McDonnell Investment Management

California Water Challenges
Infrastructure, Water Rights and Politics

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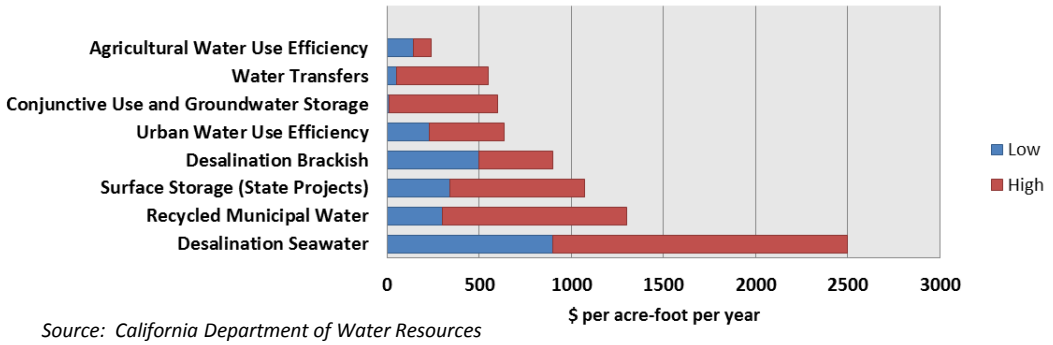
California continues to face water challenges caused by recurring cycles of drought and flood conditions. While the California Water Action Plan establishes principles and provides a roadmap to a statewide solution, water issues are politically sensitive. Solutions will involve prolonged decision, planning, approval and construction timelines.

The uncertain landscape facing water utilities imposes risks and opportunities which must be considered in our credit research and surveillance process. Key proposals include infrastructure investment, legislative reforms to resolve conflicting water rights issues, modification to water rate pricing structures, ongoing education and conservation.

Cost of New Water Supply Sources in California[1]



Source: California Department of Water Resources

Infrastructure

Infrastructure needs are substantial, with costs for water supply projects and flood control projects estimated at $45 billion[2] and $50 billion[3], respectively. Severe water shortages from the recent five-year drought have highlighted the urgency to ensure a steady water supply for the state's growing population. Additionally, deferred maintenance on dams and levees, such as Oroville, has led to flood exposure for millions of residents.

- **Proposals:** Proposed projects such as the construction of new reservoirs, the expansion of current dams and the addition of new desalination facilities are expensive, complex and exposed to environmental complications.
- **Funding:** Due to significant costs, funding will need to be secured from local, state and federal sources. Local utilities have historically raised 84% of money spent on water in the state[4] but limitations exist. Water rate increases would be needed to support additional costs, which could be constrained by restrictions and the need for voter approval.

To facilitate stable lower cost funding for regional water authorities, the state may want to consider establishing a "Green Bond" program modeled after the Cal-Mortgage hospital bond insurance program. Reporting and compliance with evolving Green Bond Principles could be facilitated by the state.

Water Rights

California's water system contains a complex set of rights, many of which date back over 100 years. For example, the agriculture industry maintains dominant rights despite the fact that it comprises just 2.0% of Gross State Product.[4] Water rights are comprised of two main categories:

- **Groundwater:** A lack of oversight of groundwater rights has led to the over pumping and depletion of basins and aquifers, key sources of water in times of drought.
- **Surface Water:** Surface water rights are governed by the State Water Resource Board which can create conflicts of interest in the distribution of water from rivers, lakes and reservoirs. Proposed reforms to the allocation system seek to create a new water rights division to include more checks and balances to mitigate biases in the system.

Conservation Efforts

The approximately 80% of California's population which lives in the Coastal region utilizes 20% of the state's water. By contrast, the inland Central Valley region accounts for 80% of water usage due to strong agriculture water rights.[4,5] Conservation measures implemented in the recent drought could have been eliminated by reallocating just 5% of water from the Central Valley to the Coastal Region, but would not have been politically realistic. The California Water Action Plan encourages conservation as a way of life. Proposition 1, passed in 2014, provides funding for urban water conservation projects and agricultural water efficiency projects. The Sustainable Ground Water Management Act requires that local agencies work with farmers, businesses and other water users to establish regional governance.

Rate Structures

Rate pricing structures and smart metering encourage conservation and the adoption of more water efficient technologies. Water rates need to reflect all the costs associated with delivering the water to customers, including the cost of future infrastructure improvements and the social costs of ground water depletion. Regionally significant water intensive industries, such as agriculture, will need transition time to adapt to a new pricing model. Additional revenues would support financing for infrastructure projects.

Opportunities in California Water Utilities

We seek to invest in utilities that are taking proactive measures and can accommodate future changes. Important factors to analyze include, but are not limited to, the following:

- Socio-economic profile of the service area including population trends and income metrics
- Ability to pass costs on to customers through rate increases or cost adjustment factors
- Current water sources and strength of rights; multiple-sources preferred over a single source
- System capacity relative to demand
- Overall financial position such as historic performance, reserve levels, debt service coverage and ability to handle additional debt issuances
- Water efficient practices and initiatives
- Feasibility studies on potential projects to determine cost/benefit
- Monitoring of results, disclosure, and ability to build community support for projects
- Participation in State and regional solutions

Current Proposals

A sustainable solution will likely come from a combination of various proposals including:

- Infrastructure spending through additional bond issuances
- Legislative reform to water rights
- Implementation of ground water management
- Blocked rates which charge high volume water users more to encourage continued conservation and the adoption of water management practices
- Improvements in water efficient technologies
- Political consensus

The extended drought which ended in 2017 highlighted challenges the state faces in providing a consistent reliable supply of water to its residents. Necessary infrastructure investment and the impact of climate change are likely to increase the cost of water in the state. Despite a prolonged political process, in our view California has demonstrated a history of leadership on environmental and climate initiatives.

Footnotes:

1. California Department of Water Resources historical data
2. U.S. Environmental Protection Agency
3. California Natural Resource Agency: Water Action Plan
4. Public Policy Institute of California
5. U.S. Census Bureau

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