

Executive Summary

State government, which guided California through the instability of the Great Depression, managed the profound disruptions of World War II and steered, during following decades, one of the nation's great population, development and innovation booms, faces again an historic governing challenge in climate change.

A \$2 trillion annual economy and the needs of nearly 40 million residents ride on the outcome of the state's preparations and response.

Climate change, which most scientists believe has already begun, promises decades of wilder weather and great uncertainty regarding the scale of annual precipitation, wildfire activity, sea level rise and daily temperatures. These changes have powerful implications for agricultural production, air quality, real estate values, electricity generation, public health and California's renowned quality of life.

State government – and cities, counties, special districts and regional authorities – will be obligated to defend their populations, economies and infrastructure, while continuing to accommodate new growth and development. Freeways, transit systems, international airports, hospitals, fire stations and water and sewage treatment facilities must remain operational and out of harm's way. Emergency response, public safety, communications, business activity and all the foundations of California's major role in the global economy must continue with a minimum of disruption.

Government, above all, must provide stability.

The roadblocks to effectively governing California through climate change are well identified and formidable. There are no guidebooks and little precedent for this new phenomenon. What works today for locating infrastructure and permanent buildings will not work tomorrow when a rising ocean is eroding not just shorelines, but the entire notion of permanent landscapes. Governments accustomed to meeting single targets of carbon reduction by specific percentages will surely struggle with the more difficult, multiple targets of climate adaptation. They also will struggle with the politics of investing today's tax dollars to protect tomorrow's residents from climate impacts.

Adapting effectively to climate impacts will require the public sector to reach comprehensive solutions, often at the regional level, to minimize individual, reflexive fixes that waste money and make problems worse – such as seawalls that merely push one city’s problems onto its neighbors. California’s tangled web of overlapping local governing agencies, its sprawling diffused networks of competing and shared interests steered by an endless array of political and governing cultures, have long proven their capacity for checkmate and stopping forward movement. State government’s strength will be in providing the best-available climate impact science, standardized sources of information and sophisticated risk assessment tools to point the way to solutions and counter the potential for gridlock.

That is still more ideal than reality, however. The federal government is just beginning to grapple with the policy and organizational implications of addressing anticipated climate impacts. State government’s executive branch has only in the past five years begun to focus its resources more intently on adaptation, while the Legislature has yet to engage in major adaptation policy. This shortage of emphasis compares to significant state investments and activity sanctioned by both branches to reduce carbon emissions through Assembly Bill 32, the Global Warming Solutions Act of 2006. Adapting effectively to the actual impacts of climate change along California’s shorelines and in its cities, mountains and agricultural landscapes, will require a similar or even more robust investment of financial resources and effort on behalf of the state.

The Little Hoover Commission’s study of climate change adaptation and governing challenges in California portrayed a state government that has far to go – understandably, and with much company elsewhere, given the uncertainty of climate change – in formulating necessary answers and actions regarding the dangers ahead. The well-being of millions of Californians alive today and the millions in generations ahead hinge on how state and local governments step up and respond to what Governor Jerry Brown has called “the world’s greatest existential challenge – the stability of our climate, on which we all depend.”¹

A Summary of Commission Findings

The Commission began its climate change study process in August 2013 to review state government preparedness for what risk experts now widely foresee as a long-term and “slow-moving emergency.” After three hearings, an advisory committee meeting and dozens of interviews with experts and interested stakeholders, the Commission concludes that:

- California state government has no single-stop administrative structure in place to create statewide climate adaptation policy,

overcome institutional barriers and govern the state's response to climate change impacts. Many state adaptation initiatives continue to be scattered among individual departments, agencies, commissions and councils.

- The state's adaptation strategies are still unfolding and relatively new, remain advisory in nature and require continuing evolution to assure comprehensive statewide responses to climate impacts. State government adaptation processes also have been conducted without widespread consultation of local governments and the private sector. The status quo is slow, understaffed and inwardly focused on state agencies.
- No single authoritative source of standardized information about climate risks in California currently exists within state government. Cities, counties, regional governing agencies and even the state lack reliable, consistent information to guide decision-making, particularly regarding long-range infrastructure investments and land-use choices. Local government leaders understand they are vulnerable to climate impacts, but lack more specific risk assessment capacity that would help guide planning and decision-making.

The Commission, in general, found encouragement in efforts by the state to understand the climate challenge and gauge its vulnerability. But in response to concerns raised during its study process about the state's organizational structures, it is calling for a more unified approach to adaptation on the part of state government.

This Commission report, divided into two chapters, contains scenarios and forecasts that may at times be unsettling, but also can prove to be thought-provoking and even hopeful. A state and nation that has reduced the scale of such environmental challenges as smog, acid rain and threats to the ozone layer may yet avoid the worst of climate change. The greenhouse effect will act on a long time scale and there is still time to react.

The first chapter describes the physical impacts that most scientists anticipate in California as a result of climate change, and portrays the first stirrings of a response by state and local governments. It also reviews the actions of the federal government and other coastal states, including Oregon, Washington and Florida. The second chapter portrays the institutional barriers to effective statewide responses to climate impacts and explores an entirely new dimension of assessing risk amid great uncertainty. Finally, it recommends establishing a new one-stop adaptation entity within state government to prepare for and respond to the impacts of climate change.

A State Still Seeking the Answers

The State of California, to its credit, has made considerable progress in understanding the climate risks ahead. The state is a leader nationally in analyzing potential impacts of a warming climate on its coasts, forests, farms and neighborhoods. State government agencies and public universities have compiled numerous studies reviewing potential impacts of an expanding ocean on coastal communities, and of rising temperatures on energy supplies, air quality, public health and agricultural commodities. Governor Brown, too, is among the most vocal and prominent elected voices nationally on the need to adapt to climate change.

Many of California's cities, counties and regions also are performing at the forefront and many have surpassed the state in planning for climate impacts. A growing number of communities are assessing climate risks for their airports, water treatment plants and roadways, and trying to integrate climate adaptation into everyday planning for their future development and population growth. In 2013, when the Rockefeller Foundation selected 11 climate-adaptive North American recipients for greater technical support and funding through its Resilient Cities Centennial Challenge, nearly half were cities in California - Los Angeles, San Francisco, Oakland, Alameda and Berkeley.²

While state and local governments study what might happen on the ground in California as a result of climate change, other fundamental questions also call for attention: How will the state most effectively govern during possible sustained periods of trial, disruption or emergency? What governing and administrative structures will best provide comprehensive regional or statewide solutions and minimize poorly-considered and wasteful community-by-community fixes? How might elected officials best budget today's tax dollars to prepare the state for tomorrow's uncertainty? What kind of land use decisions are most appropriate when long-held assumptions of predictable, stable geography in which to live, work and build permanent buildings are no longer relevant?

The Commission's study process portrayed a state still seeking the answers.

There is not much of a game plan beyond a growing stack of studies and plans.

After a year of review, the Commission learned that California's lack so far of a unified strategy for climate adaptation stands in sharp contrast to its targeted efforts to reduce greenhouse gas emissions. The State of

California arguably leads the world with powerful laws, strategies and governing mechanisms to reduce carbon emissions to 1990 levels by 2020 – and an additional 80 percent below 1990 levels by 2050. Since passage of AB 32, the Global Warming Solutions Act of 2006, CARB has become one of the state’s most powerful agencies. It runs a model cap and trade program that is steering hundreds of millions of dollars and eventually billions to the state’s Greenhouse Gas Reduction Fund for high speed rail, targeted funding for energy efficiencies in disadvantaged communities and further curbs in carbon emissions. A powerful political constituency advances and guards this effort, which has greatly boosted California’s reputation for environmental innovation.

While the state’s considerable effort affects less than one percent of global emissions, it is spurring powerful innovation for clean energy and potentially offering a model for other states and nations to accomplish carbon reduction. The value of California’s AB 32 program can be said to extend well beyond its immediate quantifiable impact by propelling and accelerating knowledge for global solutions to carbon emissions.

Many believe it’s time for a similar California-led effort on behalf of adaptation, one that will pay immediate dividends at home, as well as internationally in the longer term. Daniel Mazmanian, a University of Southern California public policy professor and chair of a 2010 Pacific Council on International Policy report on climate adaptation strategies for California,³ told the Commission, “What is disheartening, in view of California’s reputation as an environmental policy leader, is the reluctance of the state’s policy makers to address as boldly the ramifications of a changing climate that will be visited on the people of California.”

In written testimony to the Commission on August 22, 2013, Mr. Mazmanian stated: “In specific, the Legislature has not established policies and goals. Nor has the Governor promulgated executive orders for adaptation comparable to the demanding, quantitative and highly publicized targets set for greenhouse gas emissions reduction.”⁴

Robert Verchick, professor at the Loyola School of Law in New Orleans, provided similar Commission testimony to the Commission. “Historically this state been setting some very good planning for climate change and it’s well respected throughout the world,” he stated. “The harder thing to do, which is what you’re embarking upon, is how to do something about it.”

Adaptation Efforts Are Scattered Throughout Government

California's formidable track record of overcoming adversity has long included recovering and rebuilding after earthquakes, floods, wildfires and landslides. Indeed, the Governor's Office of Emergency Services views climate change not as a new and unique hazard on California's horizon, but as a magnifier of its existing natural hazards. The same standardized Incident Command System that governs current emergency responses with local control and backup from state and federal forces also will confront impacts of climate change. Similarly, state government agencies that routinely oversee issues of protecting natural resources, allocating water, building infrastructure, guarding public health and meeting demands for energy also are individually planning for climate change impacts within their existing practices.

Yet during its 10-month study process, the Commission learned one thing clearly about California's readiness for climate change. While the state has broadly and successfully assessed its potential vulnerability and often leads other states in its research, the work of climate adaptation is scattered throughout state government and lacks an organization, a leader and a home. Despite a cross-agency Climate Action Team in place within state government and a 2009 California Adaptation Strategy report and its Safeguarding California update being finalized in 2014 by the California Natural Resources Agency, the threads, so to speak, still have not been pulled together in a way that helps people on the ground make decisions.

Burlingame Mayor Michael Brownrigg referenced this muddle of random information during a December 2013 sea level rise forum in San Mateo County. Addressing fellow local officials, Mayor Brownrigg said, "I've heard a lot of challenges, and I haven't heard so many options. Maybe this takes a lot more process and stuff, but meanwhile I'm sitting, and my councilmembers are sitting, and we're wondering what should we be doing about it? Should we be putting money against this? Should we be doing hardscape? How do I protect my hotels? That's what I'm hungering for. What do I do about it? I get that there's sea rise. But what do we do about it?"

Such questions in the absence of mutually-agreed upon solutions and risk assessment protocols from the state have sent regions scrambling to assemble their own understanding of local impacts and possible solutions. Los Angeles, the San Francisco Bay Area, San Diego and Sacramento have each taken different approaches. But each region also has formed a climate adaptation "collaborative," consisting of government and non-profit and private sector representatives to address climate change. Members of those collaboratives have, in turn, organized into

one large statewide collaborative, the Alliance of Regional Collaboratives for Climate Adaptation, to speak with one voice to state government. Many regional and local officials told the Commission in hearings that they felt shut out of state climate adaptation deliberations and were not at the table to help develop the state's 2009 California Adaptation Strategy and Safeguarding California update. The feeling goes both ways, however. The state's representatives sometimes contend that local governments and officials, with their insistence on local control of development and other issues, work contrary to larger state goals for long-range climate adaptation.

At Stake: California's Economic Competitiveness

It is hard to overstate how much is at stake for getting climate adaptation right in California. The state's economy is highly globalized, dependent on complex supply chains and logistics that are at potential risk of being destabilized by sea level rise, flooding and other impacts. The Port of Oakland, for instance, might remain operational after a storm surge at higher tides than now familiar. But extended flooding of a nearby Bay Area freeway could disrupt agricultural exports from the San Joaquin Valley hundreds of miles away.

The Commission heard much from the private sector at hearings about the importance of keeping California stable. Businesses will be on the move in search of safe operating environments amid the uncertainty of climate change, making winners of states and regions that can provide them. State government, in partnership with cities, counties and regional governing bodies, carries the responsibility of protecting and investing in both concrete and natural infrastructure, communications, emergency response capacity and public health. State government, in particular, must ensure optimum conditions for dependable electricity and water supplies and reliable transportation and goods movement.

Specifically within the private sector, farmers require control of pests and government-sponsored research into new varieties of heat-resistant crops. The Pacific shipping industry needs seaports that withstand sea level rise and provide safe harbor from powerful storms. At least three major California airports, in San Diego, San Francisco and Oakland, require long-term improvements to keep rising water at bay and passengers and cargo moving. Employees at all these business operations must be able to get to work, whether by highway or public transit. Goods, too, must be able to move uninterrupted by rail and truck, to keep critical global supply chains operational.

The Commission's Proposals

The Little Hoover Commission traditionally avoids recommending the creation of new state agencies or governing structures, in belief that government can best accommodate new problems with existing structures. But climate change will be an historic challenge, a transformative condition requiring the best-available science and most sophisticated risk assessment tools with which to help California's multitude of governments prepare and react.

Governments at all levels clearly need a new authoritative and trusted source of information to assess risks and guide decision-making, not at the 50,000-foot level, but in their downtowns, within a four-block area or at a single freeway interchange. The Commission calls on the Governor and Legislature to create a new state entity or enhance the institutional capacity of an existing organization to provide them the best and newest science and risk assessment methodologies as they evolve. The entity, however structured by the Governor and Legislature, should include an independent science board such as that which guides the Delta Stewardship Council and Ocean Protection Council. A single reliable source of standardized and updated information reviewed by a science board could create conditions for smarter response at all levels of California government. Quickly, it would stimulate better land use decisions, providing local elected officials agreed-upon facts and cover for controversial decisions about whether or not to approve development proposals that might be endangered in the future, or worse, removed at great public expense. Eventually, governments would begin to incorporate risk assessment provided by a new or existing entity into all their long-range planning, embedding adaptation into local general plans, infrastructure reviews and planning processes statewide.

Officials in the insurance sector assured the Commission that all the tools available to insurers and the private sector to assess risk are available to the public sector. Expert use of these tools by the state would have the added benefit of making the private insurance market work more effectively in California. The insurance industry's ability to absorb risk and costs of disaster, industry witnesses testified to the Commission, relies on the government sector's ability to keep the maximum number of people and properties out of harm's way.

The Commission also calls for the California Strategic Growth Council to expand its focus beyond reduction of carbon emissions to include a greater emphasis on adaptation to the impacts of climate change. The council's grant-making processes and review of state infrastructure spending are important tools to fund climate adaptation efforts. The

Strategic Growth Council, created in 2008 to align state infrastructure spending and other investments with state growth goals – while limiting greenhouse gas emissions – already has begun to provide grants for regional adaptation initiatives. The council’s mission to steer more residential and commercial development to existing urban areas has potential to unwittingly move more people and property into harm’s way. An expanded focus on climate impacts and adaptation will help balance state growth policies with those of climate adaptation.

In addition, the Commission recommends enforcement of defensible space requirements in state law since 2005 to minimize property damage from wildfire. The law requires property owners within fire-prone areas to maintain 100 feet of cleared space around their buildings. But most counties lack aggressive ongoing enforcement of the law. The Commission notes Ventura County’s success in reducing wildfire damage due to inspections and enforcement, hiring of contractors to clear land of those not complying, as well as sending bills and charging administrative fees.

Finally, the Commission urges the Governor and Legislature to avert potential legal dysfunction by clarifying California’s Common Law Public Trust Doctrine in light of a rising ocean that will eventually begin to condemn private property. Few yet know that a rising ocean moving onto beachfront private property will legally convert it to public property via provisions in the California Constitution. This portends potential controversy and crippling litigation in the courts. The Commission recommends that key state agencies meet to clarify the impact and create a legal framework in advance.

Conclusion

Two other states with significant populations and large economies, New York and New Jersey, endured the worst natural disaster in their histories on October 29, 2012, when Hurricane Sandy blew ashore in the dark. The shocking scale of devastation – 43 deaths and an estimated \$19 billion in damage in New York City alone – prodded a rapid transition from complacency about climate change to government action on a \$20 billion resiliency plan, “A Stronger, More Resilient New York.” The plan and a governing structure to implement it, approved within eight months of the storm’s fury, cited the immense stimulus of a wake-up call and stated, “When the waters receded, New York was, in many ways, a changed city.”

The Little Hoover Commission, during its study process of climate change adaptation, heard repeatedly that California has yet to experience

its “Sandy,” and consequently, is not yet the changed state it must become. California’s will to act and defend itself against the uncertainty of a changing climate continues to remain less than urgent. While it is admittedly hard to organize the nation’s most populated state against uncertain threats occurring in an undefined future, the responsibility to lead this change belongs with state government. The model for change is California’s global standing as an innovator, a force driver and early adopter in curbing greenhouse gas emissions and passing AB 32 in 2006. No American state has done more. California serves as a road map to decarbonizing the economies of entire nations.

Adapting to impacts of climate change requires the same effort and more. At a January 16, 2014, hearing by the Assembly Select Committee on Sea Level Rise and the California Economy, Nadine Peterson, deputy executive officer of the California Coastal Conservancy, told lawmakers, “To move to the next level, to more fully prepare our communities for the climate and sea level rise adaptation challenges that we know lie ahead, California must repeat the strong political will, leadership and commitment, including the commitment of financial resources, that we demonstrated with the passage and implementation of the Global Warming Solutions Act.”

The State of California faces many tough calls with climate change. State government and other public institutions will conduct an often-thankless exercise of picking winners and losers – yes or no on proposed development projects in questionable areas or costly defensive investments appearing to favor one city over another – in social and political environments that are likely to be uncertain, anxious and contentious. It will take institutional capacity and expertise, at and likely beyond, the scale of current state efforts to reduce greenhouse gases.

Always, California has prevailed when tested by weather, by natural disaster or by human circumstances. But it will need new methods, a new governing system for this new problem likely to rival all of its greatest historical challenges. History this time likely will not be a good guide. As Mr. Verchick of Loyola University in New Orleans, testified to Commission at its August 22, 2013, hearing, “With climate change all bets are off. The one thing we know is that the future will not be like the past.”

Recommendation 1: The Governor should direct his administration – either through creation of a new state organization (via legislation) or delegation to an existing state entity that has capabilities to perform the mission – to establish the best state science on anticipated climate change impacts and help decision-makers accurately assess their climate risks based on that science.

- ❑ A new organization or existing entity should be advised by an independent science board to assess and establish the best possible statewide, regional and local standards by which to measure anticipated climate impacts and risks. Those standards would evolve as the scientific understanding of climate change impacts evolves.
- ❑ The organization should not make policy on climate change adaptation. It would exist to inform government regulators, land-use permitting agencies and infrastructure planners, providing the best available information and standards to guide decisions about locating or relocating development and infrastructure. State, regional and local agencies would plan to those standards, incorporating a common, consistent vision of climate change adaptation over time into all the state’s planning efforts.
- ❑ Members of a new state entity, if established by legislation, should have technical expertise in climate change adaptation and be representative of state and local public- and private- sector interests throughout California. Members could serve part-time and be appointed by the Governor and require confirmation by the Senate. To maintain its independence, the new entity would not exist within the Governor’s Office.
- ❑ The Governor should issue an Executive Order to mandate that state government agencies plan to the new or existing entity’s standards as they are developed.

Recommendation 2: State government at all levels should further incorporate climate risk assessment into everyday public planning and governing processes throughout California.

- ❑ State government agencies should stimulate and fund more regional pilot projects such as the San Francisco Bay Conservation and Development Commission’s \$1.6 million “Adapting to Rising Tides” risk assessment on 26 miles of Alameda County shoreline.
- ❑ State government agencies should make climate change risk assessment an eligibility factor for all infrastructure, planning and program grants to regions. Governments at all levels should build climate risk assessment and adaptation into general plans, hazard mitigation plans and all local planning processes.

- ❑ The state should promote regional planning approaches and governing mechanisms when funding climate adaptation for cities and counties. Examples include special districts that cross jurisdictional boundaries for climate adaptation purposes, joint powers authorities and specific memorandums of understanding for multi-party adaptation projects.

Recommendation 3: The Legislature should expand the primary mission of the Strategic Growth Council beyond mitigation of greenhouse gas emissions through the SB 375 Sustainable Communities Strategy to include an equal focus on climate change adaptation in California. The Council’s operating guidelines and charge to support planning and development of “sustainable communities” should stretch to include the ability to identify and address climate impacts appropriate to the community or region.

- ❑ The Legislature should incentivize and require recipients of Strategic Growth Council grants and SB 375 funding for transportation emissions reductions to build additional climate change adaptation considerations into their growth policies and climate mitigation projects.
- ❑ The Strategic Growth Council should use its responsibility to review the state’s five-year infrastructure plans to foster greater emphasis on climate change adaptation in state infrastructure investments. Climate-focused reviews of statewide infrastructure investments will provide a model process and help regions and localities strengthen review of their own infrastructure investments.

Recommendation 4: State government should work with counties, private insurers, wildland stakeholders and the building industry to minimize wildfires and property damage by more aggressively enforcing defensible space requirements existing in state law. The state and stakeholders should promote Ventura County’s success in enforcing compliance and reducing wildfire costs and damage as a climate change model for wildland urban interface areas.

Recommendation 5: The Governor should work with key state agencies such as the Attorney General’s Office, State Lands Commission, Coastal Commission and other public and private coastal interests to clarify the impact of sea level rise on California’s Common Law Public Trust Doctrine. A collective dialogue should seek ways to create a legal framework in advance of crisis and prevent litigation and instability as a rising ocean begins to condemn private property on the Pacific coastline.