterFix website has the following information regarding cost: "The cost to fix California's primary water delivery system is estimated to be \$14.9 billion – or about \$5 a month for urban water users – and will be paid by public water agencies that rely on the supplies." In some newspaper articles, state officials have been quoted as saying that the project cost is \$16 billion. In contrast, BDCP had valued the 9,000 cfs tunnels capital cost at \$14.3 billion (in 2012\$, with an additional \$1.5 billion for operation and maintenance cost). Although the revised project contains some key changes, it remains largely the same as the prior project. Even though no new detailed cost estimates have been provided with the revised documents, at this point, it appears that the state believes the revised project costs would be similar to the prior estimates.

Cost Allocation

The 2009 Delta Reform Act requires that the cost of the new Delta water conveyance facility be paid by water users. Two major water users of Delta water are water contractors from the State Water Project (SWP) and the federal Central Valley Project (CVP).

Although it is generally understood that the project will be paid by the water contractors, how the project cost will be allocated among the two contractor groups and within each contractor group has not been finalized. In earlier discussions, MWD had assumed generally that the SWP would pay about 55 percent of the project cost⁴ with MWD responsible for its share of the "Table A" allocation. With MWD comprising

45.81 percent of the SWP entitlement and cost responsibility, this is where the general reference that MWD would be responsible for a quarter of the total project cost is derived.



¹ Low outflow scenario, or H1, excludes enhanced spring outflow and excludes Fall 31 X2 operations.

² One of four potential operational outcomes of decision tree under BDCP. The starting operations of H3 exclude enhanced spring outflow, but include fall X2 operations.

³ H4 represents high outflow scenario that includes enhanced spring outflow, and includes fall X2 operations.

⁴ The 55/45 SWP/CVP cost sharing concept follows the current "Coordinated Operation Agreement" where the costs are shared approximately 55 percent state and 45 percent federal contractors; A component of the 1986 Coordinated Operation Agreement deals with how the cost for jointly developed Delta facilities are shared.

Not much public information has been made available on how the cost would be allocated among contractors. It is worthy to note that of the contracted SWP water supply, 70 percent goes to urban users and 30 percent goes to agricultural users, while less than 10 percent of the South of Delta CVP water supply goes to urban users. The economic output potential of urban water agencies has in general allowed urban water ratepayers more ability and willingness to pay for water at a higher cost. Many of the comment letters recently submitted by agricultural water providers in response to the RDEIR/SDEIS seem to underscore that point – that their support of the project hinges on the project’s assurance to increase SWP yield in amounts sufficient to justify the project’s cost.

In September 2014, via a PowerPoint presentation, MWD staff described – in addition to the traditional Table A approach -- two additional allocation concepts were being explored, including: 1) subscribed-capacity approach; and 2) payments on deliveries.

The payments on deliveries concept is similar to the existing CVP approach where payments are made based on water delivered. This does not seem a viable option because of the immense amount of debt the project must carry and the variability of supplies the project could offer. Under this payment alternative, there would be very little payments made in a dry-year like 2015 when exports are drastically reduced, for example.

Under the subscribed-capacity approach, participation in the project is based on desired capacity, and payments would be based on fixed and variable water delivery costs associated with the capacity. Because the participation is based on capacity purchased, MWD characterized it as a “water-follows-money” approach.

The ultimate selection of cost allocation based on a Table A approach or a participation approach (or any other allocation form) would depend on the level of contractors’ participation, MWD staff stated. For example, if nearly all contractors decide to participate in the project, a Table A approach would make sense. A subscribed capacity approach makes more sense if not all contractors desire to participate in the project equally. It is important to note that if the subscribed capacity method is chosen, a contractor’s ability to take all the water that is made available through its capacity right would depend on its ability to consume and/or store that water for later use. In other words, when analyzing the cost-benefit of such an investment, a contractor must factor in its ability to take the water made available in addition to the capacity purchased to determine whether the project makes economic sense.

Export Yield Range

Although the RDEIR/SDEIS describes that 4A would operate under a H3+⁵ scheme, operations of H3+ have yet to be defined. The RDEIR/SDEIS in general evaluated the effects of Scenarios H3 and H4 at early long-term to approximate the effect of H3+. Average water yield results of H3 and H4 for Alternative 4 and Alternative 4A are shown in below figures (Fig. 1 and Fig. 2).⁶ “ELT” represents early long-term, or water yields modeled for 2025. “LLT” means late long-term for yields projected at 2060.

⁵ H3+ is a new criterion for spring outflow that works in conjunction with the fall X2 required under the 2008 USFSW biological opinion.

⁶ Bay Delta Conservation Plan/California WaterFix RDEIR/SDEIS – Supplemental Modeling Results for New Alternatives, Figures 35 and 71, pages B-21 and B-39

Because water yields for H3+ were not modeled, for the purpose of this report, yield ranges from H3 and H4 are used as “book-end” yields. In addition, during the earlier BDCP process, an “Economic Benefits of the BDCP and Take Alternatives” were presented as an appendix to BDCP. To assess the economic benefits of alternatives, that report included projected export yields baseline under existing conveyance, which assumed environmental conditions would continue to degrade and that additional export restrictions would be imposed⁷. The Economic Benefits report only included the High Outflow (H4) and Low Outflow (H1) results for the existing conveyance. Potential exports for H3 for the existing conveyance were not presented. To get an approximation on how much incremental water the project would provide, export results from the Economic Benefits analysis for H1 were used as a proxy for the H3 operational scheme.⁸

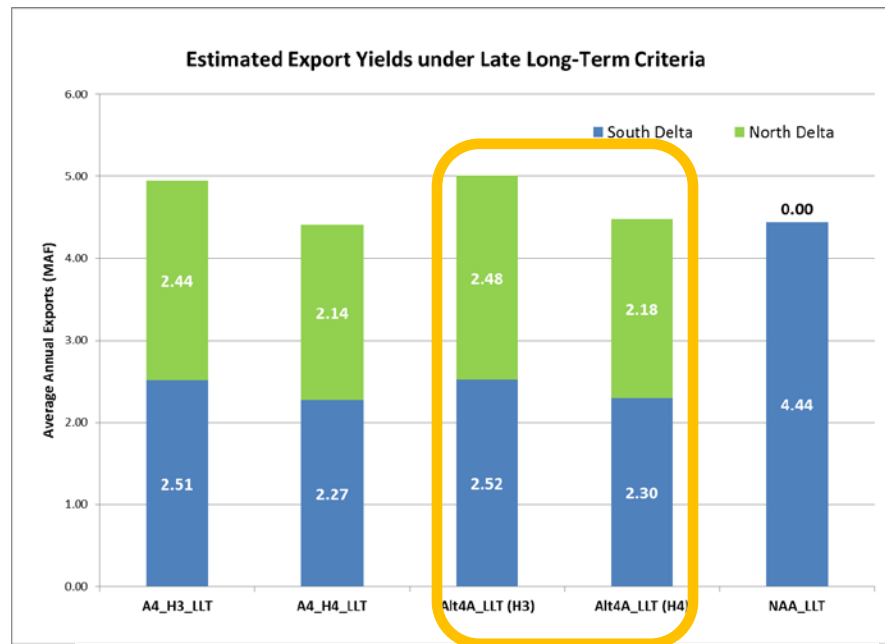
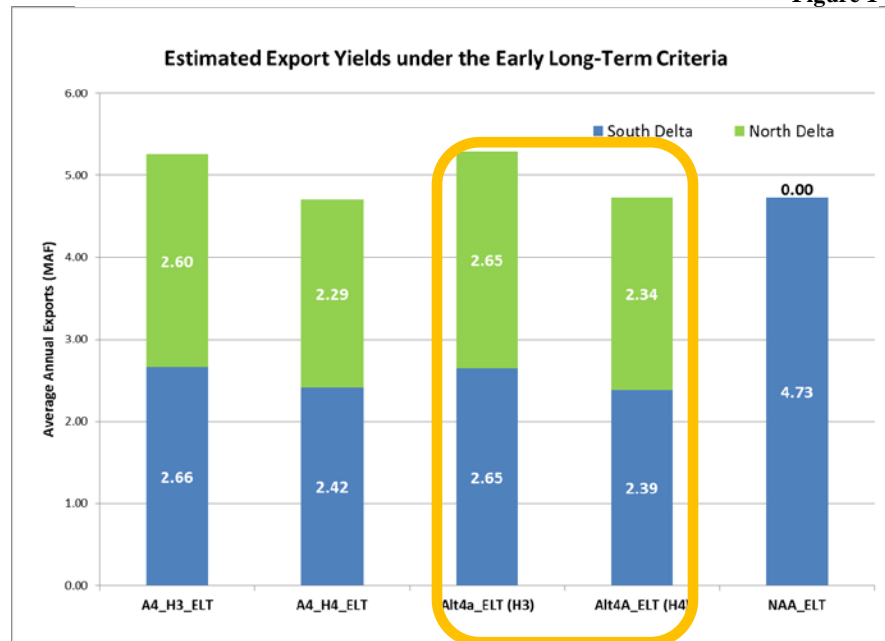


Figure 1



Cost Impact Analysis

⁷ The “Economic Benefits of the BDCP and Take Alternatives” included projected exports for existing conveyance (i.e., no-project) under operational schemes for High Outflow (H4) and Low Outflow (H1) to determine the economic benefits; the export projections for existing conveyance used in the Economic Benefits analysis differ from that described in the environmental review documents. The environmental analysis assumed status quo for existing water operations, while the economic analysis assumed that environmental conditions would continue to degrade and additional operating restrictions would be imposed by the regulatory agencies. For more details, see Water Authority Board memo dated October 16, 2013 (http://www.sdcwa.org/sites/default/files/files/board/2013_10_16_IW_01_BDCP.pdf).

⁸ It is recognized that this method would produce lower incremental water yield benefit; however, this is the best approximate data from which to derive this analysis.

Since cost allocation

discussions are still on-going,

Figure 2

and detailed project costs have yet to be updated, this report analyzes potential cost impacts to the Water Authority based on two major variables (and associated variables): capital facility cost and cost allocation to provide a book-end analysis. It is likely that projects of this magnitude and complexity would experience budget increases, a capital cost assumption of \$30 billion is used as the high book-end capital cost.⁹ In addition, this report takes “water-follows-money” at face value and assumes that when a project proponent pays a higher share of the project cost, it would receive the proportionate share of the incremental project yield. This is a different approach than that was presented in the Water Authority’s February 19, 2014 report. In that report, in the scenario where urban agencies would pay 90 percent of the cost, they still only receive incremental water yields proportionate to their historic take of the water, which are less than their payments. This latest analysis assumes, for example, if MWD pays for 100 percent of the cost, it would receive 100 percent of the incremental project yield.

In addition, where MWD would recover the project costs from its rates plays a significant role in the cost-benefit analysis for the Water Authority. In this analysis, two book-end MWD rate scenarios are assessed: 1) status quo (where MWD would assess the cost of Delta fix on its transportation rate, and preferential rights calculation remains the same); and 2) trial court decision (Delta fix cost would be part of the water supply cost and the Water Authority’s preferential rights are increased consistent with the court’s August 28 Statement of Decision. The following scenarios are analyzed:

⁹ \$30 billion doubles the current cost estimate. For reference, Channel Tunnel, or Chunnel, a 31-mile tunnel running underneath the English Channel to carry trains between UK and France came in at 20 percent time delay and 80 percent over budget (see “Project Failure – Channel Tunnel”, Strategic PPM, *available at* <https://strategicppm.wordpress.com/2010/11/16/project-failure-channel-tunnel/>; or the Boston Central Artery/Tunnel Project (CA/T), known unofficially as the Big Dig, rerouted the Central Artery (Interstate 93)—the chief highway through the heart of the city—into a 3.5-mile Tunnel., experienced a delay of 9 years and a 190 percent cost overrun. See “One Step to Restore Competition to Public Works Bidding”, Tom Lampman, The Buckeye Institute for Public Policy Solutions, *available at* http://buckeyeinstitute.org/uploads/files/One_Step_to_Restore_Competition_to_Public_Works_Bidding.pdf.

Facility capital cost
<ul style="list-style-type: none"> • \$15 billion • \$22.5 billion • \$30 billion
MWD share of the cost¹⁰
<ul style="list-style-type: none"> • SWP pays for 55 percent of the cost, MWD's share proportional to Table A • Proportional to its share of urban water take, with urban paying 90 percent of the cost • 100 percent of the cost
MWD's allocation of WaterFix cost
<ul style="list-style-type: none"> • Status quo rate structure and preferential rights • Trial court decision affirmed

Tables A1-A3 represent results of the book-end analysis using assumptions described above. It should be noted that MWD's unit cost (per acre-foot) for the water under all three scenarios stays the same (varies depending on flow assumptions) because the analysis assumes "water follows money." With this approach, it is more important to evaluate the annual obligations such an approach creates and whether the additional water can be beneficially used.

¹⁰ Differs from the February 2014 analysis where MWD's cost varies but its water takes stay fixed, this analysis assumes water follows money; under this analysis, the unit cost under different cost shares stay the same (water follows money), but MWD's *total* obligation for the project changes.

Table A1



Total Capital Cost @ \$15 Billion						
Cost Allocation	SWP/CVP: 55/45		Urban/Ag: 90/10		MWD: 100%	
MWD Share (Capital)	\$	3,778,500,000	\$	7,825,162,434	\$	15,000,000,000
SDCWA Share (Capital) (trial court affirmed) (Based on projected water purchases @ 2035)	\$	528,990,000	\$	1,095,522,741	\$	2,100,000,000
SDCWA Share (Capital) (status quo) (Based on projected water delivered @ 2035)	\$	982,410,000	\$	2,034,542,233	\$	3,900,000,000
Annualized Cost						
Annualized Debt Service (\$)	\$	1,143,720,979	\$	1,143,720,979	\$	1,143,720,979
Annual SWP Share (or urban) (\$)	\$	629,046,538	\$	1,029,348,881	\$	1,143,720,979
Annual MWD Share (\$)	\$	288,103,315	\$	596,653,496	\$	1,143,720,979
Operational Scheme	H3 (Fall BiOp)	H4 (Hi Outflow)	H3	H4	H3	H4
WaterFix Total Yield (Avg AF - ELT)	5,292,000	4,723,000	5,292,000	4,723,000	5,292,000	4,723,000
BDCP baseline (ELT/ Sunding) (assumes H3=H1)	3,889,000	3,446,000	3,889,000	3,446,000	3,889,000	3,446,000
WaterFix Incremental Yield (AF)	1,403,000	1,277,000	1,403,000	1,277,000	1,403,000	1,277,000
MWD share of yield (Avg)	353,416	321,676	731,914	666,182	1,403,000	1,277,000
MWD \$/AF	\$ 815	\$ 896	\$ 815	\$ 896	\$ 815.20	\$ 896
a. SDCWA share of yield (PR -rev)	73,899	67,263	153,043	139,299	293,367	267,021
b. SDCWA share of yield (PR)	64,569	58,770	133,721	121,711	256,328	233,308
c. SDCWA share of cost (trial court affirmed) (~% of water purchased)	\$40,334,464		\$83,531,489		\$160,120,937	
d. SDCWA share of cost (status quo) (~% of water delivered)	\$74,906,862		\$155,129,909		\$297,367,455	
SDCWA (\$/AF) (trial court decision affirmed c/a)	\$ 546	\$ 600	\$ 546	\$ 600	\$ 546	\$ 600
SDCWA (\$/AF) (status quo, d/b)	\$ 1,160	\$ 1,275	\$ 1,160	\$ 1,275	\$ 1,160	\$ 1,275
SDCWA Water Rate Impact, \$/AF (trial court affirmed)	\$71		\$146		\$281	
Monthly Cost per Average Household (trial court affirmed)	\$3		\$6		\$12	
SDCWA Water Rate Impact, \$/AF (status quo)	\$131		\$272		\$521	
Monthly Cost per Average Household (status quo)	\$5		\$11		\$22	
	= Trial Court Decision					
	= Status Quo					

Table A2

Total Capital Cost @ \$22.5 Billion						
Cost Allocation	SWP/CVP: 55/45		Urban/Ag: 90/10		MWD: 100%	
MWD Share (Capital)	\$	5,667,750,000	\$	11,737,743,650	\$	22,500,000,000
SDCWA Share (Capital) (trial court affirmed) (Based on projected water purchases @ 2035)	\$	793,485,000	\$	1,643,284,111	\$	3,150,000,000
SDCWA Share (Capital) (status quo) (Based on projected water delivered @ 2035)	\$	1,473,615,000	\$	3,051,813,349	\$	5,850,000,000
Annualized Cost						
Annualized Debt Service (\$)	\$	1,715,581,468.59	\$	1,715,581,469	\$	1,715,581,469
Annual SWP Share (or urban) (\$)	\$	943,569,808	\$	1,544,023,322	\$	1,715,581,469
Annual MWD Share (\$)	\$	432,154,972	\$	894,980,244	\$	1,715,581,469
Operational Scheme	H3 (Fall BiOp)	H4 (Hi Outflow)	H3	H4	H3	H4
WaterFix Total Yield (Avg AF - ELT)	5,292,000	4,723,000	5,292,000	4,723,000	5,292,000	4,723,000
BDCP baseline (ELT/ Sunding) (assumes H3=H1)	3,889,000	3,446,000	3,889,000	3,446,000	3,889,000	3,446,000
WaterFix Incremental Yield (AF)	1,403,000	1,277,000	1,403,000	1,277,000	1,403,000	1,277,000
MWD share of yield (Avg)	353,416	321,676	731,914	666,182	1,403,000	1,277,000
MWD \$/Af	\$ 1,223	\$ 1,343	\$ 1,223	\$ 1,343	\$ 1,222.80	\$ 1,343
a. SDCWA share of yield (PR -rev)	73,899	67,263	153,043	139,299	293,367	267,021
b. SDCWA share of yield (PR)	64,569	58,770	133,721	121,711	256,328	233,308
c. SDCWA share of cost (trial court affirmed) (~% of water purchased)	\$60,501,696		\$125,297,234		\$240,181,406	
d. SDCWA share of cost (status quo) (~% of water delivered)	\$112,360,293		\$232,694,863		\$446,051,182	
SDCWA (\$/AF) (trial court decision affirmed c/a)	\$ 819	\$ 899	\$ 819	\$ 899	\$ 819	\$ 899
SDCWA (\$/AF) (status quo, d/b)	\$ 1,740	\$ 1,912	\$ 1,740	\$ 1,912	\$ 1,740	\$ 1,912
SDCWA Water Rate Impact, \$/AF (trial court affirmed)	\$106		\$220		\$421	
Monthly Cost per Average Household (trial court affirmed)	\$4		\$9		\$18	
SDCWA Water Rate Impact, \$/AF (status quo)	\$197		\$408		\$782	
Monthly Cost per Average Household (status quo)	\$8		\$17		\$33	

= Trial Court Decision

= Status Quo

Table A3

Total Capital Cost @ \$30 Billion						
Cost Allocation	SWP/CVP: 55/45		Urban/Ag: 90/10		MWD: 100%	
MWD Share (Capital)	\$	7,557,000,000	\$	15,650,324,867	\$	30,000,000,000
SDCWA Share (Capital) (trial court affirmed) (Based on projected water purchases @ 2035)	\$	1,057,980,000	\$	2,191,045,481	\$	4,200,000,000
SDCWA Share (Capital) (status quo) (Based on projected water delivered @ 2035)	\$	1,964,820,000	\$	4,069,084,465	\$	7,800,000,000
Annualized Cost						
Annualized Debt Service (\$)	\$	2,287,441,958.12	\$	2,287,441,958	\$	2,287,441,958
Annual SWP Share (or urban) (\$)	\$	1,258,093,077	\$	2,058,697,762	\$	2,287,441,958
Annual MWD Share (\$)	\$	576,206,629	\$	1,193,306,992	\$	2,287,441,958
Operational Scheme	H3 (Fall BiOp)	H4 (Hi Outflow)	H3	H4	H3	H4
WaterFix Total Yield (Avg AF - ELT)	5,292,000	4,723,000	5,292,000	4,723,000	5,292,000	4,723,000
BDCP baseline (ELT/ Sunding) (assumes H3=H1)	3,889,000	3,446,000	3,889,000	3,446,000	3,889,000	3,446,000
WaterFix Incremental Yield (AF)	1,403,000	1,277,000	1,403,000	1,277,000	1,403,000	1,277,000
MWD share of yield (Avg)	353,416	321,676	731,914	666,182	1,403,000	1,277,000
MWD \$/Af	\$ 1,630	\$ 1,791	\$ 1,630	\$ 1,791	\$ 1,630.39	\$ 1,791
a. SDCWA share of yield (PR -rev)	73,899	67,263	153,043	139,299	293,367	267,021
b. SDCWA share of yield (PR)	64,569	58,770	133,721	121,711	256,328	233,308
c. SDCWA share of cost (trial court affirmed) (~% of water purchased)	\$80,668,928		\$167,062,979		\$320,241,874	
d. SDCWA share of cost (status quo) (~% of water delivered)	\$149,813,724		\$310,259,818		\$594,734,909	
SDCWA (\$/AF) (trial court decision affirmed c/a)	\$ 1,092	\$ 1,199	\$ 1,092	\$ 1,199	\$ 1,092	\$ 1,199
SDCWA (\$/AF) (status quo, d/b)	\$ 2,320	\$ 2,549	\$ 2,320	\$ 2,549	\$ 2,320	\$ 2,549
SDCWA Water Rate Impact, \$/AF (trial court affirmed)	\$141		\$293		\$561	
Monthly Cost per Average Household (trial court affirmed)	\$6		\$12		\$23	
SDCWA Water Rate Impact, \$/AF (status quo)	263		544		1,042	
Monthly Cost per Average Household (status quo)	\$11		\$23		\$43	

 = Trial Court Decision

 = Status Quo

Qualifications of the Analysis

Because there remain numerous unknowns about the funding and yield of the project, this report should be reviewed in companion with the Water Authority's January 15, 2014 report "Bay-Delta Conservation Plan: Preliminary Assessment of Financing Risk Parameters" and February 19, 2014 report "BDCP Economic and Financial Analysis" (see links http://www.sdcwa.org/sites/default/files/files/board/2014_Agendas/2014_01_09_SpecialIW.pdf and http://www.sdcwa.org/sites/default/files/files/board/2014-02-19_BDCP_Economic_Financial_Risk.pdf). Moreover, these analyses should be viewed as a snapshot in time because cost allocation discussions are still ongoing. Much of the final cost-benefit analysis will depend on how the project cost will be allocated and how the incremental project yield will be apportioned, and to the Water Authority, how MWD would ultimately chose to allocate the project cost within its rates and charges.

Readers will note that the prior analysis varied funding obligations but fixed the amount of water MWD may expect. This analysis also varies funding obligations, but employs the principle that water follows money. With this approach, the unit cost for the incremental supply stays the same, but the total financial obligation varies depending on the actual project cost and amount of project capacity subscribed.

It is important to note that this analysis assumes all water made available during wet years under all three scenarios could be consumptively used or stored. In other words, under the MWD pays for 100 percent of the project cost scenario, this analysis assumes MWD will take 1.28 million acre-feet of average annual Delta supplies from the Delta fix – in addition to the SWP supplies without the fix. Whether MWD could physically take all the water made available during the wet years, or whether the supplies are needed or not is not analyzed due to lack of access to MWD's operations model. But these are fundamental questions in any analysis and should be considered when MWD conducts its analysis. It is highly likely that MWD will be unable to take that amount of supplies. How much SWP supply MWD can physically take at one time, or how much annual SWP supply MWD can reliably and beneficially use, is unclear without having access to MWD's model. As a point of reference, in 2011, DWR temporarily shut down its pumps during that winter season because downstream users, including MWD, did not have the capacity to take more water. Clearly, if a project proponent could not take or store all the water made available as assumed in this analysis, the unit cost of that incremental supply will go up.

Equally important to this analysis is the potential incremental yield assumption. With the change in permitting scheme, whatever long-term assurance the BDCP habitat conservation plan may have offered is no longer available. If fish populations continue to decline, there is no guarantee that the regulatory agencies would not continue to increase pumping restrictions, with, or without the new project. Under that scenario, project proponents may end up with a multi-billion project with significantly reduced benefits.

On the other hand, the implementation of the project could minimize water supply interruptions should a large seismic event occur in the Delta area; the new project could also minimize potential climate change effects of sea level rise.