



INSIGHTS INTO PROPOSITION 1:

The 2014 California Water Bond



October 2014

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Executive Summary

California faces serious and growing water challenges that will require expanded investment, changes in policy and institutions, and in some cases some fundamentally new technologies, policies, laws, and behaviors. In an attempt to address some of these issues and move the state out of decades of gridlock over water resource management, the California Legislature passed a series of water-related bills at the end of 2009, including an \$11.14 billion water bond. As a result of the state's economic downturn and due to fears the voters would reject it, the Legislature stalled putting the bond measure on the ballot until this year, when they negotiated a new version.

On November 4th, 2014 voters will decide the fate of Proposition 1, which authorizes the sale of \$7.12 billion in new general obligation bonds and the reallocation of an additional \$425 million of previously authorized, but unissued, bonds (see Table ES-1 for a summary). If passed by the voters, Proposition 1 would be the fourth-largest water bond in California history, funding a wide range of water-related actions and infrastructure. The total cost of Proposition 1, including interest, will exceed \$14 billion over 30 years.

The Pacific Institute is taking no formal position for or against Proposition 1. We offer this analysis to help voters and the general public to understand and weigh the complexities in this proposition. In our full analysis, we focus on the following key questions:

- What are general obligation bonds and how are they funded?
- How does Proposition 1 compare to past water bonds?

- How would the bond funds be allocated?
- How might the funds for water storage be allocated among competing projects?
- How does the bond address the needs of disadvantaged communities?
- How does the bond address ecosystem needs?

Key findings by the Pacific Institute regarding Proposition 1 include:

- While Proposition 1 contains funds that could provide important benefits for California's environment and communities, there is also a risk that major provisions could cost taxpayers a substantial amount of money without producing any real improvements to water supply, reliability, or environmental quality.
- Proposition 1 will not provide any immediate drought relief.
- Thirty-six percent (\$2.7 billion) of total Proposition 1 funds are allocated to the "public benefits" of possible surface or groundwater storage projects. While some reports suggest that the storage funds will go to surface dams and reservoirs, this is by no means certain.
- Nine percent of funds are devoted to helping alleviate water challenges in "disadvantaged communities." A majority of these funds would support much-needed drinking and wastewater system improvements; however,

Table ES-1. Uses of Proposition 1 bond funds

Bond Sections		Amount (\$ millions)
Water Supply and Reliability		\$4,235
	Surface and groundwater storage	2,700
	Regional projects in the state's hydrologic regions ¹	510
	Stormwater management	200
	Urban and agricultural water conservation	100
	Water recycling, including desalination	725
Watershed Protection and Restoration		\$1,495
	Watershed restoration and habitat protection in designated areas	515
	State commitments for environmental restoration	475
	Restoration programs available to applicants statewide	305
	Projects to increase water flowing in rivers and streams	200
Improvements to Groundwater and Surface Water Quality		\$1,420
	Prevention and cleanup of groundwater pollution	800
	Drinking water projects for disadvantaged communities	260
	Wastewater treatment in small communities	260
	Local plans and projects to manage groundwater	100
Flood Protection		\$395
	Repairs and improvements to levees in the Delta	295
	Flood protection around the state	100
Total		\$7,545

Note: (1) Eligible projects include water reuse and recycling; water conservation and efficiency; local and regional groundwater and surface water storage; rainwater or stormwater capture; regional water conveyance facilities; water desalination; and watershed protection, restoration, and management projects.

Source: LAO 2014

funding to support ongoing operation and maintenance costs and technical assistance is limited, raising questions about the long-term sustainability of these projects.

- One percent of funds are devoted to water conservation and efficiency, though such projects could produce more benefit at lower cost, compared to other water supply options.
- Other major provisions would provide funds for some ecosystem protection and restoration and to improve surface and groundwater quality.

Ultimately, the effectiveness of Proposition 1 funds in addressing California's overall water problems will depend on how the funds, if passed by the voters, are actually allocated and spent. If Proposition 1 passes, the Institute recommends that the California Water Commission develop a rigorous, independent, and transparent process to evaluate and quantify the public benefits of proposed storage projects. We also recommend that decisions about the rest of the funds be made with a focus on meeting public and ecosystem needs for safe and reliable water, improvements in efficient use, and reducing the risks of future droughts and floods.

If the California Water Commission identifies and supports good projects, bond funds can help move the state forward in the broader effort of designing, building, and managing a 21st century water system. But voters should not expect immediate relief from Proposition 1 for the impacts of the current drought; nor should they expect these funds to be the last investment that is needed for better institutions, smarter planning, and more effective water management strategies. It can be, at best, a down payment on our water future.

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Introduction

California faces serious and growing water challenges that will require expanded investment, changes in policy and institutions, and in some cases some fundamentally new technologies, policies, laws, and behavior. In an attempt to address some of these issues and move the state out of decades of gridlock over water resource management, the California Legislature passed a series of water-related bills at the end of 2009. One of those bills included an \$11.14 billion bond (named the Safe, Clean, and Reliable Drinking Water Supply Act of 2010) to be put before voters on the November 2010 ballot. With polls suggesting that California voters would not pass such a large bond given the state's financial woes, the Legislature delayed the vote twice, moving it to the 2012 ballot and then to the 2014 ballot.

In 2014, after months of deliberation, the California Legislature replaced the 2010 bond with a smaller bond that would authorize the sale of \$7.12 billion in general obligation bonds and reallocate an additional \$425 million of unissued bonds authorized for previous propositions. This new bond, named the Water Quality, Supply, and Infrastructure Improvement Act of 2014, is Proposition 1 on the November 4, 2014, ballot. If passed by the voters, Proposition 1 would be the fourth-largest water bond in California history, funding a wide range of water-related actions and infrastructure. Yet the complex language of the bond and its true costs and benefits are difficult to evaluate, and even experts have conflicting opinions about what it will support.

The Pacific Institute is taking no formal position for or against Proposition 1, the 2014 California water bond. Rather, we have developed this analysis to try to understand and explain the complexities in this proposition to help individuals understand the different provisions of the bond.

In this analysis, we attempt to shed light on the following key questions:

- What are general obligation bonds and how are they funded?
- How does Proposition 1 compare to past water bonds?
- How would the bond funds be allocated?
- How might the storage funds be allocated among competing projects?
- How does the bond address the needs of disadvantaged communities?
- How does the bond address ecosystem needs?

To address these questions, the Pacific Institute examined the proposed bond language and related legislative and agency documents, reviewed past water-related bond language and allocations, and interviewed key legislators, experts, community leaders, and other stakeholders.

Background on General Obligation Bonds

Municipal bonds are commonly used in the United States to finance water infrastructure projects. A municipal bond is a bond issued by a municipal government (state, city, or county) or its agency and purchased by individual and institutional investors. For investors, municipal bond income (i.e., the interest payment or dividend) is exempt from federal tax and may also be exempt from state and local taxes. As a result, the investor will often accept lower dividends relative to other types of bonds. The bond issuer benefits by paying lower interest on its debt than would a comparable corporate issuer, reducing the overall financing costs.

The two broad categories of municipal bonds are revenue bonds and general obligation bonds. Revenue bonds are issued for a specific project

and are repaid from a specific revenue source (often the project itself). For example, Caltrans may build or repair a bridge by selling revenue bonds, which are then repaid over time by the tolls paid by the people who use the bridge. Large utilities may also be able to incur “system debt”: They issue bonds for debt that is repaid by revenue to the entire system (rather than just the project). General obligation bonds are backed by the full faith, credit, and taxing power of the issuer, so payments to investors are not dependent on the success of a specific project.

In California, general obligation bonds must be approved by voters. The repayment of general obligation bonds, with interest, is guaranteed by a government’s general taxing powers. When California voters pass a general obligation bond, they commit to paying back the amount of the bond, plus interest, out of the state’s General Fund. The General Fund is the pool of public money that the state uses to pay for the majority of the services and projects that it provides. The General Fund relies on personal income tax, sales tax, and corporate taxes for more than 90% of its revenue. Each year, California uses part of the General Fund to pay its “debt service” — the annual interest and principal payments on bonds the state has sold. This is similar to the way someone who has borrowed money to buy a car or house must make regular payments to repay the loan. The General Fund is also used to pay for public schools and universities, the state prison system, the Medi-Cal health insurance program, unemployment benefits, state parks, and other health and social services.

General obligation bonds are repaid through the General Fund, but in some cases, the General Fund may be reimbursed for those expenses. Non-self-liquidating bonds have no repayment requirements. By contrast, self-liquidating bonds repay the General Fund using revenue from the project financed. A self-liquidating general

obligation bond was used by the state in 1960, when California voters approved the equivalent of \$14.1 billion (in 2014 dollars) for construction of the State Water Project. The money was initially drawn from the General Fund but was repaid almost entirely by those who used the water. This method of repayment ensured that the project was repaid primarily by those who had directly benefited from its construction and operation rather than general taxpayers — a concept referred to as user funding or the beneficiary-pays principle. In contrast, Proposition 1 is a non-self-liquidating bond: It has no requirement that the beneficiaries of projects funded by the bond repay the costs of the bond. These costs are instead covered by the general taxpayer.

Some of the opposition to the current bond proposal is based on a belief that most of the costs of new water investments and fixing or remediating past damages from water projects should be borne more directly by users, rather than the general taxpayer through statewide bonds. These are legitimate concerns that reveal a fundamental split in attitude toward the appropriate role of government. Alternative funding approaches can include a water user fee, as was imposed years ago in the energy sector, or local expenditures.

Trends in California Water Bonds

Since 1960, California has authorized approximately \$49 billion (in 2014 dollars) in water-related bonds. The largest authorization was in 1960, when California voters approved the construction of the State Water Project. A series of small water-related bonds were passed in the subsequent decades between 1970 and 2000, ranging from \$121 million to \$1.56 billion (in 2014 dollars). During this period, 15 water-related bonds, totaling \$10.2 billion, were authorized — equivalent to a \$680 million bond every other year, on average (Figure 1). Since

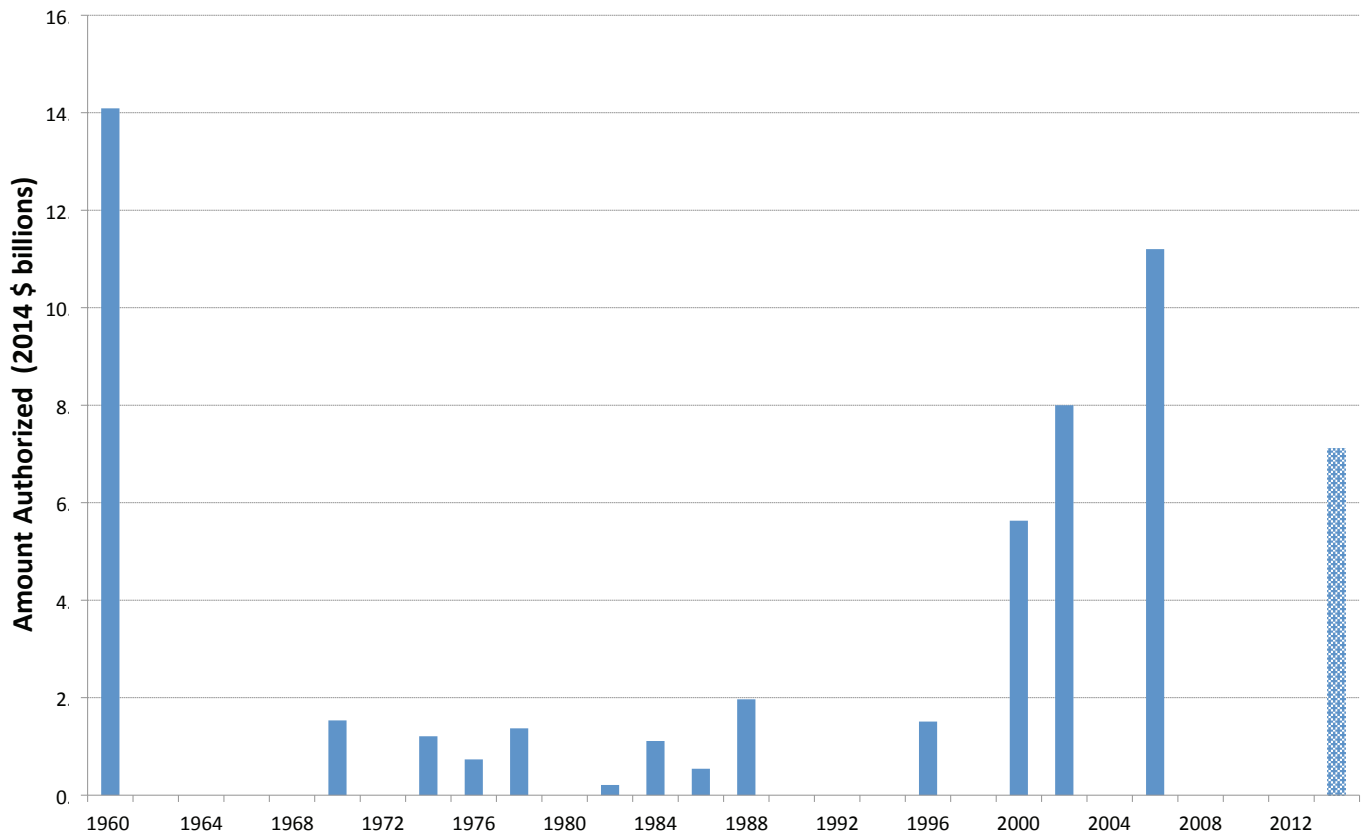


Figure 1. Past water-related general obligation bonds, compared with the proposed 2014 bond

Note: All bonds have been adjusted for inflation and are shown in year 2014 dollars. These amounts do not include full repayment costs, including interest.

Source: LAO 2009

2000, the number of water-related bonds has stayed about the same, averaging one every two years. The size of water-related bonds, however, has increased dramatically. Between 2000 and 2013, California voters authorized six water-related general obligation bonds, ranging from \$2.7 billion to \$6.4 billion, and totaling \$24.8 billion. During this period, the average water bond exceeded \$4.1 billion. This year, the state Legislature voted to put the fourth-largest water bond in California history, Proposition 1, before voters in November 2014. In total, Proposition 1 would provide \$7.12 billion in new funding and reallocate an additional \$425 million of unissued bonds authorized for previous propositions to support a variety of water-related projects.

The Evolution of the Water Quality, Supply, and Infrastructure Improvement Act of 2014

In February 2009, ongoing drought conditions prompted Governor Arnold Schwarzenegger to declare a state of emergency. Later that year, the governor threatened to veto all bills passed by the California Legislature unless a “comprehensive water package” was included. The governor made it clear that this package should explicitly include a bond that would allow for “expanded water storage capacity,” e.g., dams, reservoirs, and groundwater storage. Although the Legislature did not pass such a package during its regular session, the governor

Table 1. Uses of Proposition 1 bond funds

Bond Sections		Amount (\$ millions)
Water Supply and Reliability		\$4,235
	Surface and groundwater storage	2,700
	Regional projects in the state's hydrologic regions ¹	510
	Stormwater management	200
	Urban and agricultural water conservation	100
	Water recycling, including desalination	725
Watershed Protection and Restoration		\$1,495
	Watershed restoration and habitat protection in designated areas	515
	State commitments for environmental restoration	475
	Restoration programs available to applicants statewide	305
	Projects to increase water flowing in rivers and streams	200
Improvements to Groundwater and Surface Water Quality		\$1,420
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	Local plans and projects to manage groundwater	100
Flood Protection		\$395
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	Flood protection around the state	100
Total		\$7,545

¹ Eligible projects include water reuse and recycling; water conservation and efficiency; local and regional groundwater and surface water storage; rainwater or stormwater capture; regional water conveyance facilities; water desalination; and watershed protection, restoration, and management projects.

called an extraordinary session in 2009, during which five bills related to various aspects of water governance, monitoring, and use were passed, including the \$11.14 billion Safe, Clean, and Reliable Drinking Water Supply Act of 2010, hereafter referred to as the 2010 bond.

That bond was slated to appear on the November 2010 ballot as Proposition 18. Polls, however, suggested that California voters were unlikely to pass the bond given the state's financial woes. By a two-thirds majority vote, the Legislature delayed the vote twice, moving it first to the 2012 ballot and then to the 2014 ballot. During the 2014 legislative session, several new proposals were put forward to replace the 2010 bond because of ongoing concerns about its size and new worries about the severity of another

drought that began in 2012 and dramatically worsened over the subsequent years. In June 2014, in a public appeal, Governor Jerry Brown added his voice to the debate and asked the Legislature to replace the \$11.14 billion bond with a less expensive \$6 billion bond. After seven more weeks of deliberation, the California Legislature passed the Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Assembly Bill 1471), hereafter referred to as the proposed 2014 bond, or Proposition 1.

If passed by a majority of California voters in the November 4, 2014, general election, Proposition 1 will authorize the borrowing of \$7.12 billion via general obligation bonds and reallocate an additional \$425 million of unissued bonds authorized for previous propositions to finance a

variety of water-related projects (see Table 1). Bond funds can be allocated into four key areas: (1) water supply and reliability, (2) watershed protection and restoration, (3) improvements to groundwater and surface water quality, and (4) flood protection. Water supply and reliability accounts for 56% (\$4.2 billion) of the allocated funds and includes funding for surface and groundwater storage, stormwater management, water recycling, and desalination. Watershed protection/restoration and water-quality improvements each account for about 20% of the allocated funds. Finally, flood protection accounts for 5% of the allocated funds.

Fiscal Impact of the Bond

Once the bonds are sold, the state makes annual or semi-annual principal and interest payments to investors until the bonds are paid off. According to the Legislative Analyst's Office (2014), the state currently has \$87 billion in outstanding General Fund-supported infrastructure bonds and is making principal and interest payments on this debt (referred to as debt-service payments). At present, California's debt is the largest of all 50 states. However, we are also the most populous state with the largest economy. The state's public debt in 2011 was about \$4,000 per resident, making us the 21st-ranked state in terms of per-capita debt (US Census Bureau 2014; Chatrill 2014). The state's ratio of debt to economic output is slightly below average when compared to all 50 states (Waring 2012). In 2013-14, debt-service payments on outstanding infrastructure bonds totaled over \$5 billion. As previously authorized bonds are sold, debt-service payments are expected to rise, peaking at over \$7 billion in 2019-20. Debt-service payments on Proposition 1 would average \$360 million annually over the 40-year repayment period. As a result, the total cost of the 2014 bond to California taxpayers is estimated to be around \$14.4 billion, including interest. Currently, about 5% of annual General

Fund revenues are used for debt-service payments on infrastructure bonds, and the proposed bond would increase those payments by about one-third of a percentage point.

Water Supply and Reliability

There is a mismatch between the amount of money provided in Proposition 1 for various options and the potential costs and water supply benefits. A key priority of the bond is to augment the state's water supply and improve water supply reliability, with more than \$4.2 billion in bond funds dedicated to that priority (Table 2.) Bond allocation, technical potential, and cost of various water supply options. Table 2 shows the bond allocation, technical potential, and cost of various water supply options, including storage, efficiency, desalination, and recycled water.

The majority of bond funds are allocated to water storage. As described in greater detail below, "storage" is a general term that includes surface storage in the form of dams and reservoirs as well as groundwater storage. According to the Department of Water Resources (2013), new surface water storage options would boost water supplies by a relatively modest amount (0.1 million to 1.1 million acre-feet per year) at a cost of \$300 to \$1,100 per acre-foot. Groundwater storage could provide 0.5 million to 2.0 million in new supply (DWR 2013) at a cost of \$90 to \$1,100 per acre-foot, and a median cost of \$395 per acre-foot (Choy et al. 2014).¹ In general, groundwater storage has greater water supply potential at a lower cost.

Far less of the bond money is available for other water supply and demand management options, including recycled water, stormwater capture, and efficiency. Yet these options can typically provide more water at lower cost than most storage projects. Funding for water

¹ For reference, the total water supply in California in 2010 was 53 million acre-feet per year (DWR 2013).

Table 2. Bond Allocation, technical potential, and cost of various water supply options

	Bond Allocation (\$ Millions)	Technical Potential (MAF per Year)	Cost (\$/AF)
Surface water storage	\$2,700	0.1–1.1 ^a	\$300 to \$1,100 ^a
Groundwater storage		0.5–2.0 ^a	\$90 to \$1,100 ^f
Recycled water	\$725	1.2–1.5 ^b	\$300 to \$1,300 ^a
Brackish water desalination		0.3–0.4 ^a	\$500 to \$900 ^a
Seawater desalination			\$1,900 to \$3,000 ^g
Stormwater management	\$200	0.4–0.6 ^c	Not known
Urban efficiency	\$100	1.3–3.9 ^d	\$223 to \$522 ^a
Agricultural efficiency		0.4–2.0 ^e	\$85 to \$675 ^a
Various projects in several hydrologic regions	\$510	Not known	Not known
Total	\$4,235		

Note: Urban and agricultural efficiency potential estimates are based on reductions in consumptive use and represent new supply. Larger overall reductions in water demand are possible, offering additional savings in energy costs and improvements in ecosystem health and water quality.

Sources: (a) DWR 2013, (b) Cooley et al. 2014b, (c) Garrison et al. 2014, (d) Heberger et al. 2014, (e) Cooley et al. 2014a, (f) Choy et al. (2014), (g) Cooley and Ajami 2012

conservation and efficiency is especially low. Recent studies published by the Pacific Institute and NRDC show that the urban and agricultural sectors could reduce their annual water demand by 8.5 million to 11.8 million acre-feet through water conservation and efficiency improvements (Cooley et al. 2014a; Heberger et al. 2014), e.g., by replacing lawns with low-water-use plants, installing more efficient appliances and fixtures, and adopting microsprinklers and drip irrigation. Of these efficiency improvements, 1.7 million to 5.9 million acre-feet would be in the form of new supplies that could be allocated to other uses at a relatively low cost of \$85 to \$675 per acre-foot (DWR 2013) (see Table 2).

In addition to allocating money to specific types of water supply and demand management options, the bond allocates \$510 million to the state's ten hydrologic regions to be used for a variety of projects (e.g., water reuse and recycling, water conservation and efficiency, and local and regional water storage projects). This funding is restricted to projects that have been identified through integrated regional water management plans (IRWMPs). This is a relatively

small amount of money for IRWMPs, which have been the primary mechanism for supporting a more integrated approach to water management across the state.

In all cases, funds are allocated to projects through a competitive grant process. Project proponents submit grant applications and the agency responsible for allocating those funds chooses among the applicants. Cost effectiveness — whereby the expected project benefits exceed the expected project costs — is typically one of the criteria used to evaluate projects. While the bond allows for competition within particular funding categories (e.g., stormwater projects compete with other stormwater projects), there is no requirement that all water supply options compete with one another. Thus, there is no assurance that the public is getting the greatest benefit from its investment.

Water Storage

As was the case with the 2010 bond, Proposition 1 provides substantial taxpayer funding for

“water storage.”² The 2010 bond included \$3.0 billion directly for water storage; the current language includes \$2.7 billion.³ Because the total size of the 2014 bond is smaller than the 2010 bond, the proportion of total funding committed for storage increased from 30% to 36%. Beyond the reduction in the total allocation from \$3 billion to \$2.7 billion, the language of Chapter 8 in the proposed 2014 bond is almost identical to the language in the original 2010 bond.

California voters have not approved a general obligation bond to finance the construction of major new surface water storage since 1960, when they approved \$1.8 billion (\$14.1 billion in 2014 dollars) to finance the acquisition, construction, and completion of major elements of the State Water Project, one of the largest water infrastructure projects in the nation.⁴ The conditions for that bond, however, required that those who directly benefited from the State Water Project’s construction and operation repay the cost, a provision referred to as the beneficiary-pays principle. Proposition 1, by contrast, authorizes significant storage funds that will be repaid by California taxpayers through the General Fund. While state funding has not been available for the construction of surface water storage projects, Propositions 50 (2002) and 84 (2006) provided funding for planning and feasibility studies for water supply, conveyance, or flood control projects. Additionally, Proposition 13, which passed in 2000, provided \$200 million (\$276 million in 2014 dollars) for groundwater storage projects.

² This section of the bond is titled Statewide Water System Operational Improvement and Drought Preparedness.

³ Chapter 8 of the bond includes \$2.7 billion for water storage projects; however, other chapters include funds that could also be used for some kinds of local and regional surface and groundwater storage.

⁴ Local governments and water agencies have generated and spent substantial funds during this period for water storage projects at the local level.

Box 1. The California Water Commission

The bond gives the California Water Commission (CWC) responsibility for deciding how the storage funds are to be allocated. Specifically, projects would be selected by the Commission through a competitive process that ranks potential projects based on the public benefits provided.⁵

As described on the Commission’s website:

The California Water Commission consists of nine members appointed by the governor and confirmed by the State Senate. Seven members are chosen for their general expertise related to the control, storage, and beneficial use of water and two are chosen for their knowledge of the environment. The Commission provides a public forum for discussing water issues, advises the Department of Water Resources (DWR), and takes appropriate statutory actions to further the development of policies that support integrated and sustainable water resource management and a healthy environment. Statutory duties include advising the Director of DWR, approving rules and regulations, and monitoring and reporting on the construction and operation of the State Water Project.

In preparation for their work, should the 2014 bond pass, the Commission has begun to define and quantify the public benefits of water storage projects (CWC 2014).

Public Benefits of Water Storage Projects

Proposition 1 states that the Chapter 8 water-storage funds will be used only for “public benefits associated with water storage projects

⁵ Section 79750(c).

that improve the operation of the state water system, are cost-effective, and provide a net improvement in ecosystem and water quality conditions.”⁶ While “public benefits” are broadly defined, “ecosystem benefits” must constitute at least half of the overall public benefits. This provision is intended to address concerns that the project’s proponents would justify its public benefits by boosting flood and recreation benefits but ignoring ecosystem improvements.⁷

The state will pay for up to half of the cost of the project and will only pay for the parts of the project that provide public benefit.⁸ This provision is intended to ensure that those who receive water from the storage project will pay at least half the total costs of a project and thus places a “floor,” or minimum, on their share of the costs. Projects are then to be selected by the California Water Commission (Box 1) “through a competitive public process that ranks potential projects based on the expected return for public investment as measured by the magnitude of the public benefits provided.”⁹ And yet building reservoirs is a doubtful way to improve the environment. Ecosystem benefits could be funded directly and would most likely produce far greater ecological improvement than the benefits that are likely to result from investing in any of the proposed surface storage projects under consideration.

Several criteria were identified for defining public benefits for this chapter of the bond: ecosystem improvements, Delta water quality improvements, flood control benefits, emergency

response, and recreational purposes. Many of these benefits are notoriously difficult to quantify; others — like recreational purposes — are applicable only to surface storage projects. As a result, these categories of benefits are considered to be tilted toward favoring surface storage.¹⁰ But merely listing the benefits that may be considered does little to illuminate how those benefits are to be quantified. In the end, it is the weighting of these public benefits that will have a major impact on the types of projects that will be funded. The development and weighting of these criteria are left to the California Water Commission (Box 1).

Eligible Storage Projects

According to the 2014 bond, four kinds of storage projects are eligible for funding:

- 1) Surface storage projects identified in the 2000 CALFED Record of Decision, or ROD (except for projects prohibited under the California Wild and Scenic Rivers Act), including:
 - a. Los Vaqueros enlargement
 - b. In-Delta island storage
 - c. Millerton Lake (now more commonly referred to as Temperance Flat) enlargement or equivalent
 - d. Sites Reservoir off-stream storage
- 2) Groundwater storage projects and groundwater contamination prevention or remediation projects that provide water storage benefits, potentially including groundwater conjunctive use in Sacramento Valley, San Joaquin Valley, and Southern California (as described in the CALFED ROD)

⁶ Section 79750(b).

⁷ “No project may be funded unless it provides ecosystem improvements as described in paragraph (1) of subdivision (a) of Section 79753 that are at least 50 percent of total public benefits of the project funded under this chapter.”

⁸ “The public benefit cost share of a project funded pursuant to this chapter, other than a project described in subdivision (c) of Section 79751, shall not exceed 50 percent of the total costs of any project funded under this chapter.”

⁹ Section 79750(c).

¹⁰ This was noted in the legislative analyses prepared for California Senate committee hearings in April 2014 on SB1250 and SB927 (Senate Committee on Natural Resources and Water 2014).

- 3) Conjunctive use and reservoir reoperation projects
- 4) Local and regional surface storage projects that improve the operation of water systems in the state and provide public benefits

As noted below, while the enlargement of Shasta Dam was one of the projects identified in the 2000 CALFED ROD (DWR 2007), some of the language in Proposition 1 seems to rule it out of consideration. A major enlargement of Los Vaqueros has also just been completed by the Contra Costa Water District, although further enlargement is possible. In addition, any projects funded under Chapter 8 are required to provide “measurable improvements to the Delta ecosystem or to the tributaries to the Delta.” This requirement effectively eliminates funding for projects with no hydrological connections with the Central Valley.

The provisions of Chapter 8 also include a requirement that projects be cost-effective. In the context of Proposition 1, this means that the total expected benefits of the project must exceed the total expected costs, but not that any particular project be the most economically effective way of satisfying a particular resource need. Analyses of cost-effectiveness are often controversial, but there is extensive and growing literature about the economic advantages of groundwater storage, efficiency improvements, wastewater treatment and reuse, and stormwater capture and reuse over the proposed surface storage options (Cooley et al. 2006; Choy et al. 2014; NRDC 2014).

Chapter 8 also requires that projects be “financially feasible.”¹¹ If various storage options are presented to the California Water Commission and evaluated in a “competitive public process that ranks potential projects

based on the expected return for public investment as measured by the magnitude of the public benefits provided,” then a broader set of options other than just the CALFED surface storage projects might be considered. A major flaw in this section, however, is that the California Water Commission does not have to compare storage projects (however defined) on an equal basis with other supply expansion (such as water reuse or stormwater capture) or demand reduction (conservation and efficiency) projects. While funding for these types of projects is included in other sections of the proposed bond, the grant selection process is separate from that for storage.

One of the most common questions about Proposition 1 is whether the storage language constitutes a covert earmark for surface storage dams and reservoirs. Certainly some of the media coverage and remarks from supporters seem to suggest the belief that the language of Chapter 8 will inevitably support only these kinds of projects. Our assessment finds this may not be the case.

Bond measures and other forms of funding legislation typically have a mix of overt and covert earmarks. An overt earmark is language that clearly and explicitly specifies what the money is to be used for. A covert earmark is language that appears to be nonspecific but that nevertheless imposes conditions that can ultimately be satisfied only by a particular project. The language of Chapter 8, the kinds of “public benefits” to be considered, and the fact that the surface storage projects identified in the CALFED ROD are further along in the planning process appear to favor surface storage projects over groundwater storage, but other factors reduce the likelihood of their moving forward.¹²

¹¹ See section 79755(a)(5)(A)-(B).

¹² It is worth noting, however, that California water development has a long history of overestimating the benefits and underestimating the ultimate costs of water projects.

For example, one project identified in the CALFED ROD is the option of raising the height of Shasta Dam to increase the volume of water that can be stored. The Bureau of Reclamation has the authority to pursue such an increase, but it is not clear that the State Water Resources Control Board would permit the additional water to fill it, given the current overallocation of water rights in the Sacramento basin as well as Wild and Scenic River Act restrictions on nearby tributaries. Sections 79711(e) and 79751(a) of Proposition 1 have language that prohibits funding for any project that “could have an adverse effect on the values upon which a wild and scenic river or any other river is afforded protections pursuant to the California Wild and Scenic Rivers Act or the federal Wild and Scenic Rivers Act.” The U.S. Bureau of Reclamation’s draft environmental impact statement for raising Shasta Dam concluded that the project would violate this state law. Similarly, staff of the Metropolitan Water District of Southern California concluded that the Shasta project is ineligible for Proposition 1 money (MWD 2014). In addition, the cultural and environmental costs of raising Shasta Dam are sufficiently high to suggest that there would be strong opposition from a coalition of community, tribal, environmental justice, and environmental groups.

We note that many local agencies are already pursuing their own projects with local funding. The Contra Costa Water District, for example, recently completed a major expansion of Los Vaqueros, raising the height of the dam by 34 feet and expanding reservoir storage capacity by 60%, to 160,000 acre-feet, although there is ongoing discussion about pursuing a further raise of the dam. The Temperance Flat Dam project could also be considered, but it already has a serious problem in proving that the benefits exceed the full costs, and no one has stepped forward to say they would cover the nonpublic benefit costs of construction. The Sites Reservoir

is also a costly project, and there are concerns that it would be difficult to ensure that the limited amount of “new” water the project might yield could actually be moved through the Delta. Any and all of these projects could move forward to the California Water Commission for review, but there are no guarantees they would receive bond funding.

“South of Delta” projects might also be considered for funding, but only if it could be shown that such projects will reduce stress and pressure on the Delta itself, through firm commitments to cut overall exports or improve water quality conditions. The State Water Resources Control Board is currently working on new Delta protection rules that could influence this decision. We note, though, that operational rules for such projects would have to be developed for such an argument to be made and this is rarely done in advance for water infrastructure.

Finally, as noted, Section 79750(c) of Proposition 1 requires that the California Water Commission use a competitive public process that ranks projects, and it provides a two-year window for the Commission to finalize the regulations for quantifying benefits. It is unclear whether the Commission can simply allocate the \$2.7 billion to the first projects in the door, even if only a few projects are brought forward. The Commission could also allocate the funds by asking for a large portfolio of projects to evaluate simultaneously so it can identify the best investments and highest potential overall return. As noted above, there is no requirement that the Commission consider “nonstorage” options on an equal footing, even if they are more cost-effective and have greater public benefits. If Proposition 1 passes, we recommend that the Commission develop a rigorous, independent, and transparent process to evaluate and quantify the public benefits of proposed storage projects.

What About the Delta Conveyance/Delta Tunnels?

Legislators explicitly prohibited the use of any Proposition 1 funds for the construction of new Delta “conveyance facilities” because of concern and controversy over the proposed twin tunnels diversion project. Specifically, the bond states: “Funds provided by this division shall not be expended to pay the costs of the design, construction, operation, mitigation, or maintenance of Delta conveyance facilities. Those costs shall be the responsibility of the water agencies that benefit from the design, construction, operation, mitigation, or maintenance of those facilities.”¹³ Proposition 1 does provide some funding for Delta habitat restoration, which is part of the cost of the overall Bay Delta Conservation Program (BDCP) objectives, but this funding is far more limited than in the 2009 proposed bond, which included \$1.5 billion explicitly for the BDCP.

Timing of Bond Funding for Water Storage Projects

No funds from this section can be allocated to projects before December 15, 2016, at the earliest,¹⁴ and then only if a series of requirements is met, including the adoption of rules for quantifying the public benefits portions of projects, the actual quantification and publication of those benefits, the signing of a contract that identifies which benefiting party will pay for which share of project costs, the completion of public hearings, all environmental documentation, feasibility studies, and more.¹⁵ Therefore, we conclude that Proposition 1 will do little to alleviate the current drought.

Other Provisions of Chapter 8

The storage funds are to be “continuously appropriated,” which means that the money is not subject to appropriation or transfer by the Legislature or the governor for any other purpose.¹⁶ Some opposition to the language of continuous appropriation was expressed in hearings around earlier versions of the bond. The concern noted by the Senate Committee on Natural Resources and Water was that “continuous appropriations eliminates one of the Legislature’s key checks on the powers of the executive branch, namely, the power to appropriate funds” (Senate Committee on Natural Resources and Water 2014). Despite this opposition, however, continuous appropriation was left in the final version.

Chapter 8 has a special provision that makes it effectively impossible to change. In Section 79760, it states that “any amendment of the provisions of this chapter by the Legislature shall require an affirmative vote of two-thirds of the membership in each house of the Legislature and voter approval.” This makes it difficult for the Legislature to provide subsequent guidance or clarification on any provision, in effect codifying any vague language. This places enormous pressure on the California Water Commission in its work to interpret and implement the provisions.

Disadvantaged Communities as Defined in the Bond

Past California water bonds have provided special benefits and targeted funding for

¹³ Section 79710(a)

¹⁴ Section 79754.

¹⁵ Section 79755.

¹⁶ The official definition of “continuous appropriation” is as follows: Amount, specific or estimated, available each year under a permanent constitutional or statutory expenditure authorization which exists from year to year without further legislative action. The amount available may be a specific, recurring sum each year; all or a specified portion of the proceeds of specified revenues which have been dedicated permanently to a certain purpose. (Source: California Department of Finance, Glossary of Budget Terms; http://www.dof.ca.gov/html/bud_docs/glossary.pdf.)

communities that have the greatest need for financial assistance to access clean, safe, reliable drinking water. Generally, small and/or poor communities are most in need, as these areas usually lack a sufficient rate base to finance expensive infrastructure. Proposition 1 targets these communities by providing funding and other benefits for disadvantaged communities (DACs), defined as those with a median household income that is less than 80% of the statewide average.¹⁷ This threshold was carefully developed to target one-third of California's population and has been used in other statewide programs, including the Safe Drinking Water Revolving Fund. In addition, the proposed water bond includes funding for "severely disadvantaged communities" (SDACs), a subset of DACs with an even lower median household income (Table 3).

In addressing the needs of vulnerable communities, one of the major differences between the 2010 and 2014 bonds is in which communities would qualify for priority funding. The 2010 bond was the first to use the term "economically distressed area" (EDA), which broadened the number of communities that could be considered vulnerable and therefore eligible for priority allocation, targeted funding, technical assistance, and other subsidies. While EDAs are still eligible to receive a waiver or reduction in the cost-share requirement, Proposition 1 removes EDAs from most of the sections that give targeted or priority funding to DACs, and therefore focuses funding on those with the greatest need.¹⁸

¹⁷ Existing legislation does not specifically define what constitutes a "community" in these definitions; however, the term is generally understood to mean the entire service area of the water system applying for funding.

¹⁸ EDAs are included in the requirement that the hydrologic regions spend at least 10% of the funds for integrated regional water management plan projects, to ensure the involvement of DACs, EDAs, and underrepresented communities.

Funding for Disadvantaged Communities

Proposition 1 allocates considerable funding to disadvantaged communities — much more than previous bonds. At least \$696 million, or 9% of the total bond, is set aside for disadvantaged or severely disadvantaged communities (Figure 2, Table 4). The majority of this funding — \$520 million — is in Chapter 5, which provides funding for drinking water and wastewater projects.^{19,20} Half of this funding would be available for wastewater projects in small DACs. In addition to the money provided in Chapter 5, at least \$81 million would go to regional projects across the state that directly benefit disadvantaged communities. A wide range of projects is eligible for this funding: recycled water, water conservation, local and regional groundwater and surface water storage, and stormwater capture, among others. An additional \$5 million is intended to support river restoration in urban watersheds that benefit disadvantaged communities. Of the total set aside for disadvantaged communities, at least \$142 million — 2% of the bond funds — is for projects in severely disadvantaged communities.

In particular, Proposition 1 would provide much-needed funding for drinking and wastewater system improvements and help improve water quality and accessibility for disadvantaged communities with some of the greatest needs, particularly small systems. Small communities tend to have a very large funding need, as

¹⁹ Funding for wastewater will be deposited into the Small Community Grant (SCG) Fund. Although not required by its authorizing legislation (Section 13477.6 of the Water Code), all SCG funds go to disadvantaged communities, as written in the Clean Water State Revolving Fund Intended Use Plan (SWRCB 2013a).

²⁰ The bond has a more restrictive definition of "small system" than that used for the SCG Fund; here, the bond defines a small-community water system as a system that serves fewer than 3,300 service connections or a yearlong population less than 10,000 people. The SCG Fund designates communities with a population less than 20,000 people as a small community (SWCRB 2014).

Table 3. Definitions used in the 2014 bond to target vulnerable communities

Disadvantaged community	A community with an annual median household income that is less than 80% of the statewide annual median household income	Section 79505.5 of the Water Code (Proposition 50 from 2002)
Severely disadvantaged community	A community with a median household income of less than 60% of the statewide average.	Section 116760.20 of the Health and Safety Code (Drinking Water State Revolving Fund)
Economically distressed area	A municipality with a population of 20,000 persons or less, a rural county, or a reasonably isolated and divisible segment of a larger municipality where the segment of the population is 20,000 persons or less, with an annual median household income that is less than 85% of the statewide median household income, and with one or more of the following conditions as determined by the department: (1) Financial hardship. (2) Unemployment rate at least 2% higher than the statewide average. (3) Low population density.	Section 79702(k) of Proposition 1

their residents tend to have lower incomes and they tend to be in rural areas that are spread out, requiring more pipelines and pumping infrastructure (SWRCB 2008). As a result, small disadvantaged communities often spend a higher proportion of their income financing water and wastewater system improvements.

The exact financial needs for disadvantaged communities in California are not well-documented and so it is not easy to say how much of the total statewide need would be met by the bond. A preliminary estimate by the State Water Resources Control Board finds that small DACs in California require more than \$890 million for wastewater system improvements alone (SWRCB 2013b). This is a conservative figure, as it estimates only the need for small systems and more than half of the projects examined do not have cost estimates.²¹ Funding needs for drinking water systems in disadvantaged communities are

also not well-documented. The EPA estimates that the 20-year investment need for small-community water systems in California is about \$5.2 billion (EPA 2013). Although many small systems are in disadvantaged communities, this is still only a rough estimate of the total need in these areas.

Although Proposition 1 provides funding for system improvements, funding for the operation and maintenance of these systems remains an issue. As mentioned previously, water systems in disadvantaged communities often do not have the financial or even the technical capacity to operate complex, expensive, water systems, and so some projects funded by the bond could be unaffordable to operate or maintain over the long term. Initial operation and maintenance costs are eligible expenses for drinking water projects; however, these costs can be funded only for two years.²²

²¹ Projects on the list have not been fully vetted and are not necessarily eligible for funding. In addition, some of these projects might not be eligible for bond funding because the bond has a more restrictive definition of “small system” than the current SCG Fund program.

²² Section 79724(a)(2) states: “‘Initial operation and maintenance costs’ means those initial, eligible, and reimbursable costs under a construction funding agreement that are incurred up to, and including, initial startup testing of the constructed project in order to deem the project complete.”

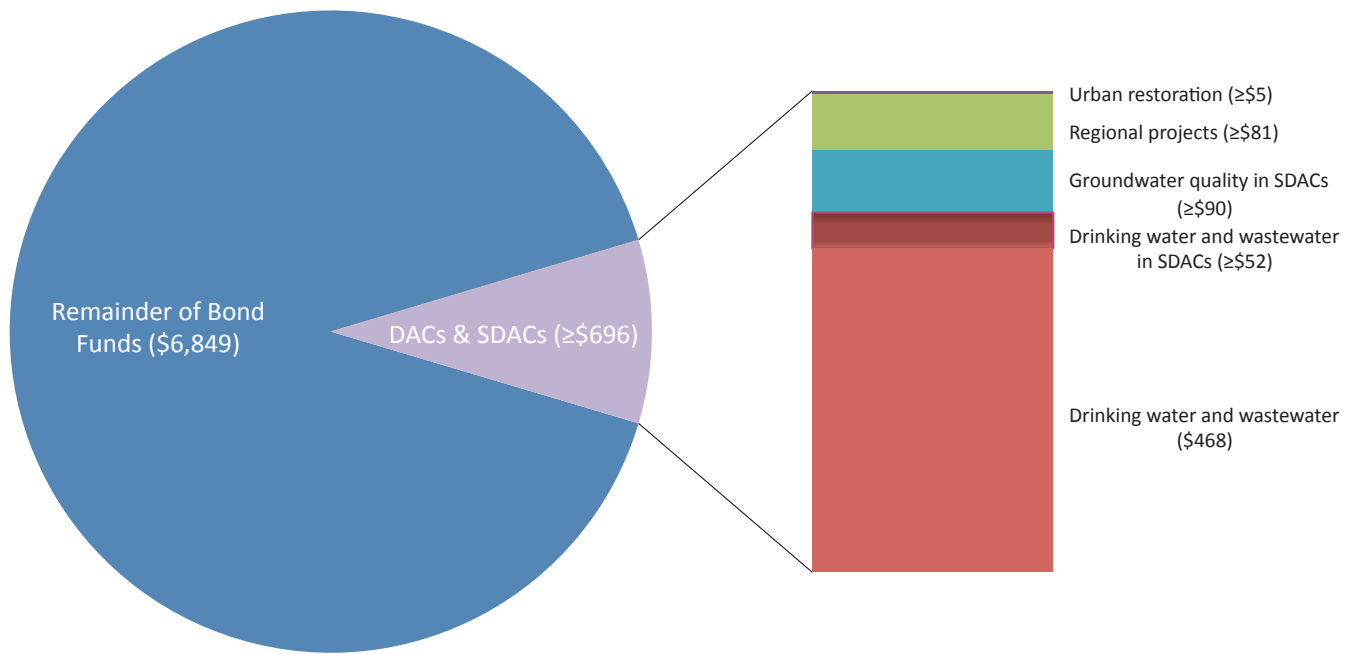


Figure 2. Funding available for disadvantaged and severely disadvantaged communities (in \$ millions) the proposed 2014 bond

In addition to direct funding, the bond provides other financial benefits to disadvantaged communities. The bond has general provisions requiring a cost share of not less than 50% of total project costs. Because disadvantaged communities typically lack funds to meet these cost-share requirements, Proposition 1 offers a waiver or reduction in the matching fund requirement for projects serving DACs and economically distressed areas (defined in Table 3). The bond would also establish a modest \$2.5 million fund to provide matching funds to DACs for drinking water projects. Funding can be used for technical assistance and grant writing and requires implementing agencies to operate a technical assistance program for certain projects serving small DACs, an important provision for small and poor communities that often lack this expertise. Finally, in some areas the bond requires that the project planning process include local vulnerable

communities. Stormwater projects, for example, must incorporate the perspectives of nearby communities, which can be left out of local or regional planning processes.

Ecosystem Needs in the Bond

Proposition 1 would allocate \$1,495 million to watershed protection and restoration through competitive grants. According to an analysis prepared by the Assembly's Water, Parks and Wildlife Committee \$327.5 million of this would go to statewide conservancies, including the Delta Conservancy. The bond would allocate \$200 million to the Wildlife Conservation Board to benefit at-risk native fish by purchasing or leasing water from existing rights holders and dedicating it to instream flow. This chapter would also allocate funding for urban creeks (\$100 million); urban watersheds (\$20 million); water quality, ecosystem restoration, and fish protection facilities that benefit the Delta (\$87.5 million); and watershed restoration projects outside the Delta (\$285 million). Lastly, the chapter allocates \$475 million to the

Initial operation and maintenance costs are eligible to receive funding pursuant to this section for a period not to exceed two years."

Table 4. Vulnerable communities in the 2014 bond

Section	Total in Section (in \$ Millions)	Minimum Requirement for DACs/SDACs (in \$ Millions)	Minimum Requirement for SDACs (in \$ Millions)	Matching/Cost Share	DACs/SDACs Prioritized
Clean, Safe, and Reliable Drinking Water	\$520	\$520	≥ \$52	Cost share may be waived or reduced for projects that directly benefit a DAC or EDA	DACs are called out in the purpose statements
Wastewater	\$260	\$260	≥ \$52	\$2.5 million set aside to provide cost share for DACs	All projects serve small DACs
Drinking water	\$260	\$260			All projects serve DACs
Protecting Rivers, Lakes, Streams, Coastal Waters, and Watersheds	\$1,495	≥ \$5			
Multibenefit watershed and urban river enhancement	\$20	≥ \$5			
Regional Water Security, Climate, and Drought Preparedness	\$810	≥ \$81		Cost share may be waived or reduced for projects that directly benefit a DAC or EDA	
Hydrologic regions	\$510	≥ \$51			Ensure involvement of DACs, EDAs, and underrepresented communities
Multibenefit stormwater management projects	\$200				Stormwater projects must incorporate the perspectives of nearby communities, especially DACs
Water Recycling	\$725			Cost share may be waived or suspended for DACs and EDAs	
Groundwater Pollution Prevention and Remediation	\$900	≥ \$90	≥ \$90	Cost share may be waived or reduced for projects that directly benefit a DAC or EDA	
Total		≥ \$696	≥ \$142		

Natural Resources Agency to comply with the State's settlement obligations, including, but not limited to, the Quantification Settlement Agreement (including Salton Sea restoration); the San Joaquin River Settlement Agreement; the Tahoe Regional Planning Compact; and, the State share for Central Valley Project Improvement Act refuge and wildlife habitat area water supplies (Leahy 2014).

Conclusions

California faces serious and growing water challenges that will require expanded investment, changes in policy and institutions, and in some cases some fundamentally new technologies, policies, laws, and behaviors. The Pacific Institute has worked for over a quarter century to offer solutions to these challenges. The Institute is taking no formal position for or against Proposition 1, the 2014 California water

bond. Rather, we have developed this analysis to help voters and the general public understand and explain the complexities in this proposition and to help individuals understand the different provisions.

We note that nothing in this proposition will provide immediate relief from the current drought or offer short-term assistance to those suffering the consequences of current water challenges. If Proposition 1 passes, if the funds are designated for effective projects, and if those projects are well-designed and well-implemented, the long-term benefits could include a reduction in the risks of future droughts and floods as well as improvements in the health of California's aquatic ecosystems.

A key priority of the bond is to augment the state's water supply and improve water supply reliability, with more than \$4.2 billion in taxpayer funding dedicated to that priority.

As was the case with the 2010 bond, there is substantial funding in the 2014 bond for the public benefits portions of surface water or groundwater storage projects. The 2010 bond included \$3.0 billion directly for water storage; the current language includes \$2.7 billion. Because the total size of the 2014 bond is smaller than the 2010 bond, the proportion of total funding committed for storage increased from 30% to 36%. Beyond the reduction in the total allocation from \$3 billion to \$2.7 billion, the water storage language in the proposed 2014 bond is almost identical to the language in the original 2010 bond.

Far less of the bond funds are available for other water supply and demand management options, including recycled water, stormwater capture, and efficiency. Yet, these options can typically provide more water at lower cost than most storage projects. Funding for water conservation and efficiency is especially low, at only \$100 million, or about 1% of the bond.

According to Proposition 1, water storage projects must be cost-effective, meaning that the total expected benefits of the project must exceed the total expected costs, not that any particular project be the most economically effective way of satisfying a particular resource need. A major flaw is that water storage projects are not judged on an equal basis with other supply expansion (such as water reuse or stormwater capture) or demand reduction (conservation and efficiency) projects. While funding for these types of projects is included in other sections of the proposed bond, the grant selection process is separate from that for storage.

Past water bonds have provided special benefits and targeted funding for communities that have the greatest need for financial assistance to access clean, safe, reliable drinking water. This is primarily accomplished by setting aside funding for disadvantaged communities. The proposed 2014 bond allocates at least \$696

million — representing 9% of the total bond funding — to disadvantaged and severely disadvantaged communities. This funding would support much-needed drinking and wastewater system improvements and help improve water quality and accessibility for disadvantaged communities with some of the greatest needs. In addition, the 2014 bond includes specific funding for severely disadvantaged communities, a category that had not been used in previous bonds but that allows for even more targeted funding to communities in need.

Ultimately, the effectiveness of Proposition 1 funds in addressing California's overall water problems will depend on how the funds, if passed by the voters, are actually allocated and spent. Ultimately, the effectiveness of Proposition 1 funds in addressing California's overall water problems will depend on how the funds, if passed by the voters, are actually allocated and spent. If Proposition 1 passes, the Institute recommends that the California Water Commission develop a rigorous, independent, and transparent evaluation of the process governing the evaluation and quantification of the public benefits of proposed storage projects. It also recommends that decisions about the rest of the funds be made with a focus on meeting public and ecosystem needs for safe and reliable water, improvements in efficient use, and reductions in the risks of future droughts and floods.

If good projects are identified and supported, these funds can help move the state forward in the broader effort of designing, building, and managing a 21st century water system. But voters should not expect immediate relief from Proposition 1 for the impacts of the current drought; nor should they expect these funds to be the last investment that is needed for better institutions, smarter planning, and more effective water management strategies. It can be, at best, a down payment on our water future.

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