ECOnorthwest

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Review and Assessment of Economic Issues Related to the Delta Conveyance Project

Prepared for: California Water Impact Network (CWIN)

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Acknowledgments

ECOnorthwest prepared this report for the California Water Impact Network. Other firms, agencies, and staff contributed to other research that this report relied upon. That assistance notwithstanding, ECOnorthwest is responsible for the content of this report. The staff at ECOnorthwest prepared this report based on their general knowledge of microeconomics, agricultural and resource economics, and environmental economics. ECOnorthwest also relied on information derived from government agencies, private statistical services, the reports of others, interviews of individuals, or other sources believed to be reliable. ECOnorthwest has not independently verified the accuracy of all such information and makes no representation regarding its accuracy or completeness. Any statements nonfactual in nature constitute the authors' current opinions, which may change as more information becomes available.

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1. Introduction and Summary

This report evaluates the economic dimensions underlying the proposed implementation of the Delta Conveyance Project (DCP) as set forth in documents that the Department of Water Resources (DWR) has presented to date (July 1, 2025). This report is intended to inform economic testimony offered by the CWIN Protestant in its Case in Chief presented in the State Water Resources Control Board Administrative Hearing to address the water right change petitions for the DCP filed by DWR. It may also support testimony that the CWIN Protestant will offer in rebuttal to DWR's Case in Chief in the future.

To develop this report, ECOnorthwest (ECO) reviewed documents produced by DWR as part of the DCP planning process (the DCP Record). ECO's review focuses on three key documents: the Petition for Change in Point of Diversion, the Benefit-Cost Analysis of the Delta Conveyance Project (BCA) prepared by the Berkeley Research Group, and the Final Environmental Impact Report for the Delta Conveyance Project (FEIR) developed pursuant to the California Environmental Quality Act (CEQA). Together, these documents establish the analytical and policy foundation upon which DWR is advancing the DCP. Other documents cited below were also reviewed. ECOnorthwest's review of these documents focuses on DWR's assumptions, methodologies, and conclusions that influence the economic benefits, costs, impacts, and distribution of effects of the DCP. It also considers how DWR's framing of the DCP in the FEIR—including a purpose and need that narrowly defines the problem and potential solutions—leads to gaps in understanding and critical omissions in economic outcomes relevant to California's water users and populations.

This report is organized around eight primary critiques that DWR must address to answer critical questions about whether the DCP provides the most economically efficient and equitable pathway to water resiliency for California's populations and ecosystems, and whether the State of California is adequately protecting the public trust and acting in the public interest if it builds and operates the DCP.

Summary of Critiques

When considered together, the critiques outlined in this assessment reveal a cumulative pattern of overly optimistic assumptions and omitted costs that significantly distort the DCP's economic feasibility and public benefit. While each assumption individually may appear plausible under certain conditions, the combined effect is to systematically inflate benefits, underestimate actual costs, discount the importance of opportunity costs and non-monetary costs, and ignore distributional impacts to vulnerable Californians. This creates an inaccurately favorable picture of the DCP's value to Californians and is not a defensible or credible basis for decision-making on economic grounds.

2. Economic Critiques of the DCP Record

Critique 1. Construction Costs

DWR underestimates probable construction costs of the DCP, providing inadequate support to justify the DCP on economic and public interest grounds.

In 2024, Delta Conveyance Design and Construction Authority estimated that the DCP would cost approximately $20 billion (undiscounted 2023 dollars) to construct and $53 million (undiscounted 2023 dollars) annually to operate and maintain over its lifetime.[1] DWR characterizes this cost estimate as a "class 4" estimate, which carries an accuracy range of +80% to -55% based on where it is in the planning process. It further states that "some areas are considered class 5," which has an even greater accuracy confidence interval. Using the class 4 confidence interval, the construction cost of the DCP by DWR's own estimates could ultimately be as high as $36 billion in 2023 dollars.[2]

DWR's current estimate of approximately $20 billion almost certainly underestimates how much the DCP will ultimately cost the state and ratepayers. Even the high-end estimate of $36 billion likely underestimates the final construction bill, for many reasons that almost universally play out in large projects such as this one. For perspective, the estimated construction cost for the DCP is already 46 percent greater than the 2018 estimate for the highly comparable Stage 1 of the WaterFix project.[3] This upward trend is unlikely to stabilize as the project develops. **Taking into consideration the long history of significant cost overruns for public works megaprojects of this kind as well as interest payments, the total project cost that ratepayers would be responsible for is likely in the range of at least 3-5 times higher than what DWR currently estimates, or between approximately $60 and more than $100 billion.**

[1] DWR-00114 [David Sunding and Oliver Browne, *Benefit-Cost Analysis of the Delta Conveyance Project* (Berkeley: Berkeley Research Group, May 16, 2024), https://thinkbrg.com, Page 9-10.]
[2] DWR-00012 [Delta Conveyance Design and Construction Authority, *Bethany Alignment Total Project Cost Estimate Memorandum* (October 31, 2023), accessed April 3, 2025, https://www.dcdca.org/wp-content/uploads/2023/11/2023-Bethany-Total-Project-Cost-Estimate.pdf]
[3] Michael, Jeffrey I. *Review of the Delta Conveyance Project Benefit-Cost Analysis: DWR Economic Analysis Guidebook and Best Practices*. Stockton, CA: Center for Business and Policy Research, University of the Pacific, March 12, 2024, Page 10

A global review of more than 16,000 projects found that 91.5 percent of large-scale infrastructure projects exceeded their original budget, schedule, or both.[4,5] Fewer than one percent were completed on time and on budget.[6] This pattern is often referred to as the "Iron Law of Megaprojects": over budget, over time, over and over again.[7]

Research by Bent Flyvbjerg attributes the persistence of megaprojects to four "sublimes": technological, political, economic, and aesthetic. These concepts describe the emotional and institutional drivers behind megaprojects—such as the appeal of innovation, political visibility, financial opportunity, and iconic design.[8] The DCP is likely subject to at least the first three.

Cost overruns also result from systemic underestimation of costs and overestimation of benefits at the approval stage to support project continuation. These inaccuracies may reflect political expediency, a lack of understanding of project risks, or both.[9] Inadequate investment in early-stage planning, design, and preconstruction phases often contributes to this problem, limiting the ability to account for cost uncertainty.[10]

Exhibit 1 illustrates a range of large public works projects in California and across the U.S. that have experienced significant cost overruns—particularly water-related and tunneling projects and projects of a scale similar to the DCP. A well-known example is the Central Artery/Tunnel Project in Boston ("The Big Dig"), which was initially estimated at $2.56 billion in 1992 dollars but completed at $14.8 billion in 2007 dollars—a 478 percent overrun. Key drivers included unrealistically low initial estimates, inflation, unanticipated subsurface conditions (such as archaeological findings and uncharted utilities), and extensive environmental mitigation (which required over 1,500 agreements).[11] Another example is Seattle's State Route 99 tunnel project. The tunnel boring machine, Bertha, broke down and was inoperable for two years, contributing to a cost overrun of $223 million in 2016 dollars (6 percent).[12] Tunneling issues have also led to increased costs related to the Pure Water San Diego Project.[13] While equipment failures or natural obstacles are difficult to predict, these examples underscore the importance of including sufficient contingencies in tunneling project budgets.

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[4] [Rivka Galchen, "Bertha and the Tunnel of Doom," The New Yorker, December 14, 2015, accessed April 3, 2025, https://www.newyorker.com/news/news-desk/bertha-seattle-infrastructure-trouble-megaprojects]
[5] CWIN-007 [Bent Flyvbbjerg and Dan Gardner. Why do large projects go over budget?. (June 19, 2023). Accessed June 26, 2025 at https://www.strategy-business.com/article/Why-do-large-projects-go-over-budget]
[6] Ibid
[7] CWIN-007 [Bent Flyvbjerg, 2014, "What You Should Know about Megaprojects and Why: An Overview," *Project Management Journal*, vol. 45, no. 2, April-May, pp. 6-19, DOI: 10.1002/pmj.21409]
[8] Ibid
[9] Ibid
[10] Practical Engineering. (2023). Why Construction Projects Always Go Over Budget. Accessed July 7, 2025. https://practical.engineering/blog/2023/3/21/why-construction-projects-always-go-over-budget.
[11] [Virginia Greiman. (2010). The Big Dig: Learning from a Mega Project. Accessed July 7, 2025. https://www.nps.gov/articles/000/the-big-dig-and-spectacle-island-s-environmental-restoration.htm]
[12] [Chris Grygiel. (2016). Seattle tunnel project $223 million over budget, open in 2019. KOMONEWS. Accessed July 7, 2025. https://komonews.com/news/local/seattle-tunnel-project-223-million-over-budget.]
[13] [David Garrick. (2024). Billion-dollar Pure Water project stares down $130M in cost overruns for pipelines, plants and pumps. The San Diego Tribune. Accessed July 7, 2025. https://www.sandiegouniontribune.com/2024/09/15/billion-dollar-pure-water-project-stares-down-130m-in-cost-overruns-for-pipelines-plants-and-pumps/]

Exhibit 1. Examples of Megaprojects with Cost Overruns (in Nominal Dollars)

PROJECT	LOCATION	EARLY ESTIMATE	ACTUAL/REVISED ESTIMATE	% OVER	REASON(S)
Central Artery/Tunnel Project (aka "The Big Dig")[14]	Boston, MA	$2.6B	$14.8B	478%	Inflation; Unknown Subsurface Conditions; Environmental and Mitigation Costs (1,500 separate mitigation agreements); Scope creep
Orville Dam Spillway Reconstruction[15]	Butte County, CA	$200M	$1.1B	450%	Underestimated Damage Assessment, Accelerated Construction Timeline; Geological Challenges; Design modifications
Carlsbad Desalination Plant[16,17]	Carlsbad, CA	$250M	$1.3B	410%	Permitting and Legal Challenges; Environmental Compliance Upgrades; Project Financing Costs
California High-Speed Rail[18]	California	$33B	$128B	288%	Politics; Land Acquisition Delays; Utility Relocation; 1000+ change orders; CEQA/NEPA lawsuits
Transbay Transit Center[19]	San Francisco, CA	$1.6B	$2.2B	38%	Structural Issues; Escalating labor and Materials; Agency

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14 Virginia Greiman. (2010). The Big Dig: Learning from a Mega Project. Accessed July 7, 2025. https://www.nps.gov/articles/000/the-big-dig-and-spectacle-island-s-environmental-restoration.htm]

15 Dan Brekke. (2018). Updated Cost for Oroville Dam Spillway Disaster: $1.1 Billion. KQED. Accessed July 7,2025. https://www.kqed.org/news/11690563/new-cost-for-oroville-dam-spillway-disaster-1-1-billion.

16 Megan Burke. (2022). Upgrade costs for Carlsbad desalination plant will be passed along to San Diego ratepayers. Kpbs65. Accessed July 7, 2025. https://www.kpbs.org/news/local/2022/12/20/upgrade-costs-for-carlsbad-desalination-plant-will-be-passed-along-to-san-diego-ratepayers.

17 Sierra Club. (2022). The REAL Truth Behind Carlsbad "Bud" Lewis Poseidon Desalination Plant. A Costly Mistake. Accessed July 7, 2025. https://www.sierraclub.org/angeles/blog/2022/03/real-truth-behind-carlsbad-bud-lewis-poseidon-desalination-plant-costly.

18 Josh Christenson. (2025). California got nearly $7B from feds for high-speed rail—but never laid any track, bombshell report shows. NY Post. Accessed July 7, 2025. https://nypost.com/2025/06/04/us-news/california-got-7b-from-feds-for-high-speed-rail-but-never-laid-any-track-report/.

19 Carolyn Said. (2023). 'There are no people here': S.F.'s $2.2 billion transit center remains an empty cavern. The San Francisco Chronicle. Accessed July 7, 2025. https://www.sfchronicle.com/projects/2023/sf-transit-center/.

					Coordination Challenges
Pure Water San Diego[20]	San Diego, CA	$1.4B	$1.5B	9%	Inflation; Rising Materials Costs; Tunneling Challenges and Flooding
SR 99 Tunnel [21]	Seattle, WA	$3.1B	$3.3B	6%	Boring Equipment Failure led to increased permitting and administrative costs

Source: Created by ECOnorthwest

DWR's current cost estimate of $20 billion in 2023 dollars likely underestimates the probable total cost of the DCP by underestimating or omitting these factors: 1) complexity and uncertainty; 2) financing costs; 3) inflation; and 4) the full range of "soft costs". When these factors are addressed in realistic ways that reflect actual outcomes from similar-scale public works projects, it would not be without historical precedent that the actual cost of the DCP if fully constructed could be up to 400 percent higher than DWR's current estimates.

1. UNCERTAINTY, COMPLEXITY, AND LEGAL COSTS

DWR states that it builds contingency of 15 to 30 percent into its cost estimates to deal with potential uncertainty around service-related or construction-related costs.[22] Risk treatment costs are also included for the budget of the design and construction phase of the project to mitigate uncertainty.[23] Based on other megaprojects in California and across the US, this may not be enough to compensate for the uncertainties and complexities that can balloon the costs of DCP construction.

Tunneling projects can run into problems that are not foreseen in the design phase but become evident once construction begins (see The Big Dig, SR 99 tunnel, and Pure Water San Diego). Unforeseen subsurface conditions (unknown geotechnical issues and site conditions, archeological finds, and uncharted utilities) could cause delays or equipment failures that could increase the costs of constructing the project beyond the 30 percent contingency

[20] David Garrick. (2024). Billion-dollar Pure Water project stares down $130M in cost overruns for pipelines, plants and pumps. The San Diego Tribune. Accessed July 7, 2025. https://www.sandiegouniontribune.com/2024/09/15/billion-dollar-pure-water-project-stares-down-130m-in-cost-overruns-for-pipelines-plants-and-pumps/

[21] Chris Grygiel. (2016). Seattle tunnel project $223 million over budget, open in 2019. KOMONEWS. Accessed July 7, 2025. https://komonews.com/news/local/seattle-tunnel-project-223-million-over-budget.

[22] DWR-00012 Delta Conveyance Design and Construction Authority, *Bethany Alignment Total Project Cost Estimate Memorandum* (October 31, 2023), Page 12, accessed April 3, 2025, https://www.dcdca.org/wp-content/uploads/2023/11/2023-Bethany-Total-Project-Cost-Estimate.pdf.

[23] DWR-00012 Delta Conveyance Design and Construction Authority, *Bethany Alignment Total Project Cost Estimate Memorandum* (October 31, 2023), Page 8, accessed April 3, 2025, https://www.dcdca.org/wp-content/uploads/2023/11/2023-Bethany-Total-Project-Cost-Estimate.pdf.

budget. DWR has indicated that delays in the design process alone could result in "over one billion dollars" due to escalation pressures and increased overhead costs.[24]

Another factor that could increase costs would arise from the land access and acquisition requirements to advance both design and ultimately construction. Most properties overlaying the project footprint or otherwise required for project completion and mitigation compliance are in private ownership.[25] Each transaction presents an opportunity for the project to face delays and unexpected legal costs.

2. FINANCING COSTS

The construction and operating cost of the DCP will likely increase in the future through the incorporation of financing costs not included in DWR's initial estimate such as "capitalized interest, cost of issuance, bond reserves, and reimbursable contributions from public water agencies."[26] While DWR also asserts thatthe cost basis for the $20 billion estimate for capital costs of the DCP includes "add-on costs (such as insurance and bonds)," it does not specify what share of the overall cost they make up and does not provide enough detail on which financing and bond assumptions are included in the cost.[27] Based on assumptions that DWR made for the Bay-Delta Conservation Plan in 2013, revenue bonds issued to cover capital costs of the DCP could accrue interest at 6 percent and State Water Project (SWP) contractors could need to pay back approximately $61 to $116 billion (nominal dollars) in principal and interest payments over a 40-year payback period (Appendix A).

3. INFLATION

Based on standard practices for escalating construction costs, we can use a construction building cost index like the U.S. Bureau of Reclamation's (BOR) Construction Cost Trends or Turner Building Cost Index to calculate how costs may change between 2023 and the mid-point of the construction schedule (2036). Based on BOR's construction cost trends data, costs increased annually between 2.6 to 3.2 percent between 1985 and 2019.[28] Assuming an average inflation rate of 3 percent, construction costs would escalate to approximately $30 billion by 2036 and $37 billion by 2044, the end of the construction period. Based on the Turner Building Cost Index, costs increased between 1.8 to 8 percent annually between 2012

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[24] California Department of Water Resources, *Compendium of Evidence in Support of DWR's Opposition to Petition for Writ of Mandate (Delta Conveyance Project)*, Page 26, filed May 20, 2024. in Sacramento County Superior Court Case No. 24WM000017, related to 24WM000006; 24WM000008; 24WM000009; 24WM000010; 24WM000011; 24WM000012; 24WM000014; 24WM000062. (Pending on appeal after granting of preliminary injunction against DWR.)

[25] Ibid

[26] CWIN-009 California Department of Water Resources. *Delta Conveyance Program Revenue Bond: General Bond Resolution (No. DWR-DPRB-1).*, filed in Sacramento Superior Court, Case No. 25CV000704
January 6, 2025, 3. Litigation remains pending in DWR's 2025 Delta conveyance bond resolution. A ruling against DWR in an earlier-filed action to validate Delta conveyance revenue bonds also remains pending on appeal. *Sierre Club v. Department of Water Resources,* Third District Cour of Appeal, No. C100552.

[27] DWR-00012 Delta Conveyance Design and Construction Authority, *Bethany Alignment Total Project Cost Estimate Memorandum* (October 31, 2023), Page 8, accessed April 3, 2025, https://www.dcdca.org/wp-content/uploads/2023/11/2023-Bethany-Total-Project-Cost-Estimate.pdf.

[28] California Department of Water Resources, *Compendium of Evidence in Support of DWR's Opposition to Petition for Writ of Mandate (Delta Conveyance Project)*, Page 26, filed May 20, 2024.

and 2024.[29] Assuming an average escalation rate of 4.43 percent, the $20 billion cost estimate will escalate to approximately $36 billion by 2036 and to $54 billion by 2044. Inflation is a common factor cited in other megaprojects that can increase the original cost estimates. While inflation also makes costs less burdensome in the future if revenue and income increase as well, project costs can outpace these other resources, and constraints on utility rates and taxes can prevent revenue from keeping pace. Moreover, budget planning for utilities must project decades into the future.

4. ADMINISTRATIVE, PROJECT MANAGEMENT, AND OTHER SOFT COSTS

Another category that could increase the costs of building the DCP is administrative, project management, or other soft costs. Most of the "service-related" soft cost categories have a 15 percent contingency attached to them in DWR's cost estimates.[30] The contingency budget for these items could easily be eaten into especially if the project faces delays in the construction phase. Delays during construction led to increased administrative costs for another tunneling project (SR 99 Tunnel). In 2016, the California State Auditor's report found that planning phase of the Bay Delta Conservation Plan, which included a precursor project comparable to the DCP, experienced significant cost increases due to poor contract oversight, lack of competitive bidding, and poor project management structures. The contract with a consultant to prepare the plan document increased from $1.6 million in 2006 to $7.7 million by 2009, almost five times the original cost due to substantial changes in scope of work and poor project management. [31] By 2013 when the plan was published, the total cost of preparing the plan reached $60 million.[32]

Critique 2. Overlooked and Opportunity Costs

DWR has not evaluated non-conveyance solutions to improve water supply resilience, to provide a point of comparison to the DCP. In evaluating the DCP, DWR does not quantify the costs of investments in storage necessary to deliver additional DCP flows during dry periods. Neither does DWR evaluate supplemental alternative supplies necessary to achieve

[29] Turner Construction Company, *Turner Building Cost Index: First Quarter 2025 Report*, accessed April 3, 2025, https://turnerconstruction.com/uploads/cost-index-Q1-2025.pdf.

[30] DWR-00012 Delta Conveyance Design and Construction Authority, *Bethany Alignment Total Project Cost Estimate Memorandum* (October 31, 2023), Page 8, accessed April 3, 2025, https://www.dcdca.org/wp-content/uploads/2023/11/2023-Bethany-Total-Project-Cost-Estimate.pdf.

[31] CWIN-010 [California State Auditor, Department of Water Resources: The Unexpected Complexity of the California WaterFix Project Has Resulted in Significant Cost Increases and Delays, Report 2016-132 (October 2017), Page 17, accessed on July 9, 2025, https://information.auditor.ca.gov/pdfs/reports/2016-132.pdf]

[32] Ibid., Page 19, accessed on July 9, 2025, https://information.auditor.ca.gov/pdfs/reports/2016-132.pdf

resilient and cost-effective water supply, nor the opportunity cost of avoided alternative water supply development.

In advancing the DCP, DWR continues to ignore or overlook solutions to improve water supply resilience throughout California. The FEIR did not compare the DCP to a comprehensive strategy of non-conveyance alternatives, limiting the opportunity for serious evaluation and comparison of the full range of benefits and costs of all potential solutions to address water supply reliability for SWP contractors.[33] DWR's assessment framework thus allows it to ignore or waive away the opportunity costs of constructing and operating the DCP. Evaluating these opportunity costs and explicitly accounting for all costs likely to arise from long-term operation are necessary steps to understand if this path is consistent with the public interest and California's duty to uphold its public trust responsibilities as a steward of public trust resources, including salmon and the ecosystems they depend on (see Critique 8).

The DCP Record does not evaluate the potential benefits or costs associated with increased operational flexibility of the SWP in the Delta, nor does it assess changes in state reservoir storage levels under future conditions. Critically, it assumes no expansion of storage capacity by contractors, such as the MWD, even though new storage may be essential to capture DCP-delivered flows during high-flow periods for use in dry months. Similarly, DWR does not consider necessary infrastructure investments to manage increased deliveries or shifts in operational timing. Although the Record claims that the DCP will support Sustainable Groundwater Management Act (SGMA) goals by enabling surface water substitution for groundwater, it provides no justification or modeling to support the assertion that groundwater levels will improve as a result. Given the seasonal and interannual variability of DCP water availability, the omission of storage and infrastructure planning undermines the credibility of the DCP's overall benefit-cost conclusions.

Critique 1 addresses the problems and uncertainties with the cost estimates that DWR has provided thus far to construct and operate the DCP.[34] These figures do not account for local storage or conveyance infrastructure necessary to utilize the water efficiently when it is needed most, particularly in dry years.[35] One strategy that DWR and local water agencies have pursued to provide additional storage capacity is Aquifer Storage and Recovery (ASR), which allows water to be stored in underground aquifers during wet years and extracted during dry conditions.[36] A notable example is the High Desert Water Bank, a joint ASR facility developed by Antelope Valley-East Kern Water Agency (AVEK) and MWD, with a total capacity of 208,000 acre-feet and an annual extraction capacity of 70,000 acre-feet. However, this system relies on availability of SWP water for recharge. According to the Groundwater

[33] See FOR-XXXX Heather's Testimony.
[34] DWR-00012
[35] See Critique 4. Ratepayer Affordability, for more supporting information.
[36] USGS. "Aquifer Storage and Recovery." 20th November 2018. accessed at https://www.usgs.gov/centers/california-water-science-center/science/aquifer-storage-and-recovery on 19th December 2023.

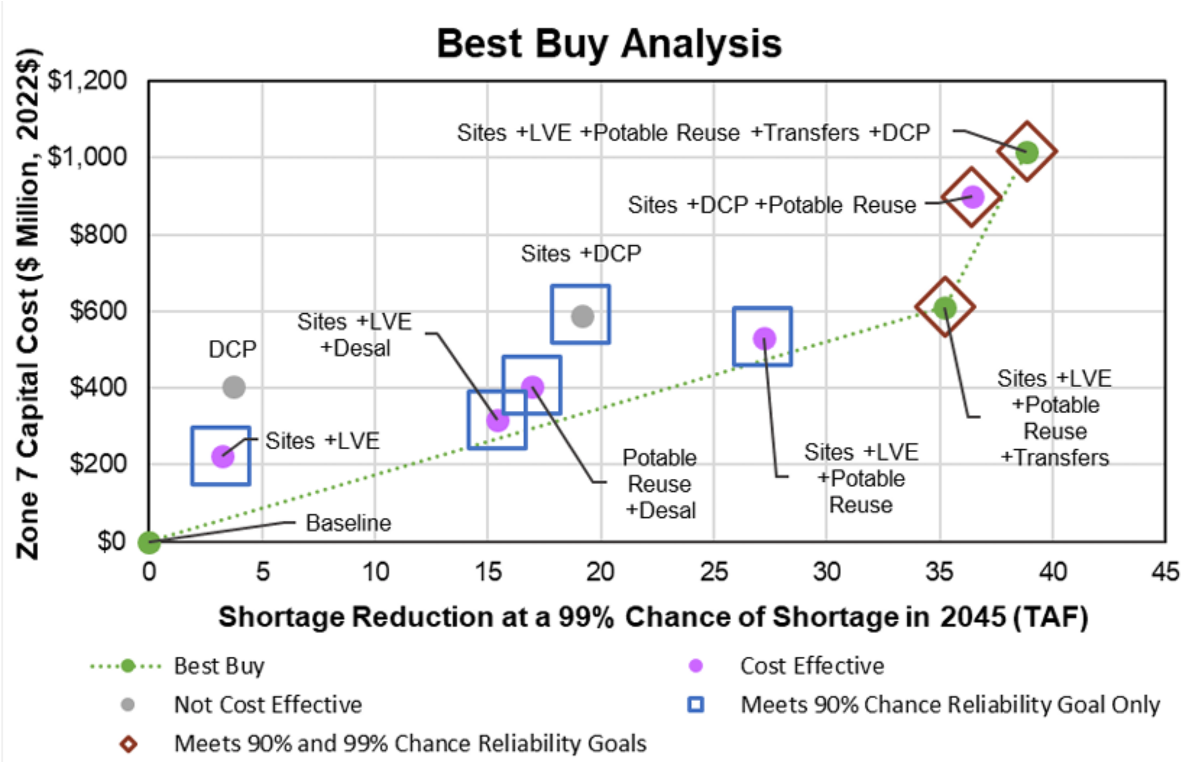
Solutions Initiative for Policy and Practice, ASR development costs are estimated at $863 per acre-foot.[37]

Local water districts have demonstrated that for the DCP to potentially provide water reliably, additional storage and complementary local water supplies are necessary. For example, the Zone 7 Water District evaluated multiple future water supply portfolios for cost-effectiveness and reliability, including the DCP, Sites Reservoir, Los Vaqueros Reservoir Expansion, potable reuse, and water transfers. Zone 7 estimates that the annual average cost of the DCP at buildout is $23 million, yielding 7 thousand acre-feet of water on average, or approximately $3,285 per acre-foot. The analysis found that the DCP, when considered in isolation, is not cost-effective and does not meet Zone 7's reliability targets, defined as either a 90 percent probability of a shortage no greater than 4 percent by 2045, or a 99 percent probability of a shortage no greater than 15 percent by 2045. The DCP only becomes viable when bundled with other local and regional investments such as potable reuse, expanded reservoir storage, and transfer agreements. The DCP as part of a multi-project portfolio is deemed cost effective in very high future water demand scenarios (necessitating over 35 TAF of additional supply in Zone 7) and/or when meeting extremely high shortage reliability goals. Furthermore, Zone 7 determined that a multi-project portfolio excluding the DCP, comprising reservoir capacity expansion, potable reuse, and water transfers, could achieve the same reliability goals at lower cost, calling into question the standalone value of the DCP as a strategic water supply investment.[38]

[37] GRIPP. "California's progressive subsurface water storage approach." https://gripp.iwmi.org/natural-infrastructure/environmental-services-3/californias-progressive-subsurface-water-storage-approach/ Accessed on 23rd January 2024.

[38] CWIN-011 [Hazen and Sawyer. (2023). "Zone 7 2022 Water Supply Evaluation Update". Page 89. Accessed at https://www.zone7water.com/sites/main/files/file-attachments/draft_zone_7_2022_wse_update_2023.03.pdf?1685462831]

Exhibit 2. Zone 7 Water Supply 'Best Buy Analysis', 2022



Source: Hazen and Sawyer, 2023.

As public works projects in California routinely experience cost escalation, the total cost of the DCP is likely understated (see Critique 1. Construction Costs). When more realistic cost projections and necessary ancillary infrastructure are included, the true cost of DCP water could far exceed the anticipated annual cost of $3,285 per acre-foot.

This raises concerns about the opportunity cost of participation in the DCP—namely, the foregone investment in more localized and flexible water supply solutions, which may offer higher reliability at lower cost and sooner than the DCP is projected to become operational. For many water agencies, the choice to participate in the DCP may preclude or delay more cost-effective strategies, including local storage, water reuse, and conservation. As documented by the Pacific Institute, conservation is often the most cost-effective water supply option and supports water affordability goals.[39] For example, the levelized cost of landscape water conservation can range from -$5,900 to -$3,400 for on the low end. These costs are negative because the reduction in maintenance costs outweighs the conservation investment cost. On the high end, the levelized cost of landscape water conservation is estimated at $1,900 per acre-foot.[40] [41]

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[39] CWIN-012 [Shimabuku, Morgan, Curtis, Christine, and Heather Cooley. *The Potential for Water Efficiency to Support Affordability in the United States*. Oakland, CA: Pacific Institute, October 2024. Accessed July 10, 2025. https://pacinst.org/the-potential-for-water-efficiency-to-support-affordability-in-the-united-states/.]

[40] Figures converted from 2016 dollars to 2024 dollar using the CPI.

[41] CWIN-013 [Cooley, Healther and Rapichan Phurisamban. (2016). The Cost of Alternative Water Supply and Efficiency Options in California. Accessed at https://pacinst.org/wp-content/uploads/2016/10/PI_TheCostofAlternativeWaterSupplyEfficiencyOptionsinCA.pdf]

Other potentially cost-effective alternative water supply strategies include water recycling and reuse. In a 2022 Pacific Institute report, the levelized cost of stormwater capture is estimated as the low-cost alternative water supply expansion option averaging $800 per acre-foot.[42] SWRCB estimates that creating water savings of 3.9 million AF between 2025 and 2050, under the new regulations, would cost $4.7 billion, approximately $51 per AF (in 2023 dollars) of water saved. The Pure Water Southern California Project is a water recycling initiative designed to purify wastewater for reuse. The project is scalable, with a potential yield ranging from 46,000 to 119,000 acre-feet (TAF), and unit costs estimated between $3,300 and $4,000 per acre-foot, or $2,000 to $2,200 on a lifecycle basis though the project may face some of the same upward pressures we have noted for the DCP. The project is designed in phases to allow for additional capacity as needed, creating flexibility to respond to water demand. Currently in the environmental review phase, the project's 10-year construction timeline enables it to deliver new water supplies sooner than the DCP.[43]

Alternative water supply sources offer significant potential, including 2.0 to 3.1 million acre-feet annually from urban water-use efficiency, 1.8 to 2.1 million acre-feet from municipal wastewater reuse, and 580,000 to 3.0 million acre-feet from urban stormwater capture. Investments in these conservation and supply measures could provide water at significantly lower costs than the DCP.[44] Beyond cost-effectiveness, these localized solutions offer additional advantages: they are scalable, support local residents through water affordability and local economic development, and can generate environmental benefits. Some options, like stormwater capture, may be vulnerable to drought conditions, while others, such as conservation measures, tend to perform better during drought years. This variability offers valuable flexibility across different water year types.

Similarly, in agriculture, conservation remains the most cost-effective water supply option. Transitioning from gravity-fed irrigation to pressurized systems (e.g., sprinklers or drip) reduces evapotranspiration and water application rates.[45] Based on system cost estimates and useful life assumptions (20 years for sprinkler, 15 years for drip), the average annualized cost is just $23 per acre-foot.[46] [47] [48] While adoption is already high, pressurized systems are used on 72 percent of irrigated acreage in the western U.S., opportunities for targeted

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[42] CWIN-014 [Cooley et al., (2022) The Untapped Potential of California's Urban Water Supply: Water Efficiency, Water Reuse, and Stormwater Capture. Accessed at https://pacinst.org/publication/california-urban-water-supply-potential-2022/]

[43] Metropolitan Water District. (2025). Overview of Potential Drivers of the Next Biennium Budget. Accessed at https://mwdh2o.legistar.com/View.ashx?M=F&ID=14269101&GUID=A9517510-45C5-443F-9CB4-AD19FDDE9E97

[44] CWIN-014 [Cooley et al., (2022) The Untapped Potential of California's Urban Water Supply: Water Efficienccy, Water Reuse, and Stormwater Capture. Accessed at https://pacinst.org/publication/california-urban-water-supply-potential-2022/]

[45] CWIN-015 Aaron Hrozencik and Marcel Aillery. "Trends in U.S. Irrigated Agriculture: Increasing Resilience Under Water Supply Scarcity." December 2021. *United States Department of Agriculture - Economic Research Service.*

[46] Irrigation Education. (2016). Do Your Pivot Pipelines Last as Long as They Should? Accessed at https://blog.irrigation.education/blog/do-your-pivots-last-as-long-as-they-should.

[47] I. Broner and M. Alam. (2003). Irrigation. Accessed at https://lubbock.tamu.edu/files/2011/10/04716.pdf.

[48] x

improvements remain, particularly on remaining gravity-irrigated lands.[49] Compared to the high and uncertain costs of the DCP, water conservation measures represent a much more affordable and scalable path to resilience.

Critique 3. Municipal Water Demand

The DCP Record overestimates municipal water demand forecasts thereby overestimating the stated benefits of the DCP.

DWR estimates urban water supply reliability benefits based on a single demand forecast scenario from the MWD's 2020 Integrated Water Resources Plan (IRP).[50] Specifically, the analysis relies on Scenario D, which assumes high water demand and reduced water imports. This scenario reflects projections of high economic and demographic growth coupled with significant climate change impacts that limit water imports and local supplies.[51]

By choosing Scenario D, the analysis likely overstates the urban water supply benefits of the DCP. While severe climate change impacts—especially hydroclimate volatility—are plausible[52], the assumption of high demographic growth in California appears inconsistent with current projections. According to the California Department of Finance, the state's population is expected to grow by just 2.5 million people (a 6.2 percent increase) between 2021 and 2050. Notably, Los Angeles County—the most populous county and the core service area for MWD—is projected to lose approximately 308,000 residents (a 3.2 percent decrease) during that period.[53] A national assessment of climate risk further details California's low population growth resulting from increased exposure to severe weather events and increasing insurance costs.[54] These forecasts suggest that California is unlikely to experience the kind of high demographic growth that would significantly increase water demand, especially when paired with regulations around water use.

A more appropriate choice would have been Scenario C from MWD's IRP. This scenario also includes severe climate change impacts but is paired with projections of lower economic and

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[49] Aaron Hrozencik. (2023). Irrigation and Water Use. *United States Department of Agriculture - Economic Research Service.* Accessed at *https://www.ers.usda.gov/topics/farm-practices- management/irrigation-water-use/.*

[50] DWR-00114 David Sunding and Oliver Browne, *Benefit-Cost Analysis of the Delta Conveyance Project* (Berkeley: Berkeley Research Group, May 16, 2024), https://thinkbrg.com.

[51] CWIN-016 Metropolitan Water District of Southern California, *2020 Integrated Water Resources Plan (IRP) – Regional Needs Assessment*, adopted April 12, 2022, https://www.mwdh2o.com/.

[52] Daniel L. Swain et al., "Hydroclimate Volatility on a Warming Earth," *Nature Reviews Earth & Environment* 6 (January 2025): 35–50, https://doi.org/10.1038/s43017-024-00624-z.

[53] California Department of Finance. *DRU Data Portal – State and County Population Projections (2023 Series).* Accessed May 22, 2025. https://dru-data-portal-cacensus.hub.arcgis.com/apps/eebcf24ac5e942c7b8ab7011173efdbe/explore.

[54] First Street Foundation. *The 12th National Risk Assessment: Property Prices in Peril*. New York, NY: First Street Foundation, February 2025. https://assets.riskfactor.com/media/The%2012th%20National%20Risk%20Assessment.pdf#page=3.99.

demographic growth, resulting in lower growth in water demand.[55] Scenario C more accurately reflects the likely trajectory for California, particularly in terms of population trends. Had the BCA used Scenario C instead or in addition to, it would likely have produced more realistic estimates (or a more realistic range of outcomes) of the DCP's urban water supply reliability benefits. **While we acknowledge it is common practice to plan and be prepared to meet highest possible demand futures because ensuring reliability is a key responsibility of water providers, decision makers also have a fiduciary responsibility to customers and ratepayers. A critical exercise of trust responsibility is to consider the implications for future management and cost burdening if lower projections for demand materialize instead, requiring less water that could be met through incremental and more affordable investments over time.**

For contractors other than MWD, the BCA relies on Urban Water Management Plans developed by the contractors and their retail customers to estimate and forecast water demand over the analysis period. Research has indicated that Urban Water Management Plans overestimate future demand C through inflated population forecasts and per capita water demand.[56] The UWMPs prepared in or before 2020 also do not account for how urban water demand will likely reduce in response to more stringent water conservation regulations issued by SWRCB in 2024. In 2024, SWCRB released regulations under Assembly Bill 1668 and Senate Bill 606 that are set to save approximately 3.9 million AF between 2025 and 2050.[57] The regulations will limit indoor residential water use to 47 GPCD starting January 1st 2027 and then decrease it to 42 GPCD in 2030.[58] SWRCB expects that the proposed regulation would reduce statewide urban water use to 109 GPCD by 2040 and 102 GPCD by 2045.[59]

To understand what share of the demand would be reduced through the new regulations, we calculated the projected urban water demand in GPCD for seven SWP water contractors based on their projected water demand and population estimate for 2045. We found that the agencies estimated that the projected urban water demand in 2045 would be approximately 144 GPCD on average, ranging between 114 GPCD for Santa Clara Valley Water District and 406 GPCD for the Desert Water Agency (Exhibit **3**). These projections are higher than SWRCB's estimate for the average statewide urban demand of 109 GPCD by 2040. Although the urban demand would vary by agency, the standards for indoor residential water demand would require these agencies to increase water savings beyond their current estimates. Using the 109 GPCD as a target, the agencies would need to reduce demand by as little as 4 percent for Santa Clara Valley Water District to 73 percent for Desert Water Agency (Exhibit **3**). Although the urban demand would vary by SWP contractor, the standards for indoor

[55] CWIN-015 Metropolitan Water District of Southern California, *2020 Integrated Water Resources Plan (IRP) – Regional Needs Assessment*, adopted April 12, 2022, https://www.mwdh2o.com/.
[56] CWIN-017 Abraham, Sonali, Sarah Diringer, and Heather Cooley. *An Assessment of Urban Water Demand Forecasts in California*. Oakland, CA: Pacific Institute, August 2020, Page 8, https://pacinst.org/wp-content/uploads/2020/08/Pacific-Institute-Assessment-Urban-Water-Demand-Forecasts-in-CA-Aug-2020.pdf.
[57] California State Water Resources Control Board, "Standardized Regulatory Impact Assessment (SRIA) for Water Conservation Regulations 2024," July 21, 2024, https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/regs/docs/2024/sria.pdf, Page 6.
[58] California State Water Resources Control Board, "Standardized Regulatory Impact Assessment," Page 9.
[59] California State Water Resources Control Board, "Standardized Regulatory Impact Assessment," Page 22.

residential water demand would require agencies to increase water savings beyond their current estimates. This would ultimately result in lower urban water demand and lower levels of water shortages than what is being used in the BCA.

Exhibit 3 **UMP's projections for urban demand and additional water savings**

WATER AGENCY	PROJECTED DEMAND (GPCD)	WATER SAVINGS REQUIRED (AF)	AS % OF DEMAND
Metropolitan Water Agency	142	813,895	23%
Santa Clara Valley Water District	114	15,458	4%
Antelope Valley-East Kern Water Agency	182	36,615	40%
Contra Costa Water District	133	7,471	18%
Coachella Valley Water District	345	101,367	68%
Desert Water Agency	406	30,420	73%
Alameda County FC&WCD	153	15,863	29%
Total	**144**	**1,021,089**	**24%**

Source: ECOnorthwest Analysis of data in UMPs[60]

Critique 4. Ratepayer Affordability

The DCP Record fails to analyze the impact of the DCP on ratepayers and water affordability in Southern California.

DWR has failed to analyze the impact of the DCP on ratepayers who would ultimately bear the cost of the DCP, and whether it is affordable to those bearing the costs. California's Water Code recognizes that "every human being has the right to clean, affordable, and accessible water."[61] Given the significant cost liability described in Critique 1, the DCP has the fiduciary trust responsibility to understand the distributional impacts of the DCP on its contractors and ratepayers.

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[60] Metropolitan Water District of Southern California, *2020 Urban Water Management Plan*, June 2021, https://www.mwdh2o.com/media/21641/2020-urban-water-management-plan-june-2021.pdf; Santa Clara Valley Water District, *2020 Urban Water Management Plan*, June 2021, https://www.valleywater.org/your-water/water-supply-planning/urban-water-management-plan; Water Systems Consulting, *2020 Urban Water Management Plan*, Prepared for Antelope Valley-East Kern Water Agency, May 2021, https://www.avek.org/files/2a8e325f5/AVEK+2020+UWMP_Public+Draft_210525.pdf; Contra Costa Water District, *2020 Urban Water Management Plan*, June 2021 https://www.ccwater.com/DocumentCenter/View/9851/2020-Urban-Water-Management-Plan-PDF; Water Systems Consulting, *2020 Coachella Valley Regional Urban Water Management Plan*, June 2021, Prepared for Coachella Valley Water District, Coachella Water Authority, Desert Water Agency, Indio Water Authority, Mission Springs Water District, and Myoma Dunes Mutual Water Company, https://www.cvwd.org/DocumentCenter/View/5482/Coachella-Valley-RUWMP; West Yost, *2020 Urban Water Management Plan*. Prepared for Zone 7 Water Agency, June 2021, https://www.zone7water.com/sites/main/files/file-attachments/0_final_2020_uwmp.pdf?1624903044.

[61] California Water Code § 106.3 (enacted 2012), accessed April 3, 2025, https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=WAT&sectionNum=106.3.

California state policy strongly encourages that affordability be a central consideration in water infrastructure planning, particularly for disadvantaged communities. The State Water Resources Control Board (SWRCB) defines household water affordability as the "the ability of individual households to pay for an adequate supply of water," and has developed a methodology to assess it using metrics such as the percentage of household income spent on water, with specific affordability thresholds.[62] This framework is designed to help agencies evaluate the distributional impacts of DCP costs and support equitable access to drinking water. The California Public Utilities Commissions similarly recommends applying an affordability framework based on to evaluate financial burdens on ratepayers.[63]

The federal government also strongly recommends the analysis of distributional impacts in Benefit-Cost Analyses. The Office of Management and Budget's *Circular A-94* that outlines most recent federal guidance on conducting benefit-cost analysis and serves as a key guidepost for implementing professional best practices in economic analysis of government decisions states that "*Individuals or households are the ultimate recipients of income or other benefits; business enterprises, nongovernmental organizations, or other entities are merely intermediaries. Analyses of distribution should identify economic incidence, or how costs and benefits are ultimately borne by households or individuals*."[64] The cost of the DCP will increase the costs of imported water for SWP contractors and their customers.

Participating SWP contractors would be responsible for DCP costs regardless of the availability of additional water deliveries.

Based on DWR's analysis, the DCP may be able to deliver 400,000 AF in an average year, but deliveries could be negligible or fail to materialize entirely in critically dry or extremely wet years (see). As climate change becomes a bigger factor in water availability, climate scientists expect more critically dry and extremely wet years.[65] Prolonged droughts and wet periods could pose a barrier to both the delivery and storage of the DCP water year over year.

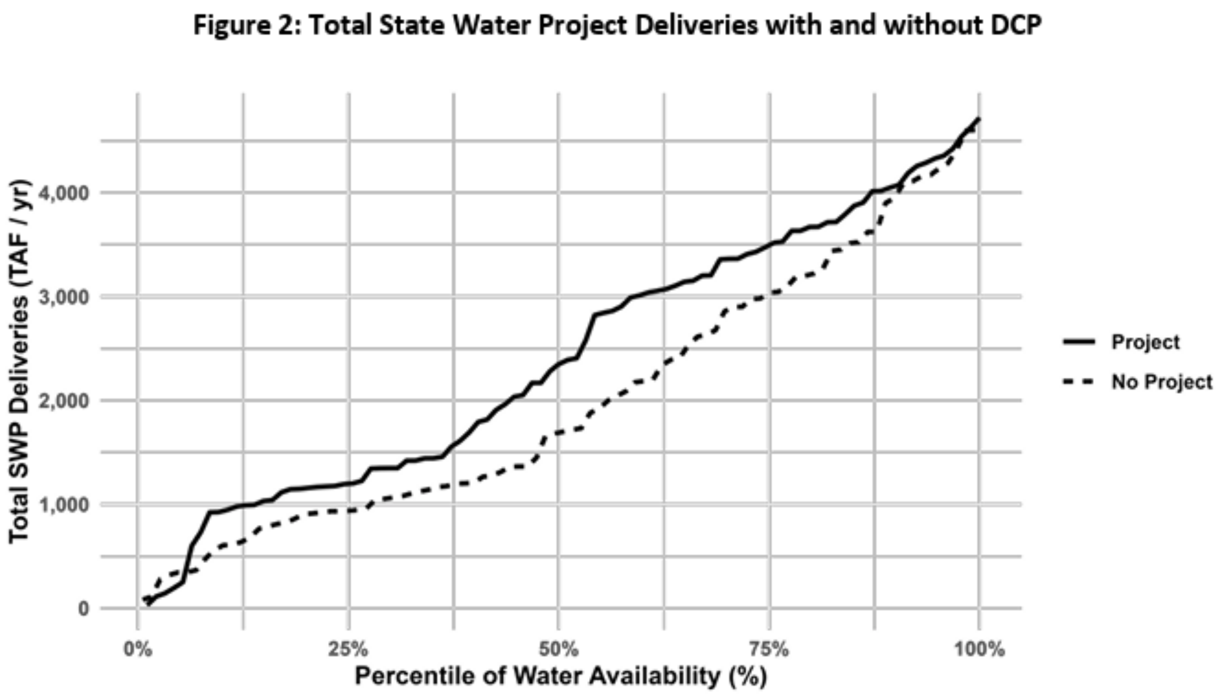
[62] California State Water Resources Control Board, *2023 Drinking Water Needs Assessment: Affordability Assessment Results*, April 2023, Page 7, https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2023affordabilityassessment.pdf.

[63] California Water Association, *Water Affordability Framework*, May 2025, Page 2, https://calwaterassn.com/wp-content/uploads/2025/05/CWA-Water-Affordability-Framework-AWP_051625_F-web.pdf.

[64] U.S. Office of Management and Budget, *Circular A-94: Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs* (November 2023), Page 17, accessed April 3, 2025, https://www.whitehouse.gov/wp-content/uploads/2023/11/CircularA-94.pdf.

[65] Swain, Daniel L., Andreas F. Prein, John T. Abatzoglou, Christine M. Albano, Manuela Brunner, Noah S. Diffenbaugh, Deepti Singh, Christopher B. Skinner, and Danielle Touma. "Hydroclimate volatility on a warming Earth." Nature Reviews Earth & Environment 6, no. 1 (2025): 35-50.

Exhibit 4. DWR's modeled deliveries with and without the DCP



Sources and Notes: Based on CalSim 3 simulations of SWP deliveries to all contractors under the 2070 median climate change scenario, with 1.8 feet of sea-level rise and 94 simulations of historical hydrology.

Source: Sunding and Browne, 2024.

DWR seeks to finance the DCP by issuing revenue bonds, under which SWP contractors who opt-in to the DCP would be responsible for paying back the debt obligation through contractual repayment obligations under their SWP water supply contracts with DWR.[66] These obligations would become binding once the contractors execute an amendment to their existing contracts to account for the costs and deliveries under the DCP. Once bound, there are no clear exits or renegotiation rights and DWR states that it "shall not agree to any amendment to the Water Supply Contracts which would materially adversely affect the security of the Bonds."[67]

An individual contractor like the Metropolitan Water District (MWD) would risk liability to pay the fixed costs of the DCP even if the project is not operational, delayed, or yield additional water deliveries.[68] Although DWR claims that the $20 billion capital cost estimate includes add-on costs for insurance and bonding, it is appears that financing costs are not included.[69] It is critical to conduct a financial analysis and incorporate the cost of debt service to truly understand the DCP's impact on water agencies and their customers. Based on our analysis

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[66] CWIN-009 [California Department of Water Resources. *Delta Conveyance Program Revenue Bond: General Bond Resolution (No. DWR-DPRB-1), Exhibit 1.* Sacramento, CA: California Superior Court, January 6, 2025, 30.]
[67] CWIN-009 [California Department of Water Resources. *Delta Conveyance Program Revenue Bond: General Bond Resolution (No. DWR-DPRB-1), Exhibit 1.* Sacramento, CA: California Superior Court, January 6, 2025, 31.]
[68] CWIN-009 [California Department of Water Resources. *Delta Conveyance Program Revenue Bond: General Bond Resolution (No. DWR-DPRB-1), Exhibit 1.* Sacramento, CA: California Superior Court, January 6, 2025, 30.]
[69] CWIN-009 [California Department of Water Resources. *Delta Conveyance Program Revenue Bond: General Bond Resolution (No. DWR-DPRB-1), Exhibit 1.* Sacramento, CA: California Superior Court, January 6, 2025, 3.]\

of potential cost burden on MWD, LADWP, and its ratepayers (See Appendix A: Potential Costs to SWP Contractors), MWD could be responsible for approximately $29 to $61 billion (nominal dollars) to cover the financing, construction, and operating costs of the DCP. In critical years, which are anticipated to become more frequent, MWD could be paying an average of $633 million to $1.3 billion (nominal dollars) annually for uncertain or no water deliveries. The uncertainty around water deliveries also highlights the substantial opportunity costs of investing in the DCP. In the event of little to no water deliveries through the DCP in dry years, water contractors would have to either contend with the costs of water shortages or invest in alternative localized water supply sources that would further drive up their fixed costs. Combined with the fact that MWD may have to pay approximately $1.5 billion to help cover the costs of addressing subsidence experienced by the California Aqueduct that could reduce SWP deliveries by 84 percent if left unaddressed, MWD will be facing extremely high costs of maintaining imported water supplies in the future.[70] In light of increasing costs, MWD's board has considered offramps that would allow it to pause funding to and seek reimbursements from DWR if there are material changes in the feasibility, benefits, and costs of the DCP.[71]

Santa Barbara County's experience with the SWP provides a cautionary example of what could occur under the DCP. Despite paying hundreds of millions of dollars in fixed costs, some districts received little or no water during drought years, such as in 2014 when all SWP contractors received only 5% of their allocations but were still responsible for full payment obligations.[72] For example, Montecito Water District paid over $6 million annually for SWP-related debt regardless of delivery.[73] This mismatch between cost and reliability has pushed local agencies to the brink financially, with some districts like Montecito Water District resorting to steep rate increases and special surcharges, even in years of zero delivery.[74] If the DCP follows a similar model—high capital costs without guaranteed new water or reliability improvements—it risks replicating these affordability and solvency challenges across the state.

The DCP would exacerbate the water affordability crisis in Southern California

This increased cost burden on individual contractors will exacerbate already increasing water costs and rates for households in Southern California. SWP contractors like MWD would pass

[70] CWIN-022 [Maven's Notebook. "California Aqueduct Repairs: Billions Needed to Fix Subsidence." *Maven's Notebook*, July 2, 2025. Accessed April 3, 2025. https://mavensnotebook.com/2025/07/02/california-aqueduct-repairs-billions-needed-to-fix-subsidence/.]
[71] CWIN-023 [Metropolitan Water District of Southern California, *Special Subcommittee on Imported Water: Delta Conveyance Project Funding Agreement & Other Updates*, June 23, 2025, accessed Jul 9, 2025, https://mwdh2o.legistar.com/View.ashx?M=F&ID=14313229&GUID=898917A4-72DD-4D30-9811-BEC46775A720.]
[72] CWIN-024 [California Water Impact Network, *The Unaffordable and Destructive Twin Tunnels: Why the Santa Barbara Experience Matters* (November 2017), Page 24.]
[73] CWIN-024[California Water Impact Network, *The Unaffordable and Destructive Twin Tunnels: Why the Santa Barbara Experience Matters* (November 2017), Page 10.]
[74] CWIN-024 [California Water Impact Network, *The Unaffordable and Destructive Twin Tunnels: Why the Santa Barbara Experience Matters* (November 2017), Page 30.]

on its cost burden to its member agencies like the LADWP which would then pass on costs to ratepayers through higher water rates. Based on our analysis, the DCP would impose an additional $30 to $63 (nominal dollars) per customer annually in the LADWP customer base (See Appendix A). Alameda County Zone-7 Water Agency also analyzed monthly household costs of various water supply portfolios and found that the DCP would result in an additional cost of $17 per household per month (in 2022 dollars).[75] This increase in the cost of imported water is substantial for customers in Southern California where water costs often exceed statewide averages. For instance, the San Diego City Water District charges approximately $98 per month for 4,000 gallons, significantly higher than the statewide average of $65.85 for a comparable volume.[76] Water rates are also elevated in the Santa Margarita Water District ($74) and Los Angeles Department of Water and Power ($69), even though their affordability burden classifications may indicate otherwise.[77]

These elevated costs disproportionately affect lower-income households. In San Diego, 13.7% of households earning under $25,000 annually spend more than 4.7% of their income on water services—well above the 1.5% affordability threshold set by the State Water Resources Control Board.[78] In Los Angeles, 20.4% of low-income households pay more than 3.3% of their income on water.[79] Even in Orange County's Santa Margarita Water District, 6.4% of households earning less than $25,000 spend over 3.5% of their income on water, and nearly a quarter of all households pay more than 1.2%.[80]

These affordability issues are often concentrated in specific geographic areas with lower household incomes. San Diego County includes 83 census tracts where more than 20% of residents live below the federal poverty level.[81] In Los Angeles County, the LADPW service area includes census tracts where over 90% of the population earns less than 200% of the federal poverty level.[82] These areas also face broader cost-of-living pressures; in Los Angeles, for example, extremely low-income renters must earn nearly three times the minimum wage to afford average rents, with many spending more than half their income on housing.[83]

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75 CWIN-011 Hazen and Sawyer. (2023). "Zone 7 2022 Water Supply Evaluation Update". Page 92. Accessed at https://www.zone7water.com/sites/main/files/file-attachments/draft_zone_7_2022_wse_update_2023.03.pdf?1685462831

76 Nicholas Institute for Energy, Environment & Sustainability, Duke University, "Water Affordability Dashboard," accessed April 3, 2025, https://nicholasinstitute.duke.edu/water-affordability/water-affordability-dashboard/.

77 Ibid.

78 Ibid.

79 Ibid.

80 Ibid.

81 County of San Diego Health and Human Services Agency, *Areas of Concentrated Poverty, Housing Affordability, and Food Insecurity Brief* (2023), Page 3, accessed April 3, 2025, https://www.sandiegocounty.gov/content/dam/sdc/hhsa/programs/phs/CHS/Areas%20of%20Concentrated%20Poverty%2C%20Housing%20Affordability%2C%20and%20Food%20Insecurity%20Brief%202023_FINAL.pdf

82 Los Angeles County, "Below Poverty by Census Tract," accessed April 3, 2025, https://data.lacounty.gov/datasets/lacounty::below-poverty-census-tract/explore?filters=eyJiZWxvd18yMDBmcGxfcGN0IjpbMCwxMDBdfQ%3D%3D&location=34.037350%2C-118.259651%2C9.00&style=below_200fpl_pct.

83 California Housing Partnership, *Los Angeles County Housing Need Report* (May 2024), Page 1, accessed April 3, 2025, https://chpc.net/wp-content/uploads/2024/05/Los-Angeles_Housing_Report.pdf.

Looking ahead, affordability concerns are likely to worsen—especially in San Diego, where the county's water authority expects to increase their water rates from $2,077–$2,408 per AF in 2025 to $2,269–$2,807 per AF (nominal dollars) by 2028.[84] These higher costs will be passed onto other customers like the City of San Diego that is set to increase water rates by 11 percent to 14.5 percent annually between 2025 and 2030 resulting in an overall increase of approximately 100 percent between 2025 and 2030.[85] These rate hikes are primarily driven by higher overall costs of purchasing treated M&I water from San Diego County Water Authority and MWD.[86] If the expected trends of population stagnation or decline materialize within the service area of key SWP contractors (See **Error! Reference source not found.**), affordability concerns are likely to exacerbate as fixed costs will be spread over fewer customers. Already increasing water rates could drive member districts to detach from SWP contractors worsening the cost burden on remaining ratepayers. In 2023, Rainbow Municipal Water District and Fallbrook Public Utility District detached from the San Diego County Water Authority citing high costs of water.[87] Furthermore, due to state constitutional requirements, urban water systems are unable to fund robust low-income rate assistance programs, and despite SWRCB recommendations to the legislature on the need for a statewide assistance program, Governor Newsom vetoed a bill intended to create one in 2022.[88]

Farmer Affordability

The costs that agricultural water users may incur under the DCP could outweigh the proposed benefits to agriculture. According to the BCA, the main scenario estimates agricultural benefits—including improved water quality, supply, and reliability—at $2.4 billion in 2023 dollars. This figure is significantly lower than the projected $34.6 billion in benefits for urban water users.[89] If agricultural ratepayers are expected to shoulder a cost burden similar to that of urban ratepayers, these costs could overwhelm the already narrow margins typical in agricultural production.

To illustrate this vulnerability, consider that in 2021, total net farm income in California amounted to just $17.3 million (in 2024 dollars), spread across approximately 69,000 farms. This yields an average of only $251 in net earnings per farm.[90] Even with subsidies and

[84] San Diego County Water Authority, *Fiscal Year 2023 Five-Year Financial Forecast* (November 5, 2022), Page 12, accessed April 3, 2025, https://www.sdcwa.org/wp-content/uploads/2023/04/FY23-5-year-Forecast-11052022.pdf.

[85] City of San Diego Public Utilities Department, *Five-Year Financial Outlook: Fiscal Years 2026–2030* (December 2024), Page 4, accessed April 3, 2025, https://www.sandiego.gov/sites/default/files/2024-12/pud-five-year-financial-outlook-fy-26-thru-30.pdf.

[86] Jacob Shelton, "Brace for Impact: California Water Rates Set to Skyrocket—San Diego Facing 70% Surge," *San Diego Post*, March 10, 2025, https://www.sandiegopost.com/2025/03/10/brace-for-impact-california-water-rates-set-to-skyrocket-san-diego-facing-70-surge/.

[87] San Diego County Water Authority, "San Diego County Water Authority Settles with Water Districts on Detachment," March 1, 2024, accessed April 3, 2025, https://www.sdcwa.org/san-diego-county-water-authority-settles-with-water-districts-on-detachment/.

[88] \Office of Governor Gavin Newsom. *Governor's Veto Message on Senate Bill 222*. Sacramento, CA: State of California, September 27, 2022. Accessed July 10, 2025. https://www.gov.ca.gov/wp-content/uploads/2022/09/SB-222-VETO.pdf.

[89] DWR-00114 David Sunding and Oliver Browne, *Benefit-Cost Analysis of the Delta Conveyance Project* (Berkeley: Berkeley Research Group, May 16, 2024), https://thinkbrg.com, Page 52.

[90] California Department of Food and Agriculture. (2022). California Agricultural Statistics Review: 2021-2022.

access to cheap federal water, Central Valley irrigators pay an average of $53 per acre-foot of water (in 2024 dollars).[91]

Exhibit 5 depicts the crops identified in Chapter 15 of the DCP EIR, their water requirements, and the net returns by crop per acre-foot of water. With the exception of wine grapes, most crops have very small or even negative net returns per acre foot of water applied. If the cost of water increased to farmers growing these crops, net returns could decrease make agriculture less profitable. Even modest increases in water costs could significantly reduce these already minimal earnings, calling into question the economic viability of additional water-related expenses under the DCP for many farms.

Exhibit 5. Delta Crop Water Requirements and Net Returns per Acre-Foot (in 2024 dollars)

CROP	WATER REQUIREMENT (ACRE-FEET PER ACRE)	NET RETURNS PER ACRE-FOOT
Alfalfa	3.5 to 4.5	-$93 to -$72
Almonds	3.2 to 4.3	$229 to $167
Common Dry Beans	2.3	$104
Cherries	2.5	-$60
Field Corn	2.6	-$29
Wine Grapes	1.5	$1,386
Cling Peaches	3.5	-$43
Rice	4.0 to 6.0	-$23 to -$15
Sorghum	2.0	-$892
Tomatoes - Processing	2.3	$494
Walnuts	3.0 to 3.5	$242 to $207
Wheat	0.5	-$940

Source: California Department of Water Resources[92], UC Davis[93], and ECOnorthwest

Agricultural producers in Kern County could be among the users considering use of the DCP based on water suppl concerns.[94] The Kern County Water Agency (KCWA) is one of the potentially participating SWP Contractors in the DCP and provides water to member units for agricultural uses.[95] According to the 2022 Census of Agriculture from the USDA, there are 818,000 irrigated acres in Kern County.[96] Between 2 – 2.3 million acre-feet of water are used annually on those acres (about 2.4 – 2.8 acre-feet per acre).[97] There are over 1,700 farms

[91] Berkely Blog. (2018). The cost of irrigation water and urban farming. UC Berkeley News. Accessed July 7, 2025. https://news.berkeley.edu/blog/the-cost-of-irrigation-water-and-urban-farming/.
[92] FEIR, Table 15-3, page 15-16
[93] UC Davis. (2025). Cost and Return Studies. https://coststudies.ucdavis.edu/.
[94] CWIN-100 [Direct Testimony of Max Gomberg, page 2-3]
[95] Kern County Water Agency. (2025a). Delta Conveyance Project. Accessed July 9, 2025. https://www.kcwa.com/delta-conveyance-project/.
[96] USDA-NASS. (2024). 2022 Census of Agriculture County Profiles: Kern County, California.
[97] University of California Agriculture and Natural Resources. (2025). Irrigation Management & Agronomy. Accessed July 9, 2025. https://ucanr.edu/county-office/kern-county/irrigation-management-agronomy.

(average farm size of 1,400 acres) in the county with an average net cash farm income of $655,000 per farm, in 2024 dollars.[98]

Using the average farm size and acre-feet per acre water application estimates above, the average farm in Kern County uses about 3,400 – 3,900 acre-feet of water annually. Water costs in the county range between $40 and $190 per acre-foot, depending on the irrigation district and elevation.[99] This means that an average farm could spend between $136,000 and $741,000 on water annually, depending on the price. The net cash income per acre foot of water for the average farm is between $168 and $193.[100]

In a press release on March 28, 2025, KCWA admitted that the decision to participate in the DCP is difficult due to the increasing unaffordability of the long-term costs of the project but were working to reduce the cost burden.[101] If the DCP is designed to maintain the status quo of water supplies to agriculture as suggested in the direct testimony of Max Gomberg[102], then it stands to reason that agricultural production would potentially be maintained but at an increased cost to the agricultural water ratepayer. The increased cost of water would cut into agricultural producers' margins and make them worse-off than if the project did not happen.

Critique 5. Seismic Benefits

The DCP Record evaluates the seismic benefits of the DCP based on a single representative seismic scenario thereby potentially overestimating the benefits of the DCP.

The DCP Record evaluates DCP-related seismic benefits in the BCA based on a single representative scenario—a 500-year earthquake event aligned with the DCP's seismic design criteria. The authors explicitly state that they did not conduct a comprehensive assessment of potential seismic events, opting instead to model impacts and costs for only this one scenario. To simulate emergency response to this earthquake, the Delta Emergency Response Tool (DRT) was used. Economic costs were modeled using the Middle River Corridor Strategy, chosen for being the least costly and quickest recovery option.

Seismic reliability benefits are reported in two categories: average avoided disruptions to water supply and improved water quality. The calculated seismic benefits are $969 million or 2.5 percent of all the calculated benefits of the DCP. However, it is not explained how these benefits were quantified or why only these two metrics were considered. This lack of

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98 USDA-NASS. (2024). 2022 Census of Agriculture County Profiles: Kern County, California.

99 University of California Agriculture and Natural Resources. (2025). Irrigation Management & Agronomy. Accessed July 9, 2025. https://ucanr.edu/county-office/kern-county/irrigation-management-agronomy.

100 Calculated by dividing average net cash farm income by the amount of estimate water used by the average farm.

101 Kern County Water Agency. (2025b). Kern County Water Agency Board Approves Additional Funding for the Delta Conveyance Project Amended. https://www.kcwa.com/newsindex/.

102 CWIN-100[Direct Testimony of Max Gomberg, page 2-3]

transparency is especially concerning given that DWP has repeatedly claimed seismic reliability as a core objective of the DCP. The limited analysis and opaque methodology raise concerns that the seismic benefits may be overstated relative to costs and the benefits as currently quantified are only 5.6 percent of total DCP costs.

DWR's analysis omits discussion of localized investments in seismic resiliency, such as those made by SWP Water Contractors to enhance the seismic resilience of their water infrastructure. For example, agencies like the MWD have, in recent years, invested in strengthening both their infrastructure and their capacity to respond to earthquakes.[103] These local improvements suggest that the perceived seismic benefits of the DCP may be overstated or non-existent, particularly by the time the DCP is operational. If Southern California water agencies can rely on local supplies in the event of a Delta-area earthquake, then the DCP's added value as a seismic-resilient conveyance system is likely less significant than if it were the sole source of such resilience.

A more robust assessment would include multiple seismic scenarios, a range of response strategies, other localized investments in seismic resilience and water reliability, and a clearer explanation of benefit calculations. Without this, the evaluation falls short of supporting the economic benefits ascribed to the DCP's seismic resilience.

Critique 6. Agricultural Water Pricing

The market price of water used to estimate the value of increased water supply claimed from the DCP is based on prices in drought years and is thus an overestimate of the value of water.

The BCA presents two methodologies to estimate the market value of agricultural water in California (1) the SWAP model and (2) water transfer market. The SWAP model is not publicly available to fully evaluate the assumptions and calculations underlying its findings, so this review focuses solely on the water transfer market price of water used in the analysis.

Nasdaq-Veles California Water Index

The market price of agricultural water as estimated through the water transfer market relies on WestWater's Nasdaq-Veles California Water Index (NQH2O), a spot agricultural water trading price tracking index available from 2019 onwards. The index represents the '*volume-weighted average of water prices and shows the current pricing level for water in California*

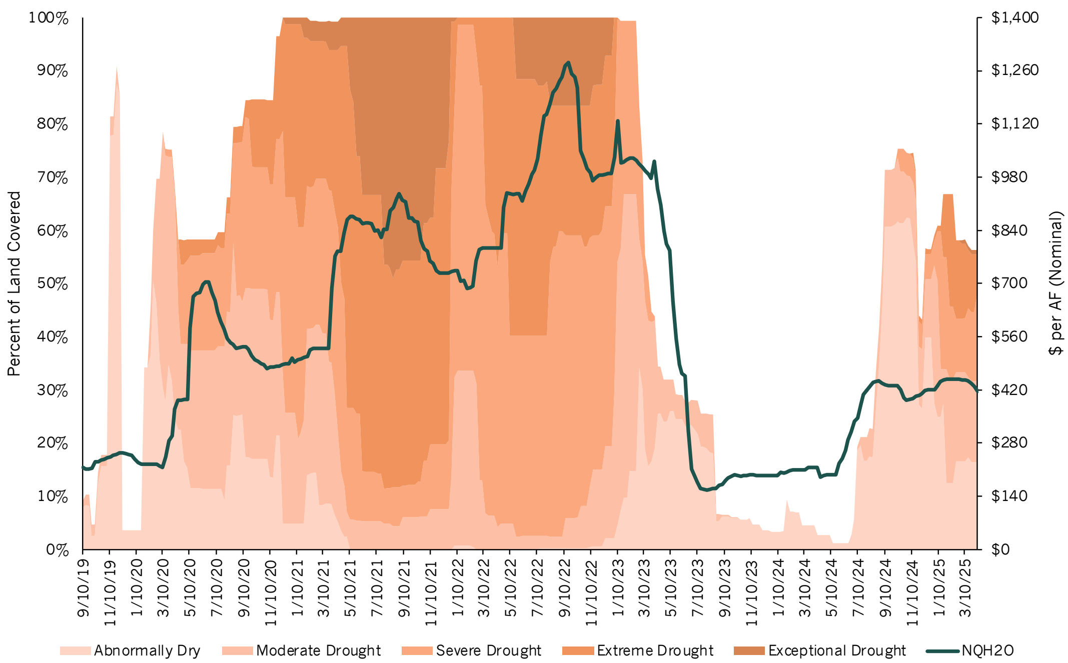
[103] CWIN-020 Metropolitan Water District of Southern California. (2020). Seismic Resilience Report: 2020 Update. Available at https://d1q0afiq12ywwq.cloudfront.net/media/20396/seismic-resilience-report-2020-update.pdf.

determined by water entitlement transactions from five water markets: surface water, Central Basin, Chino Basin, Main Basin, and Mojave Basin – Alto Subarea.[104]

The BCA presents an average agricultural water market price over the available time frame, adjusted for inflation, resulting in an agricultural water transaction market value of $665 per acre in 2024 dollars ($646 in 2023 dollars from BCA report).

The market for agricultural water transfers can be volatile based on hydrologic conditions (e.g., drought severity). The market value of agricultural water transfers is typically higher in more severe drought years and lower in less severe drought years (see Exhibit 6). The market price presented by the DCP petition includes primarily drought years which may lead to an overestimate of the average market price of water in California.

Exhibit 6. NQH2O Market Price and Drought Severity



Source: U.S. Drought Monitor and Nasdaq

To assess whether drought conditions (as shown in Exhibit 6) are predictive of the market price of agricultural water (i.e., NQH2O), a simple ordinary least squares (OLS) regression is used. The OLS equation is as follows where β_n are the coefficients on the explanatory variables and t represents the period of the observation:

$$NQH2O\ Price_t = \beta_0 + \beta_1 Abnormally\ Dry_t + \beta_2 Moderate\ Drought_t + \beta_3 Severe\ Drought_t + \beta_4 Extreme\ Drought_t + \beta_5 Exceptional\ Drought_t + \epsilon \quad (1)$$

In order to make the NQH2O price comparable across years, the nominal prices reported by the index were inflated to 2024 dollars. The Office of Management and Budget (OMB) sets forth guidance for the treatment of inflation in benefit-cost analysis in its Circular A-94. The

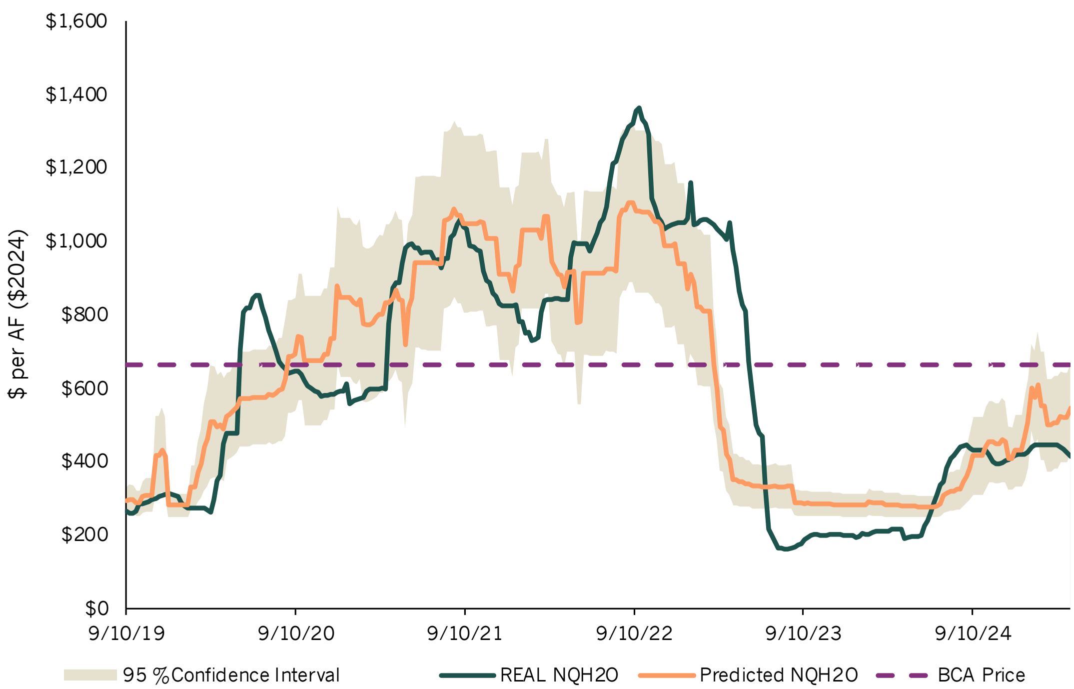
[104] Nasdaq. 2025. Nasdaq Vales California Water Index (NQH20). Available at https://waterexchange.com/ca-water-index. Accessed on April 7, 2025.

Circular A-94 suggests that when a particular index is not prescribed by law, that analysts should use a reliable general inflation index such as the Gross Domestic Product price deflator, the Consumer Price Index, or Personal Consumption Expenditure price index. For this critique, the CPI is used to adjust NQH2O market prices into a common dollar year (i.e., 2024 dollars).

The simple model shown in Equation (1) predicts 73 percent of the variation in the NQH2O price (i.e., $R^2 = 0.7384$) and all of the variables for drought severity are statistically significant (see Appendix B: Regression Output for Critique 6). Exhibit 7 depicts the real NQH2O price (in 2024 dollars) against the model predicted price and its 95 percent confidence interval. The chart also shows the average price used in the BCA. The OLS predicted price tracks the observed price fairly well and shows that the market transaction price is explained well by drought conditions as one would come to expect.

When drought conditions are more severe—especially multiple years in a row—the marginal benefit of an additional acre foot of water is high, therefore; irrigators are willing to pay more per acre foot of water. The period in which the DCP Petition/BCA estimates the average market price for agricultural water reflects a period when willingness-to-pay (WTP) for water is high for irrigators. This also reflects a period in which the DCP may not provide any additional water supply. Therefore, the agricultural market price average used in the BCA is likely overestimated.

Exhibit 7. NQH2O and Model Predicted NQH2O



Source: ECOnorthwest

Hydrologic Climate Projections and State Climate Policy

Climate Scientist Daniel Swain's work on hydroclimate volatility suggests that due to climate change, hydrologic conditions will normalize to frequent transitions between extreme dry and extreme wet conditions (i.e., hydroclimate whiplash).[105] In the driest 10 percent of years and wettest 5 percent of years, the BCA indicates the DCP will provide no water supply benefits (page 21 of the BCA). The change of use petition does not adequately consider the projected hydroclimate reality that California will face once the DCP becomes operational as evidenced by the analysis presented in the BCA. Testimony from Tina Swanson provides further evidence that the DWR used the incorrect hydrologic baseline from modeling water supplies from the DCP and uses a climate scenario that predicts future wetter conditions with more higher levels of runoff.[106,107] The DCP was advertised as a climate resilience project to help California adapt to a hotter and drier future, which is in contradiction with the climate modeling underpinning DWR's analysis.[108]The petition relies on water supply benefits provided by the DCP that are overestimated due to the inclusion of high and low market water prices that would not be reached in similar years if the DCP operation.

The DCP as proposed is also inconsistent with existing California climate policy including the Delta Reform Act (2009), the Sustainable Groundwater Management Act (2014), and other provisions, as discussed in Max Gomberg's testimony.

Critique 7. Farmland Loss

The DCP Record focuses on the private cost of farmland conversion and does not include costs incurred by society related to farmland conversion including to agricultural communities thereby underestimating the true cost of the DCP.

The Proposed DCP will result in the permanent conversion of 2,154 acres and the temporary conversion of 2,340 acres of farmland. The DCP BCA estimates the value of this farmland loss using real estate market values for permanent conversion and average rental rates for temporary losses. However, this method captures only the private costs to landowners and fails to reflect the broader public benefits provided by farmland or the ripple effects on local agricultural communities.

[105] Swain, Daniel L., Andreas F. Prein, John T. Abatzoglou, Christine M. Albano, Manuela Brunner, Noah S. Diffenbaugh, Deepti Singh, Christopher B. Skinner, and Danielle Touma. "Hydroclimate volatility on a warming Earth." Nature Reviews Earth & Environment 6, no. 1 (2025): 35-50.
[106] FOR-004 Direct Testimony of Tina Swanson, page 3].
[107] FOR-004 Direct Testimony of Tina Swanson, pages 8-11].
[108] FOR-004 Direct Testimony of Tina Swanson, pages 1-2].

According to the BCA, the temporary loss of farmland, based on rental rates, is estimated at $4.0 million, while permanent loss, based on market value, is estimated at $25.9 million. These figures significantly underestimate the full societal cost, as they ignore reductions in agricultural productivity and associated economic consequences. An alternative and more comprehensive approach are to estimate the present value of lost agricultural output over the period of impact. This method considers the economic value of farm production that would otherwise occur.

The DCP Record indicates that within the Delta, corn and alfalfa are cultivated over the most acreage within the Delta, wine grapes and tomatoes create the most economic value. Crop reports from county agricultural commissioners indicate that the production value of sileage and grain corn crops range from $829 to $1388 per acre, while grapes yield between $4,092 and $5,555 per acre in Sacramento and San Joaquin Counties.[109] [110] [111] If such land becomes unproductive, these values drop to zero. The DCP Record does not explicitly state the crop types that will be impacted by farmland conversion, and current cultivation is not always an indicator of future cultivation. However, an illustrative analysis is presented in Exhibit 8, which assesses the net present value of losses for example crops over both permanent and temporary timeframes, highlighting how real estate valuation alone significantly undervalues the true economic cost of farmland loss.

Additionally, a reduction in agricultural activity triggers secondary impacts, including losses in the supply chain and household consumption. These supply chain impacts affect local businesses that provide goods and services to farmers, such as equipment suppliers, seed vendors, chemical providers, and custom service operators as can be measured in losses to spending and jobs. In areas where farmland loss is concentrated, these disruptions can jeopardize the viability of related businesses and the long-term resilience of regional agricultural economies. Despite their significance, these secondary effects are not captured or quantified in the DCP Record, nor is the potential impact on underrepresented or economically depressed communities.

[110] San Joaquin County. (2024). 2023 Agricultural Crop Report. Accessed at https://www.sjgov.org/docs/default-source/agricultural-commissioner-documents/croprpt-archive/2020to2029/sjc_cr2023.pdf?sfvrsn=a2390690_5

[111] Ibid

Exhibit 8. Valuation Approach Difference in Private Real Estate Value vs. Social Value of Farmland Loss

	Permanent Acres	Temporary Acres	Total Impact
Assumptions			
Impacted Acres	2,154	2,340	
Impact Duration (years)	100	16	
Real Estate Approach			
Land Value	$21,900,000	$4,000,000	$25,900,000
Production Value Approach			
Corn	$54,059,141	$29,637,185	$83,696,326
Grapes	$232,960,808	$127,717,578	$360,678,385
Approach Difference			
Corn	**-$32,159,141**	**-$25,637,185**	**-$57,796,326**
Grapes	**-$211,060,808**	**-$123,717,578**	**-$334,778,385**

Sources: Contra Costa Ag Commissioners Report, 2022; Sacramento Ag Commissioners Report, 2023; San Joaquin Ag Commissioners Report, 2023.

Note: Assumes all impacted farmland is planted in the identified crop type.

Critique 8. Salmon and Ecosystem Services

The DCP Record fails to incorporate potential adverse impacts to critically endangered salmon runs in the Sacramento River and other potential adverse impacts to ecosystems.

DWR underestimates costs of the DCP because it does not appropriately account for the potential of incremental or catastrophic impacts to Sacramento River Chinook salmon populations due to continued operation of the SWP combined with additional flow changes under the DCP. Costs relevant to the public interest are not limited to financial expenditures. The FEIR anticipates construction and maintenance of the DCP could affect fish species through direct or indirect effects, which were determined to be ‘not significant’. This statement suggests certainty that the DCP would have no relevant negative incremental effect on these species. However, given the dire status of some Sacramento River Chinook salmon runs, any miscalculation in underlying assumptions leading to this conclusion could be catastrophic to the fish and the ecosystem, with very high economic costs in terms of both market and non-market value. A more appropriate approach to incorporating uncertainty and high-impact adverse outcomes would be a probabilistic weighted cost of fish extirpation in the Sacramento River.

Using the State Water Resources Control Board (SWRCB) Staff report estimates of average annual natural salmon production (1992 – 2015) across the four Sacramento salmon runs (or 101,000 chinook salmon), and a 25 percent possibility of extirpation, the annual average social loss would be between $28.8 and $68.5 million (in 2024 dollars) for a weighted population loss of 25,250 fish.[112,113,114] This value is calculated by using per 1000 fish willingness-to-pay estimates per household, multiplying by the 13.4 million California households, and multiplying by the number of lost fish.[115,116] Using the same declining discount rate approach as the BCA (2 percent rate declining to 1.4 percent), the discounted present value of those annual losses over the 2023-2145 timeframe of the BCA is between $1.1 and $2.6 billion in costs (in 2024 dollars) related to the DCP.

The DCP Record acknowledges the presence of additional environmental externalities—such as the loss of aesthetic, recreational, and cultural/tribal values—but these impacts are not explicitly reflected in the DCP's cost estimates within the BCA either. Instead, the DCP Record states that such costs will be addressed through $960 million allocated to environmental mitigation and a $200 million community benefits program (in 2023 dollars). Additionally, while the DCP Record concedes that greenhouse gas emissions may increase, it argues that these would be offset by the mitigation programs. As a result, these emissions are also not factored as direct costs of the DCP. Testimony from Jon Rosenfield suggests that these mitigation measures for the DCP are "speculative, arbitrary, inadequate, and/or unlikely to materialize."[117]

By choosing not to quantify these externalities, there is an inherent risk that the proposed $1.6 billion (in 2023 dollars) in mitigation funding may be insufficient or ineffective. The possibility that the extent of these environmental impacts is underestimated could lead to a corresponding underestimation of the DCP's true costs. Given the uncertainty surrounding the potential effects on local communities and the environment—as well as the uncertainty regarding mitigation adequacy—further research is needed to more accurately assess the full cost of the DCP.

Summary and Conclusion

When considered together, the critiques outlined in this assessment reveal a cumulative pattern of overly optimistic assumptions and omitted costs that significantly distort the DCP's feasibility and economic justification. While each assumption individually may appear plausible under certain conditions, the combined effect is to systematically inflate benefits, underestimate actual costs, ignore opportunity costs and non-monetary costs, and ignore distributional impacts to vulnerable Californians. This creates an inaccurately favorable

112 California State Water Resources Control Board, "Draft Staff Report/Substitute Environmental Document in Support of Potential Updates to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary for the Sacramento River and its Tributaries, Delta Eastside Tributaries, and Delta," September, 2023, https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/2023/staff-report/ch03-science.pdf, 3-22.

113 Social loss is calculated using low and high WTP estimates from Lewis et al. (2022).

114 Lewis, David J., David M. Kling, Steven J. Dundas, and Daniel K. Lew. "Estimating the value of threatened species abundance dynamics." *Journal of Environmental Economics and Management* 113 (2022): 102639.

115 Lewis, David J., David M. Kling, Steven J. Dundas, and Daniel K. Lew. "Estimating the value of threatened species abundance dynamics." *Journal of Environmental Economics and Management* 113 (2022): 102639.

116 U.S. Census Bureau. (n.d.). Quick Facts. Accessed July 7, 2025. https://www.census.gov/quickfacts/fact/table/CA/PST045224.

117 BK-100 Direct Testimony of Jon Rosenfield, page 7, lines 22-28.]

picture of the DCP's value to Californians and is not a defensible or credible basis for decision-making on economic grounds.

An unacceptable omission of DWR's entire DCP Record is the absence of any meaningful evaluation of the opportunity cost of the massive DCP investment. DWR justifies this position by defining a narrow project purpose which limited the range of solutions considered. Investments in near-term, decentralized alternatives—such as regional water recycling, conservation, groundwater recharge, and storage—could deliver similar or greater reliability benefits more quickly, flexibly, and at a lower cost. DWR's failure to fully account for these alternative solutions ignores the true social cost of committing billions to a long-term, high-risk megaproject, and ignores DWR's duty to evaluate the impacts of the project on public trust resources and California's ratepayers.

Affordability concerns, particularly for Southern California ratepayers, are another compounding problem. As outlined in the ratepayer critique, the DCP is projected to raise imported water costs significantly, with possible rates reaching over $4,000 per acre-foot in critically dry years—a scenario increasingly likely under California's evolving hydroclimate. These costs will be borne by households that are already facing affordability burdens, especially in low-income communities with elevated water bills and other cost-of-living pressures. The BCA's failure to evaluate rate impacts is a critical oversight given that ratepayers will ultimately finance the DCP.

Moreover, the DCP economic analysis repeatedly relies on best-case or 'rosy' scenarios, including:

- Inflated urban water demand forecasts inconsistent with current demographic trends.
- Agricultural water prices based on drought-driven spikes rather than long-run averages.
- Underestimated risks of project delays, cost overruns, and bond-financing costs.
- Overstated supply benefits in future climate conditions that include more frequent hydrologic extremes.
- Neglect of localized infrastructure and adaptation investments that would be necessary to make DCP deliveries usable.

Stacked together, these assumptions compound rather than offset each other, leading to biased and misleading projections of net benefits. The result is an analysis that systematically underrepresents financial risk, environmental cost, and equity impacts, while overestimating reliability benefits.

In sum, the DCP's feasibility as portrayed in the BCA is highly contingent on assumptions that, in aggregate, are neither conservative nor robust. When opportunity costs, affordability, and realistic risk factors are incorporated, the DCP appears far less economically justified—raising fundamental questions about whether California can or should afford it.

Appendix A: Potential Costs to SWP Contractors

This analysis estimates the cost of financing, constructing, and operating the DCP and its impact on the Los Angeles Department of Water and Power (LADWP) ratepayers. The analysis examines both the total capital costs of the tunnel and how these costs would be distributed among water contractors, particularly the LADWP through its payments to the Metropolitan Water District (MWD).

The analysis used two cost estimates to estimate impacts to LADWP: 1) Low-Cost Scenario that uses DWR's stated costs for design, construction, mitigation, and operations of the DCP, and 2) High-Cost Scenario that adjusts DWR's design and construction costs by x2 to account for potential cost-overruns and missing cost categories (See Critique 1) (Exhibit 9).

Exhibit 9. Total Capital and Annual O&M Costs of the DCP under Low- and High-Cost Scenarios (in millions)

	Low-Cost Scenario (in 2023 dollars)	Low-Cost Scenario (in 2026 dollars)	High-Cost Scenario (in 2026 dollars)
Planning, Design, and Construction Management	$3,328	$3,637	$7,273
Construction	$11,548	$12,619	$25,238
Contingency	$3,464	$3,785	$7,570
Land Acquisition	$158	$173	$345
Design and Construction Cost Sub-Total	**$18,498**	**$20,213**	**$40,427**
Mitigation Costs	$960	$1,049	$1,049
Other Program Costs	$662	$723	$723
Other Program Costs Sub-Total	**$1,622**	**$1,772**	**$1,772**
Total Capital Costs	**$20,120**	**$21,986**	**$42,199**
Annual O&M Costs	$53	$57	$57

DWR plans to issue revenue bonds to cover the capital costs of the DCP. DWR has suggested that the cost basis for the $20 billion estimate for capital costs of the DCP includes "add-on costs (such as insurance and bonds)" but does not specify what share of the overall cost they make up and does not provide enough detail on which financing and bond assumptions are included in the cost.[118] In the absence of specific information and details about the structure of the revenue bonds, we assume that DWR's assumptions about revenue bond structure laid out in the Bay-Delta Conservation Plan (2013) still hold true such that the capital costs of the DCP would be financed through 4 revenue bonds paid back over a 40-year period at an

[118] DWR-00012 Delta Conveyance Design and Construction Authority, *Bethany Alignment Total Project Cost Estimate Memorandum* (October 31, 2023), Page 8, accessed April 3, 2025, https://www.dcdca.org/wp-content/uploads/2023/11/2023-Bethany-Total-Project-Cost-Estimate.pdf.

interest rate of approximately 6 percent (Exhibit 10). Scaling the original bond principal to the newly estimated low- and high-cost scenarios results in a bond requirement of approximately \$22 billion (in 2026 dollars) under the low-cost scenario and \$42 billion (in 2026 dollars) under the high-cost scenario (Exhibit 10). The analysis assumes that annual O&M costs would be covered by SWP contractors but not through revenue bonds such that the O&M costs do not accrue an interest payment.

Between 2025 and 2070, SWP contractors would need to pay approximately a total of \$61 billion under the low-cost scenario (Exhibit 11) and \$116 billion under the high-cost scenario (Exhibit 12) to cover the annual payments associated with principal and interest payments on the revenue bonds and the annual O&M costs. The analysis assumes that MWD would cover approximately 48 percent of the annual payments resulting in a total cost burden of \$30 billion under the low-cost scenario and \$56 billion under the high-cost scenario. This cost burden would then be passed on to MWD's member agencies like LADWP that has historically bought approximately 20 percent of MWD water sales. As a result, LADWP would need to pay approximately \$6 billion and \$11 billion under the low- and high-cost scenarios over the payback period.

Exhibit 10. Bond Financing Details for Capital Costs

	Starting Year	Payback Period (Years)	Interest Rate	Bay-Delta Conservation Plan (2013) (million $)	DCP Costs - Low-Cost Scenario (million 2026 $)	DCP Costs - High -Cost Scenario (million 2026 $)
1st Bond Series	2026	40	6.135%	$3,793	$5,354	$10,277
2nd Bond Series	2028	40	6.133%	$3,667	$5,176	$9,935
3rd Bond Series	2029	40	6.132%	$5,611	$7,920	$15,202
4th Bond Series	2031	40	6.134%	$2,504	$3,535	$6,784
Total Bond Requirement				**$15,575**	**$21,986**	**$42,199**

Exhibit 11. Total Principal and Interest Payments under 4 Revenue Bonds and Annual O&M Costs – Low-Cost Scenario

Year	1st Bond Series Payment	2nd Series Payment	3rd Series Payment	4th Series Payment	O&M Payments	Total Payments	Present Value
2025	$0	$0	$0	$0	$0	$0	$0
2026	$361,900,000	$0	$0	$0	$0	$361,900,000	$358,300,000
2027	$361,900,000	$0	$0	$0	$0	$361,900,000	$351,300,000
2028	$361,900,000	$349,800,000	$0	$0	$0	$711,700,000	$670,600,000
2029	$361,900,000	$349,800,000	$535,200,000	$0	$0	$1,246,900,000	$1,154,600,000
2030	$361,900,000	$349,800,000	$535,200,000	$0	$0	$1,246,900,000	$1,133,600,000
2031	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$0	$1,485,800,000	$1,320,400,000
2032	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$0	$1,485,800,000	$1,288,200,000
2033	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$0	$1,485,800,000	$1,261,700,000
2034	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$0	$1,485,800,000	$1,234,900,000
2035	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$1,254,700,000
2036	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$1,226,900,000
2037	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$1,199,100,000
2038	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$1,171,200,000
2039	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$1,143,300,000
2040	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$1,115,400,000

2041	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$1,087,600,000
2042	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$1,059,800,000
2043	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$1,032,100,000
2044	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$1,004,600,000
2045	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$977,200,000
2046	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$954,100,000
2047	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$931,400,000
2048	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$909,000,000
2049	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$887,000,000
2050	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$865,400,000
2051	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$844,100,000
2052	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$823,200,000
2053	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$802,600,000
2054	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$782,400,000
2055	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$764,900,000
2056	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$747,800,000
2057	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$731,100,000
2058	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$714,700,000
2059	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$698,700,000
2060	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$683,100,000
2061	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$667,800,000
2062	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$652,800,000
2063	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$638,200,000
2064	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$623,900,000
2065	$361,900,000	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,543,300,000	$609,900,000
2066	$0	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,181,400,000	$456,500,000
2067	$0	$349,800,000	$535,200,000	$238,900,000	$57,500,000	$1,181,400,000	$446,200,000
2068	$0	$0	$535,200,000	$238,900,000	$57,500,000	$831,600,000	$307,100,000
2069	$0	$0	$0	$238,900,000	$57,500,000	$296,400,000	$107,000,000
2070	$0	$0	$0	$238,900,000	$57,500,000	$296,400,000	$104,600,000

Total	$14,476,000,000	$13,992,000,000	$21,408,000,000	$9,556,000,000	$2,070,000,000	$61,502,000,000	$37,799,000,000

Exhibit 12. Total Principal and Interest Payments under 4 Revenue Bonds and Annual O&M Costs - High-Cost Scenario

Year	1st Bond Series Payment	2nd Series Payment	3rd Series Payment	4th Series Payment	O&M Payments	Total Payments	Present Value
2025	$0	$0	$0	$0	$0	$0	$0
2026	$694,700,000	$0	$0	$0	$0	$694,700,000	$687,800,000
2027	$694,700,000	$0	$0	$0	$0	$694,700,000	$674,200,000
2028	$694,700,000	$671,400,000	$0	$0	$0	$1,366,100,000	$1,287,100,000
2029	$694,700,000	$671,400,000	$1,027,200,000	$0	$0	$2,393,300,000	$2,216,200,000
2030	$694,700,000	$671,400,000	$1,027,200,000	$0	$0	$2,393,300,000	$2,175,900,000
2031	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$0	$2,851,900,000	$2,534,400,000
2032	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$0	$2,851,900,000	$2,472,500,000
2033	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$0	$2,851,900,000	$2,421,700,000
2034	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$0	$2,851,900,000	$2,370,300,000
2035	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$2,365,200,000
2036	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$2,313,000,000
2037	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$2,260,500,000
2038	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$2,207,900,000
2039	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$2,155,300,000
2040	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$2,102,700,000
2041	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$2,050,200,000
2042	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,997,900,000
2043	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,945,700,000
2044	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,893,800,000
2045	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,842,100,000
2046	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,798,600,000
2047	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,755,800,000
2048	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,713,600,000
2049	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,672,100,000

2050	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,631,300,000
2051	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,591,200,000
2052	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,551,800,000
2053	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,513,100,000
2054	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,475,000,000
2055	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,442,000,000
2056	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,409,700,000
2057	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,378,200,000
2058	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,347,300,000
2059	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,317,100,000
2060	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,287,700,000
2061	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,258,800,000
2062	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,230,600,000
2063	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,203,100,000
2064	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,176,200,000
2065	$694,700,000	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,909,300,000	$1,149,800,000
2066	$0	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,214,700,000	$855,700,000
2067	$0	$671,400,000	$1,027,200,000	$458,500,000	$57,500,000	$2,214,700,000	$836,500,000
2068	$0	$0	$1,027,200,000	$458,500,000	$57,500,000	$1,543,200,000	$569,900,000
2069	$0	$0	$0	$458,500,000	$57,500,000	$516,000,000	$186,300,000
2070	$0	$0	$0	$458,500,000	$57,500,000	$516,000,000	$182,100,000
Total	**$27,788,000,00 0**	**$26,856,000,00 0**	**$41,088,000,00 0**	**$18,340,000,00 0**	**$2,070,000,00 0**	**$116,142,600,00 0**	**$71,507,900,00 0**

Exhibit 13. Total Costs of DCP covered by MWD and LADWP – Low-Cost Scenario

Year	Cost Paid by MWD	Cost Paid by LADWP	PV of MWD Payments	PV of LADWP Payments
2025	$0	$0	$0	$0
2026	$175,500,000	$34,600,000	$173,700,000	$34,200,000
2027	$175,500,000	$34,600,000	$170,300,000	$33,600,000
2028	$345,100,000	$68,000,000	$325,200,000	$64,100,000
2029	$604,600,000	$119,100,000	$559,900,000	$110,300,000
2030	$604,600,000	$119,100,000	$549,700,000	$108,300,000
2031	$720,400,000	$142,000,000	$640,300,000	$126,200,000
2032	$720,400,000	$142,000,000	$624,600,000	$123,100,000
2033	$720,400,000	$142,000,000	$611,800,000	$120,600,000
2034	$720,400,000	$142,000,000	$598,800,000	$118,000,000
2035	$748,300,000	$147,500,000	$608,400,000	$119,900,000
2036	$748,300,000	$147,500,000	$594,900,000	$117,200,000
2037	$748,300,000	$147,500,000	$581,400,000	$114,600,000
2038	$748,300,000	$147,500,000	$567,900,000	$111,900,000
2039	$748,300,000	$147,500,000	$554,400,000	$109,200,000
2040	$748,300,000	$147,500,000	$540,800,000	$106,600,000
2041	$748,300,000	$147,500,000	$527,300,000	$103,900,000
2042	$748,300,000	$147,500,000	$513,900,000	$101,300,000
2043	$748,300,000	$147,500,000	$500,500,000	$98,600,000
2044	$748,300,000	$147,500,000	$487,100,000	$96,000,000
2045	$748,300,000	$147,500,000	$473,800,000	$93,400,000
2046	$748,300,000	$147,500,000	$462,600,000	$91,200,000
2047	$748,300,000	$147,500,000	$451,600,000	$89,000,000
2048	$748,300,000	$147,500,000	$440,800,000	$86,900,000
2049	$748,300,000	$147,500,000	$430,100,000	$84,800,000
2050	$748,300,000	$147,500,000	$419,600,000	$82,700,000
2051	$748,300,000	$147,500,000	$409,300,000	$80,700,000

2052	$748,300,000	$147,500,000	$399,100,000	$78,700,000
2053	$748,300,000	$147,500,000	$389,200,000	$76,700,000
2054	$748,300,000	$147,500,000	$379,400,000	$74,800,000
2055	$748,300,000	$147,500,000	$370,900,000	$73,100,000
2056	$748,300,000	$147,500,000	$362,600,000	$71,500,000
2057	$748,300,000	$147,500,000	$354,500,000	$69,900,000
2058	$748,300,000	$147,500,000	$346,500,000	$68,300,000
2059	$748,300,000	$147,500,000	$338,800,000	$66,800,000
2060	$748,300,000	$147,500,000	$331,200,000	$65,300,000
2061	$748,300,000	$147,500,000	$323,800,000	$63,800,000
2062	$748,300,000	$147,500,000	$316,500,000	$62,400,000
2063	$748,300,000	$147,500,000	$309,500,000	$61,000,000
2064	$748,300,000	$147,500,000	$302,500,000	$59,600,000
2065	$748,300,000	$147,500,000	$295,700,000	$58,300,000
2066	$572,800,000	$112,900,000	$221,300,000	$43,600,000
2067	$572,800,000	$112,900,000	$216,400,000	$42,600,000
2068	$403,200,000	$79,500,000	$148,900,000	$29,300,000
2069	$143,700,000	$28,300,000	$51,900,000	$10,200,000
2070	$143,700,000	$28,300,000	$50,700,000	$10,000,000
Average	**$648,269,565**	**$127,778,261**	**$398,436,957**	**$78,526,087**

Exhibit 14. Total Costs of DCP covered by MWD and LADWP - High-Cost Scenario

Year	Cost Paid by MWD	Cost Paid by LADWP	PV of MWD Payments	PV of LADWP Payments
2025	$0	$0	$0	$0
2026	$336,800,000	$66,400,000	$333,500,000	$65,700,000
2027	$336,800,000	$66,400,000	$326,900,000	$64,400,000
2028	$662,400,000	$130,500,000	$624,100,000	$123,000,000

2029	$1,160,500,000	$228,700,000	$1,074,600,000	$211,700,000
2030	$1,160,500,000	$228,700,000	$1,055,100,000	$207,900,000
2031	$1,382,800,000	$272,500,000	$1,228,900,000	$242,200,000
2032	$1,382,800,000	$272,500,000	$1,198,900,000	$236,200,000
2033	$1,382,800,000	$272,500,000	$1,174,200,000	$231,400,000
2034	$1,382,800,000	$272,500,000	$1,149,300,000	$226,500,000
2035	$1,410,700,000	$278,000,000	$1,146,900,000	$226,000,000
2036	$1,410,700,000	$278,000,000	$1,121,500,000	$221,000,000
2037	$1,410,700,000	$278,000,000	$1,096,100,000	$216,000,000
2038	$1,410,700,000	$278,000,000	$1,070,600,000	$211,000,000
2039	$1,410,700,000	$278,000,000	$1,045,100,000	$205,900,000
2040	$1,410,700,000	$278,000,000	$1,019,600,000	$200,900,000
2041	$1,410,700,000	$278,000,000	$994,100,000	$195,900,000
2042	$1,410,700,000	$278,000,000	$968,700,000	$190,900,000
2043	$1,410,700,000	$278,000,000	$943,400,000	$185,900,000
2044	$1,410,700,000	$278,000,000	$918,200,000	$180,900,000
2045	$1,410,700,000	$278,000,000	$893,200,000	$176,000,000
2046	$1,410,700,000	$278,000,000	$872,100,000	$171,900,000
2047	$1,410,700,000	$278,000,000	$851,300,000	$167,800,000
2048	$1,410,700,000	$278,000,000	$830,900,000	$163,700,000
2049	$1,410,700,000	$278,000,000	$810,800,000	$159,800,000
2050	$1,410,700,000	$278,000,000	$791,000,000	$155,900,000
2051	$1,410,700,000	$278,000,000	$771,600,000	$152,000,000
2052	$1,410,700,000	$278,000,000	$752,400,000	$148,300,000
2053	$1,410,700,000	$278,000,000	$733,700,000	$144,600,000
2054	$1,410,700,000	$278,000,000	$715,200,000	$140,900,000
2055	$1,410,700,000	$278,000,000	$699,200,000	$137,800,000
2056	$1,410,700,000	$278,000,000	$683,500,000	$134,700,000
2057	$1,410,700,000	$278,000,000	$668,200,000	$131,700,000
2058	$1,410,700,000	$278,000,000	$653,300,000	$128,700,000

2059	$1,410,700,000	$278,000,000	$638,700,000	$125,800,000
2060	$1,410,700,000	$278,000,000	$624,400,000	$123,000,000
2061	$1,410,700,000	$278,000,000	$610,400,000	$120,300,000
2062	$1,410,700,000	$278,000,000	$596,700,000	$117,600,000
2063	$1,410,700,000	$278,000,000	$583,400,000	$115,000,000
2064	$1,410,700,000	$278,000,000	$570,300,000	$112,400,000
2065	$1,410,700,000	$278,000,000	$557,500,000	$109,900,000
2066	$1,073,900,000	$211,600,000	$414,900,000	$81,800,000
2067	$1,073,900,000	$211,600,000	$405,600,000	$79,900,000
2068	$748,300,000	$147,500,000	$276,300,000	$54,400,000
2069	$250,200,000	$49,300,000	$90,300,000	$17,800,000
2070	$250,200,000	$49,300,000	$88,300,000	$17,400,000
Average	**$1,224,269,565**	**$241,260,870**	**$753,758,696**	**$148,532,609**

When spread over the total customer base of LADWP that is expected to decline over time given declining population forecast for LA County, the DCP would result in an additional cost of approximately $30–59 on average per customer annually (Exhibit 15 and Exhibit 16).

Exhibit 15. Number of Customers and Average Annual and Monthly Cost per Customer – Low-Cost Scenario

Year	Number of Customers	Average Annual Cost Per Customer	Average Monthly Cost Per Customer
2025	4,243,478	$0	$0
2026	4,239,630	$8	$1
2027	4,235,961	$8	$1
2028	4,232,252	$16	$1
2029	4,228,318	$28	$2
2030	4,228,633	$28	$2
2031	4,228,803	$34	$3
2032	4,228,539	$34	$3
2033	4,227,654	$34	$3
2034	4,226,155	$34	$3
2035	4,224,242	$35	$3
2036	4,222,054	$35	$3
2037	4,219,595	$35	$3
2038	4,216,872	$35	$3
2039	4,213,857	$35	$3
2040	4,210,976	$35	$3
2041	4,207,783	$35	$3
2042	4,204,542	$35	$3
2043	4,200,917	$35	$3
2044	4,196,427	$35	$3
2045	4,191,238	$35	$3
2046	4,185,730	$35	$3
2047	4,179,161	$35	$3
2048	4,171,642	$35	$3
2049	4,163,393	$35	$3
2050	4,154,379	$35	$3
2051	4,144,506	$36	$3
2052	4,133,725	$36	$3
2053	4,121,786	$36	$3
2054	4,109,270	$36	$3
2055	4,095,985	$36	$3
2056	4,081,830	$36	$3
2057	4,066,705	$36	$3

2058	4,051,041	$36	$3
2059	4,034,803	$37	$3
2060	4,018,152	$37	$3
2061	4,000,700	$37	$3
2062	3,982,312	$37	$3
2063	3,963,701	$37	$3
2064	3,944,676	$37	$3
2065	3,925,197	$38	$3
2066	3,905,393	$29	$2
2067	3,885,010	$29	$2
2068	3,864,352	$21	$2
2069	3,843,208	$7	$1
2070	3,821,613	$7	$1
Average	**4,119,048**	**$31**	**$3**

Exhibit 16. Number of Customers and Average Annual and Monthly Cost per Customer - High-Cost Scenario

Year	Number of Customers	Average Annual Cost Per Customer	Average Monthly Cost Per Customer
2025	4,243,478	$0	$0
2026	4,239,630	$16	$1
2027	4,235,961	$16	$1
2028	4,232,252	$31	$3
2029	4,228,318	$54	$5
2030	4,228,633	$54	$5
2031	4,228,803	$64	$5
2032	4,228,539	$64	$5
2033	4,227,654	$64	$5
2034	4,226,155	$64	$5
2035	4,224,242	$66	$5
2036	4,222,054	$66	$5
2037	4,219,595	$66	$5
2038	4,216,872	$66	$5
2039	4,213,857	$66	$5
2040	4,210,976	$66	$6
2041	4,207,783	$66	$6
2042	4,204,542	$66	$6
2043	4,200,917	$66	$6
2044	4,196,427	$66	$6
2045	4,191,238	$66	$6

2046	4,185,730	$66	$6
2047	4,179,161	$67	$6
2048	4,171,642	$67	$6
2049	4,163,393	$67	$6
2050	4,154,379	$67	$6
2051	4,144,506	$67	$6
2052	4,133,725	$67	$6
2053	4,121,786	$67	$6
2054	4,109,270	$68	$6
2055	4,095,985	$68	$6
2056	4,081,830	$68	$6
2057	4,066,705	$68	$6
2058	4,051,041	$69	$6
2059	4,034,803	$69	$6
2060	4,018,152	$69	$6
2061	4,000,700	$69	$6
2062	3,982,312	$70	$6
2063	3,963,701	$70	$6
2064	3,944,676	$70	$6
2065	3,925,197	$71	$6
2066	3,905,393	$54	$5
2067	3,885,010	$54	$5
2068	3,864,352	$38	$3
2069	3,843,208	$13	$1
2070	3,821,613	$13	$1
Average	**4,119,048**	**$59**	**$5**

Assuming that the DCP is able to deliver 403,000 AF of additional water on average and LADWP is able to receive an additional 32,000 AF of water, the water would cost LADWP approximately $4630–8700 per AF. When combined with the amount LADWP has to pay MWD for baseline SWP deliveries, this additional cost would result in total cost of up to $9,800 per AF by 2040.

Exhibit 17. Estimated Baseline Costs of SWP to LADWP

Year	Estimated Baseline Rate ($)	Additional DCP Deliveries (AF)	Estimated DCP Cost per AF Low-Cost	Estimated DCP Cost per AF High-Cost	Total SWP Cost per AF Low-Cost	Total SWP Cost per AF High-Cost
2025	$1,100	31,832	$0	$0	$1,100	$1,095
2030	$1,100	31,832	$3,740	$7,184	$4,840	$8,279
2035	$1,100	31,832	$4,630	$8,733	$5,730	$9,828
2040	$1,100	31,832	$4,630	$8,733	$5,730	$9,828

Key Assumptions:

- MWD would cover approximately 48.5% of total payments of the DCP in a year. This is an average of
  - MWD's share of total SWP Table A Amounts - 46%
  - MWD's share of SWP contractor payments between 2019 and 2023 - 51%
  - Estimated share of Table A amounts excluding 11 SWP contractors who opted out of the DCP – 49%
- MWD would receive 40% of additional DCP deliveries in a year, on average. This is based on MWD's average annual share of SWP deliveries between 1993 and 2021.
- LADWP would receive 20% of the additional DCP deliveries received by MWD. This is based on LADWP's average share of MWD treated and untreated water sales during 2013-2015 and 2022-2024.
- LADWP would pay a blended rate of approximately $1,100 per AF for non-DCP water purchased from MWD in 2025 and beyond. This blended rate would remain constant. This rate estimated based on treated and untreated water rates between 2020-2024 and the average share of treated and untreated water that makes up annual LADWP water purchases from MWD.
- Average Annual inflation rate of 3% is used to inflate capital and O&M costs to 2026 values. DWR recommends the use of this inflation rate. It is derived from BOR's Construction Cost Data between 1984 and 2019.[119]
- The cost payments are discounted to present value terms using discount rates that vary from 0 to 2.3% between 2025 and 2070 based on OMB's recommended real interest rates.

[119] California Department of Water Resources, *Compendium of Evidence in Support of DWR's Opposition to Petition for Writ of Mandate (Delta Conveyance Project)*, Page 26, filed May 20, 2024.]

Appendix B: Regression Output for Critique 6

Exhibit 18. Regression Output Table

VARIABLE	COEFFICIENT	95% CONFINDENCE INTERVAL
R^2 = 0.7384		
Constant Term	275.43*** (14.27)	247.35 – 303.51
Abnormally Dry	164.15*** (46.74)	72.67 – 255.63
Moderate Drought	379.08*** (105.39)	171.63 – 586.53
Severe Drought	961.51*** (88.59)	787.14 – 1135.88
Exceptional Drought	242.27** (104.48)	36.61 – 447.92
Extreme Drought	1288.89*** (113.37)	1065.74 – 1512.04
Robust standard errors are reported in parenthesis. ***, **, *** indicates statistical significance at the 90%, 95%, and 99%-level, respectively**		

Source: ECOnorthwest Analysis.