

An Update on Planned and Potential New Water Storage Projects for California

Summary: Today's briefing provides an update on the status of activities to implement Delta Plan recommendations regarding increased water storage. It builds on Chair Randy Fiorini's white paper on storage and Delta Stewardship Council's the November 2013 endorsement of white paper's six recommended actions. Today's presentations will brief the Council on; (1) the status of several large storage projects identified under the CALFED Program; (2) the public benefits that may be attributed to those and any other new storage projects; (3) how to maximize the benefits of new storage projects; (4) the results of a recent water project survey conducted by ACWA in cooperation with the California Water Commission and the Department of Water Resources, and; (5) views of large storage projects and regional storage projects from the perspective of local beneficiaries.

Background

Currently in California there are more than 1,300 dams and surface water reservoirs that provide more than 43 million acre-feet (af) of surface water storage capacity. Not all of this capacity is used as storage for drinking water and/or irrigation; some of the dams were built for flood control purposes and others are used by electrical utility companies to store water only to generate electricity. The construction of some of these dams and reservoirs dates back as far as 1850 and they are owned and operated by the State of California, federal government, local and regional water suppliers, electrical utility companies, and even by private organizations and individuals. The largest 62 of these dams and reservoirs, with capacities greater than 100,000 af, representing only 5 percent of the number of reservoirs, but 85 percent of the total surface storage capacity in California.

The current drought has exposed just how thin California's water supplies can be stretched after only three years of dry conditions. The relationship between storage and the reliability of adequate water supplies is dramatic when comparing relatively poor water supply conditions for communities that rely on storage facilities that were constructed decades ago, to the relatively better water supply conditions for the communities in both northern and southern California that have invested in new local and regional storage facilities. Existing facilities are strained to meet competing demands for multiple uses, including water supply, environmental protection, water quality, hydropower, and flood protection. These demands on the system will only grow with the anticipated increases in population, the effects of climate change on California's hydrologic patterns, and with increasing public trust protections.

Neither California nor the federal government have constructed any new surface storage facilities of any significant size in the last 30 years. The CALFED Bay-Delta Program's (CALFED) Record of Decision (August 2000) identified five new or expanded potential surface storage sites out of 52 evaluated by the program for further study and consideration.

Delta Plan Recommendations

The Delta Plan says the state's interconnected network of surface and groundwater storage is insufficient in volume, conveyance capacity, and flexibility to achieve the coequal goals. The completion of the BDCP and the implementation of major new surface and groundwater storage facilities are needed but may take many years to implement, which will require more near-term actions to improve Delta operations and reduce the state's vulnerability to potential disruptions in water exports from the Delta due to floods and earthquakes or the need for additional regulatory protections for the environment.

The Delta Plan also says that, as an interim step toward increasing California's water supply reliability, the state should identify, prioritize, and implement smaller and more incremental operational, conveyance, and storage improvements (such as expanding existing facilities or constructing new ones) that can be accomplished quickly, preferably within the next 5 to 10 years.

- WR R13 recommends that the California Department of Water Resources (DWR) should complete surface water storage investigations of proposed off-stream surface storage projects by Dec. 31, 2012, including an evaluation of potential additional benefits of integrating operations of new storage with proposed Delta conveyance improvements, and recommend the critical projects that need to be implemented to expand the state's surface storage.
- WR R14 recommends that DWR, in coordination with the California Water Commission, Bureau of Reclamation, State Water Resources Control Board, California Department of Public Health, the Delta Stewardship Council, and other agencies and stakeholders, should conduct a survey to identify projects throughout California that could be implemented within the next 5 to 10 years to expand existing surface and groundwater storage facilities, create new storage, improve operation of existing Delta conveyance facilities, and enhance opportunities for conjunctive use programs and water transfers in furtherance of the coequal goals. The California Water Commission should hold hearings and provide recommendations to the California Department of Water Resources on priority projects and funding.

Water Storage Issue Paper

In November 2013, then Vice Chair Fiorini brought before the Council an issue paper he authored on water storage and the Council endorsed the paper's six recommended actions to help implement Delta Plan recommendations WR 13 and WR 14 regarding increased water storage.

The recommendations are:

1. Complete the state studies of Temperance Flat and Sites and the federal studies of the enlargement of Shasta Reservoir.

2. With adequate resources dedicated to completing the studies, there is also a need to identify who the beneficiaries will be for each project.
3. Revisit the August 2000 CALFED water storage study based on new information and modern objectives.
4. Conduct a statewide survey of local public water agencies to determine potential locations for new or enlarged water storage projects.
5. Develop funding strategies to assist locals with Water Storage projects.
6. Improvements to Water Storage project permitting are necessary.

Acting on these recommendations, between February 28 and April 11, 2014 the Association of California Water Agencies, in cooperation with the California Water Commission and the Department of Water Resources conducted a survey to identify and compile a comprehensive inventory of projects and programs that can add new or expand existing surface or groundwater storage capacity. The results of the survey were not available at the time this staff report was prepared.

The California Water Action Plan and Storage

The California Water Action Plan also highlights the need for expanded storage, including groundwater recharge. This comprehensive plan is a result of the California Natural Resources Agency, the California Environmental Protection Agency, and the California Department of Food and Agriculture identifying key actions for the next one to five years that address urgent needs and provide the foundation for sustainable management of California's water resources. The California Water Action Plan concludes:

"The bottom line is that we need to expand our state's storage capacity, whether surface or groundwater, whether big or small. Today, we need more storage to deal with the effects of drought and climate change on water supplies for both human and ecosystem needs. Climate change will bring more frequent drought conditions and could reduce by half our largest natural storage system—the Sierra snowpack—as more precipitation falls as rain rather than snow, and as snow melts earlier and more rapidly."

The following actions are identified in the California Water Action Plan to improve surface and groundwater storage:

- **Support Funding Partnerships for Storage Projects**
The administration will work with the Legislature to make funding available to share in the cost of storage projects if funding partners step forward. The state will facilitate among willing local partners and stakeholders the development of financeable, multi-benefit storage projects, including working with local partners to complete feasibility studies. For example, the Sites Project Joint Powers Agreement, formed by a group of local government entities in the Sacramento Valley, is a potential emerging partnership that can help federal and state government determine the viability of a proposed off stream storage project – Sites Reservoir.

- **Support Distributed Groundwater Storage**
The administration will support a comprehensive approach to local and regional groundwater management by funding distributed groundwater storage projects that are identified in groundwater management plans and removing barriers to implementation.
- **Increase Statewide Groundwater Recharge**
The administration will work with the Legislature to discourage actions that cause groundwater basin overdraft and provide incentives that increase recharge. State agencies will work with tribes and federal, regional and local agencies on other actions related to promoting groundwater recharge and increasing storage, including improving interagency coordination, aligning land use planning with groundwater recharge, and identifying additional data and studies needed to evaluate opportunities, such as capturing and recharging stormwater flows and other water not used by other users or the environment.

Today's Briefing

At today's meeting, the Council will hear from experts representing local, state, federal and academic points of view about surface and groundwater storage. In addition, the Council will hear the current status of several of the recommendations for action that were contained within Chair Fiorini's 2013 issue paper on storage.

The panel members include:

- Jason Phillips, the Deputy Regional Director for the Mid-Pacific Region of the Bureau of Reclamation, will update the Council on the current status of the new or expanded reservoir projects identified by CALFED, and what still needs to occur for these projects to be successfully completed.
- Sue Sims, Executive Officer for the California Water Commission, will brief the Council on the role of the Water Commission in the development of new storage projects, including an update on the Commission's efforts to quantify the public benefits of the CALFED storage and groundwater storage projects.
- Dr. Jay Lund, Director of the U.C. Davis Center for Watershed Sciences and Professor of Civil and Environmental Engineering, will update the Council on the potential role of new storage, describing what he has learned using CALSIM to model California's water systems.
- Thad Bettner, General Manager of the Glenn-Colusa Irrigation District, will brief the Council on the local beneficiaries and the local benefits of the Sites Reservoir project, one of the CALFED storage projects. Mr. Bettner will also brief the Council on what the local beneficiaries are doing to help get the project completed.

- Dan Nelson, Executive Director of the San Luis & Delta-Mendota Water Authority, has been invited to brief the Council on the local beneficiaries and the local benefits of the expansion of Shasta Lake, another of the CALFED storage projects. Mr. Nelson will also brief the Council on the local beneficiaries and benefits to the expansion of the existing San Luis Reservoir, and what the local beneficiaries are doing to help get the project completed.
- A representative from Contra Costa Water District has been invited to brief the Council on the Los Vaqueros Reservoir expansion project and the benefits of doing it as a local project. While an expansion of the existing reservoir is included in the five CALFED storage projects, CCWD independently undertook the project and completed it in 2012. The District expanded the reservoir from 100,000 af to 160,000 af.
- Danielle Blacet, Special Projects Manager for the Association of California Water Agencies, will brief the Council on the water projects survey conducted by ACWA, in cooperation with the California Water Commission and DWR.

During the presentations, or in follow up discussion, the Council may wish to consider these questions:

- How much “new water” (yield) will any of the storage projects identified today produce?
- How does the BDCP affect the anticipated beneficiaries and effectiveness of the new and expanded storage sites identified by CALFED?
- What role should the Delta Plan Implementation Committee play, if any, in supporting the timely completion of any of the projects discussed today?

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