

## **Written Testimony on the Governor's Office of Planning and Research's Role in Climate Adaptation**

Prepared for the Little Hoover Commission's Public Hearing on Special Districts and Climate Change Adaptation

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### **Introduction**

Thank you for the invitation to participate in this hearing to discuss the opportunity for special districts to engage in California's climate adaptation efforts. As requested, the testimony will cover the following topics:

- Information on emerging and anticipated impacts of climate change on California, and what is needed to help the State prepare for these changes;
- An overview of the Governor's Office of Planning and Research's work on implementing the State's climate adaptation programs, including Senate Bill 246 (Wieckowski);
- An overview of tools and resources available to special districts and that can assist in addressing climate adaptation; and
- Identification of some opportunities for special districts to help implement and shape the State's efforts on climate adaptation, including the development of information and resources.

### **California's Changing Climate**

California is already experiencing the impacts of climate change. The Office of Environmental Health Hazard Assessment (OEHHA) prepares a regular report tracking indicators of climate change in California.<sup>1</sup> This report documents the many changes that are already underway, including:

- Recorded increase in annual average temperatures, as well as increases in daily minimum and maximum temperatures,
- An increase in the occurrence of extreme events, including wildfire and heat waves,
- Reduction in spring runoff volumes, as a result of declining snowpack,
- A decrease in winter chill hours, necessary for the production of high-value fruit and nut crops, and
- Changes in the timing and location of species sitings, including migration upslope of flora and fauna, and earlier appearance of Central Valley butterflies.

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<sup>1</sup> Office of Environmental Health Hazard Assessment, Indicators of Climate Change (website): <http://oehha.ca.gov/climate-change/document/indicators-climate-change-california>

In addition to these trends that have been documented over decades, the State's current conditions point to a changing climate. California is in the middle of an historic drought. Recent scientific studies show that such extreme drought conditions are more likely to occur under a changing climate.<sup>2,3</sup> And, in 2015, alone, California experienced nearly twice the acreage burned through wildfire as the five-year running average. These increases in the frequency and extent of wildfires in the Western United States have been attributed, in part, to a changing climate.<sup>4</sup>

Looking ahead, the State's Climate Change Assessment point to a future with continued change. The Third Climate Assessment, completed in 2012, developed downscaled estimates of climate change for California over the coming century. Uncertainty in these estimates arises from several sources, including the path that global emissions take over the coming century, and the sensitivity of the atmosphere to future and past greenhouse gas (GHG) emissions. Looking over several emission scenarios and using a suite of global climate models, the Assessment projects that annual average temperatures will increase between 1.8 and 5.4 degrees Fahrenheit by the middle of this century, and between 3.6 and 9 degrees Fahrenheit by the end of the century.<sup>5</sup> These increases in temperature will be accompanied by rising sea levels and declines in mountain snowpack, while the State will continue to see similar temporal patterns in precipitation, with more falling as rain than as snow. California will also see an increase in the frequency and severity of extreme events.<sup>6</sup> These projections of climate impacts are currently being updated for the Fourth Climate Assessment, using more up-to-date global climate models and global emission scenarios.

Together, the indicators and assessment work provide a picture of California's changing climate, with two important messages:

- Change is already being experienced and documented across California, and some of these changes have been directly linked to changing climatic conditions.
- Even with the uncertainty, in future climate conditions, no scenario estimates no change in future conditions.

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<sup>2</sup> Diffenbaugh, N., D.L. Swain, and D. Touma. 2015. Anthropogenic Warming has Increased Drought Risk in California. *Proceedings of the National Academy of Sciences* 112(13): 3931-3936.

<sup>3</sup> Cayan, D, T. Das, D.W. Pierce, T.P. Barnett, M. Tyree, and A. Gershunov. 2010. Future Dryness in the Southwest US and Hydrology of the Early 21<sup>st</sup> Century Drought. *Proceedings of the National Academy of Sciences* 107(50): 21272-21276.

<sup>4</sup> Abatzoglou, John T. and A. Park Williams. 2016. Impact of Anthropogenic Climate Change on Wildfire Across Western US Forests. *Proceedings of the National Academy of Sciences* 113(42): 11770-11775.

<sup>5</sup> Cayan, D., M. Tyree, D. Pierce, and T. Das. 2012. *Climate Change and Sea Level Rise Scenarios for California Vulnerability and Adaptation Assessment*. Prepared for the California Energy Commission. Available at: <http://www.energy.ca.gov/2012publications/CEC-500-2012-008/CEC-500-2012-008.pdf>

<sup>6</sup> Mastrandrea, M., C. Tebaldi, C.P. Snyder, and S.H. Schneider. 2009. *Current and Future Impacts of Extreme Events in California*. Prepared for the California Energy Commission. Available here: <http://www.energy.ca.gov/2009publications/CEC-500-2009-026/CEC-500-2009-026-F.PDF>

Because of this, the State has taken important steps to integrate climate adaptation and resilience into its climate strategy.

### **California's Framework for Adaptation and Resilience**

California's adaptation and resilience work is guided by the *Safeguarding California*, the State's cross-sectoral climate adaptation strategy. The California Natural Resources Agency (CNRA) produced its first adaptation strategy in 2009. California was the first state in the country to prepare a comprehensive, multi-sectoral adaptation strategy. *Safeguarding California* is the 2012 update to the 2009 plan.

The State's *Safeguarding* strategy is built on three pillars:

1. Integrating climate change into the State's way of operating, including in infrastructure planning and investment; long-term planning; and tool development;
2. Coordinating local and regional adaptation efforts with State programs; and
3. Investment and support of research to understand climate impacts underway and in the future, and to identify effective adaptation strategies, including financing and implementation.

Executive Order (EO) B-30-15 built on the foundation laid by *Safeguarding California*, and laid out a comprehensive approach to adaptation planning, and turning this plan into action. EO B-30-15 called for regular updating of *Safeguarding California* and directed each sector to develop Implementation Action Plans of each *Safeguarding* sector. Implementation Action Plans were completed in spring 2016 for all ten *Safeguarding California* sectors. These sectors are: Agriculture, Biodiversity and Habitat, Emergency Management, Energy, Forestry, Land Use and Community Development, Oceans and Coastal Resources and Ecosystems, Public Health, Transportation, and Water.

The EO also restated the principles of *Safeguarding California*:

- To maximize opportunities to reduce greenhouse gas emissions and prepare for climate impacts at the same time,
- To protect the State's most vulnerable populations,
- To employ flexible and adaptable approaches to prepare for uncertain climate impacts, and
- To prioritize the use of natural and green infrastructure solutions.

EO B-30-15 also recognizes the the importance of coordination with local and regional governments and reiterates the State's commitment to climate change research.

Highlighting a critical element of implementation, EO B-30-15 directed State agencies to integrate climate change into all planning and investment. The EO also specifically calls out infrastructure investment, and directs State agencies to account for climate change and to employ

full life cycle cost accounting for all infrastructure investments. The EO directed the Governor's Office of Planning and Research (OPR) to convene a Technical Advisory Group (discussed in more detail below) to assist State agencies in integrating climate change into planning and investment.

Several pieces of legislation passed in 2016 build on the direction of EO B-30-15.

- Assembly Bill 1482 directs CNRA to regularly update *Safeguarding California* every three years. Under this new direction, the draft of the next update to *Safeguarding California* will be released in January 2017. This bill also expands the Strategic Growth Council's review of the State's Five-Year Infrastructure Plan to include climate adaptation.
- Senate Bill 246, discussed in more detail below, creates a program to coordinate local and regional adaptation efforts with the State's climate adaptation strategy.

### **OPR's Role in Climate Adaptation Planning**

OPR has several responsibilities in implementing the State's climate adaptation framework, including several created through recent legislation. Many of these efforts focus on providing guidance or tools for local and regional agencies to implement climate adaptation. Below, is a brief description of OPR's ongoing activities.

#### ***General Plan Guidelines***

OPR is responsible for providing technical assistance and guidance to cities and counties for the development of General Plans. OPR is in this final stages of a comprehensive update to the General Plan Guidelines, a major focus of which is the integration of climate change – both GHG emission reduction and adaptation. This update guidance and best practices to assist cities and counties in addressing climate change in the General Plan. In addition, the Guidelines point to data and resources to assist cities and counties in doing this work.

The General Plan Guidelines update also includes specific guidance on recent legislative directives on how cities and counties integrate climate change and environmental justice.

#### **Senate Bill 379**

Senate Bill 379, signed into law in 2015, directs local governments to account for climate change in the Safety Element of the General Plan. OPR is developing guidance for local governments on implementing this requirement. This includes providing guidance to local governments on data and tools available to accomplish this.

#### **Senate Bill 1000**

Senate Bill 1000, signed into law in 2016, directs local governments to develop an Environmental Justice component to the General Plan. This can be accomplished either through

the development of a stand-alone Environmental Justice Element or through the explicit integration of environmental justice considerations through all elements of the General Plan. OPR is providing guidance on meeting this requirement in the forthcoming update to the General Plan Guidelines.

### ***Executive Order B-30-15 Technical Advisory Group***

As noted above, EO B-30-15 directed OPR to develop a Technical Advisory Group (TAG) to assist State agencies in meeting the EO B-30-15 directive to integrate climate change into all planning and investment. OPR formed the TAG in early 2016, and it has met many times as a large group and in smaller working groups. The TAG has over fifty members from both in and out of State governments. The TAG is developing guidance for State agencies on how to determine which climate scenarios to plan for in the future, and how to approach planning and investment in an uncertain and changing future.

The TAG's guidance is built around the principles of *Safeguarding California* outlined above, and will include guidance on how to operationalize these principles. While focused on State agencies, the TAG guidance document will include discussion of coordination and partnership with local and regional agencies.

The TAG guidance is intended to provide a framework that the State can build upon as it implements additional elements of its adaptation and resilience framework, and as additional information on current and future climate conditions is generated. An important implementation step will be through Senate Bill 246, discussed below.

### ***Integrated Climate Adaptation and Resilience Program (Senate Bill 246)***

Senate Bill 246 created the Integrated Climate Adaptation and Resilience Program (ICARP) at OPR. ICARP is intended to coordinate local and regional adaptation efforts with State climate adaptation strategies. The goal of this program is to create a two-way street to share information and opportunities across the local, regional, and state scale.

This coordination will occur through several mechanisms:

- Formation of a Technical Advisory Committee: SB 246 directs OPR to form a Technical Advisory Committee (TAC) that will meet at least three times a year. The TAC will provide a venue for coordination and communication on local, regional, and State adaptation efforts.
- Development of a Clearinghouse of adaptation information: The Clearinghouse will provide a resources for local and regional agencies to access information on climate adaptation. OPR is working to link the Clearinghouse to existing tools, especially Cal-Adapt, discussed below.
- Coordination through the Climate Action Team: SB 246 directs OPR to work with CNRA, the Strategic Growth Council, the California Environmental Protection Agency (CalEPA),

and others to integrate work of the ICARP with other State agencies through the Climate Action Team.

OPR has new staff working on the implementation of SB 246, and anticipates that the TAC and Clearinghouse will be underway in January 2017.

### ***Climate Change and Five-Year Infrastructure Plan***

The Strategic Growth Council (SGC), chaired by OPR's director, is directed to review the State's five-year infrastructure plan. As noted above, this directive was expanded through AB 1482 to include climate adaptation. SGC leads an Infrastructure Working Group that has reviewed the State's Five-Year Infrastructure Plan. Through this working group, SGC has met with State agencies to develop statements on climate change work that is underway. The Infrastructure Work has been working closely with the Department of Finance to integrate climate considerations into the Five-Year Infrastructure Plan.

### **Information and Tools Available**

In addition to the General Plan Guidelines, discussed above, several tools are available to assist State, local, and regional agencies to address climate adaptation. These include data visualization tools, guidance, and partnerships, some of which are outlined below.

#### ***Cal-Adapt***

[Cal-Adapt](#) is an online tool that provides visualization of the State's climate assessment data at a local or regional level. Through Cal-Adapt, users can also access data to perform their own analyses. Cal-Adapt also provides a platform to access case studies and resources to assist with adaptation planning. OPR is exploring ways to link the clearinghouse developed through SB 246 to Cal-Adapt.

In addition to Cal-Adapt, several tools are available to visualize the impacts of rising sea levels along the California coastline. Additional investment is being made through the Fourth Climate Assessment and other research efforts to develop sea level information for the entire California coastline.

#### ***Adaptation Planning Guide***

The [Adaptation Planning Guide](#) (APG) provides a step by step guide for local and regional governments to develop a climate adaptation strategy. The APG was developed in 2011. by the Office of Emergency Services (OES) and CNRA, with input from OPR. SB 246 directs OES to work with OPR, CNRA, and others to update the APG within one year of an update to Safeguarding California. While geared toward cities and counties, the steps and processes outlined will almost certainly be relevant to special districts in California.

### ***Alliance of Regional Collaboratives for Climate Adaptation***

Five regions in California have developed collaboratives to support a regional approach to climate adaptation. Regional collaboratives have formed in: the Sierra Nevada region, the San Francisco Bay Area, San Diego, the Sacramento region, and the Los Angeles region. The [Alliance of Regional Collaboratives for Climate Adaptation](#) (ARCCA) provides a venue for these groups to work together and interact with the State. ARCCA also provides support for other regions who are forming their own regional collaboratives. Some of the regional collaboratives already include special district members.

### **Opportunities for Special Districts to Engage on Climate Adaptation**

As noted above, special districts are engaged in some regional adaptation efforts. As it relates to ongoing work, special districts have several important opportunities to engage in and support adaptation efforts, both in resource tool development, but also in contributing to adaptation and resilience efforts on the ground.

#### ***Tool and Resource Opportunities:***

- Case studies and examples: Several special districts in California are already undertaking important work to prepare for climate impacts. Documentation and sharing of these experiences – successes and challenges – would be a valuable contribution to the ICARP Clearinghouse and other information sharing efforts.
- Articulation of information needs: The State’s Fourth Climate Assessment is designed to support the implementation of adaptation activities on the ground. Engagement by special districts with these research projects, through symposia and other venues, would be a valuable
- Coordination and information sharing: Often, associations exist to support coordination across a specific categories of special districts. These associations provide an excellent opportunity to share information on climate action, including adaptation and resilience. Such information sharing can provide valuable lessons learned and help to boost the capacity of districts with fewer resources to undertake specific actions.

#### ***Opportunities to Support Adaptation and Resilience on the Ground:***

- Resilient Infrastructure: In many cases, special districts have authority over the construction, operation, and maintenance of infrastructure. As the State’s climate change, special districts have the responsibility to integrate future climate conditions into the design and maintenance of these assets.
- Local projects and planning: Implementing projects to provide protection and increase the resilience of infrastructure, natural systems, and communities in the face a changing climate, almost always happens at a local or regional scale. Special districts have the opportunity to

facilitate and support projects that are underway within their jurisdiction and across neighboring jurisdictions.

- Engagement with local citizens: In many cases, special districts have direct relationships with local residents and businesses. These relationships provide the opportunity to support individuals and businesses to undertake actions that can increase their own resilience and that of the broader community.