

March 14, 2016

California Water Commission
 Attention: Jennifer Marr
 901 P Street, Room 314
 P.O. Box 924836
 Sacramento, CA 94236
 Cc: Secretary of Natural Resources, John Laird
 Undersecretary of Natural Resources, Janelle Beland

Re: Comments on Proposed Regulations for the California Water Commission's Water Storage Investment Program

Dear Chair Byrne and Water Commissioners,

As scientists who have worked extensively on climate change in California, we want to help ensure that the best available climate science informs large public investments. In particular, we encourage the Commission to require a credible approach to incorporating climate science into the regulations governing the Water Storage Investment Program (Chapter 8 of Proposition 1, the 2014 water bond).

We find that the way in which climate science is currently included in the draft regulations to be highly problematic. The draft regulations artificially truncate the analysis of climate impacts at mid-century while California has invested in developing climate change projections out to the end of the twenty-first century. The current approach could lead the Commission to fund water storage projects that will not be able to deliver public benefits for the lifetime of the project given the insufficient and incomplete analysis. End-century is when the impacts of climate change under business-as-usual emissions get quite dramatic. We come to the following conclusions:

Climate Science Critical to Assess Large Public Investments in Long-Lived Water Infrastructure Proposals

It is clear, and widely accepted, that the past is no longer a predictor of the future when it comes to water management. For example, while instrumental and paleoclimate records show that over the past millennium the Sacramento and San Joaquin rivers have experienced 1-5 multi-year dry periods per century, rising global temperatures are projected to increase the severity of future droughts. Thus, solely relying on historical data is inappropriate given the already observable impacts of climate change on California's water resources, including record low snowpack and reservoir levels.[i]

Climate change is affecting water resources, with California currently experiencing record low snowpack and record low reservoir levels. Both wetter wet periods and drier dry periods are expected.[ii] Therefore, it will be important for water resources planning and infrastructure to be designed for a wider range of climatic conditions. The Governor has specifically ordered all state agencies to take climate change into account in their planning and investment decisions (Executive Order 30-15).

Draft Regulations Artificially Truncate Climate Impacts at Mid-Century While Projects May Have Much Longer Lifetimes

The draft regulations only require project proponents to assess climate impacts out to mid-century while the project might have a lifetime of 100 years or more. The draft regulations state that: “After 2050, climate conditions shall be assumed to remain at 2050 conditions” (Section 6004 (a)(1)(C)). This is a significantly flawed assumption that is not supported scientifically; in fact, multiple studies find that climate impacts are likely to become more severe after mid-century and most severe by the end-of-century.[iii] In addition, climate change scenarios are currently available that run to end-of-century (to the year 2099). There is no scientific justification for artificially cutting off climate projections at mid-century. In doing so, project proponents may overstate (or understate) public benefits that can be provided by the project over its lifetime.

Climate Projections Must Match Project Lifetimes in Order to be Scientifically Defensible

Climate change impacts are an important consideration for planning, particularly when making large public expenditures in long-lived infrastructure projects. The draft regulations should require that climate projections match project lifetimes in order to be scientifically defensible, to comply with Executive Order 30-15, and to be useful to decision-making. As they stand, the draft regulations risk undermining the primary purpose of the water bond investments in water infrastructure to meet California’s water needs and provide public benefits over this century and beyond. In summary, responsible allocation of public funds for investments in critical, long-lived water infrastructure in California can and should require project proponents to use the best available data and incorporate credible climate change scenarios.

Sincerely,

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[i] Cayan, Daniel R., Edwin P. Maurer, Michael D. Dettinger, Mary Tyree, Katharine Hayhoe. 2008. Climate change scenarios for the California region. *Climatic Change* 87 (Suppl 1): S21–S42.

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[iii] Knowles, N., Daniel R. Cayan. Potential effects of global warming on the Sacramento/San Joaquin watershed and the San Francisco estuary. 2002. *Geophysical Research Letters*, 29.18: 38-1-38-4, doi:10.1029/2001GL014339, 2002.