A Strategy for California @ 50 Million

Supporting California's Climate Change Goals

The Governor's Environmental Goals and Policy Report

November 2015

Letter from the Director

The 2015 Environmental Goals and Policy Report (EGPR) is the product extensive consultation with the public, state, local and federal agencies, numerous stakeholder meetings, and a series of public workshops held from the North Coast to San Diego.

Based on feedback from the 2013 draft, we have incorporated input from our outreach as well as the latest evolution of the State's climate policies. For example, since 2013, the State has met and exceeded renewable energy goals; set more aggressive targets for greenhouse gas emissions reductions, renewable energy generation, and petroleum reduction; and invested revenues from the State's Greenhouse Gas Reduction Fund in new programs that will further reduce greenhouse gas emissions and build climate resilience.

As California develops its strategy to achieve its 2030 and 2050 GHG emission reduction goals, land use and development patterns will play an increasingly important role. Evan as we add an additional 10 million residents, California must reduce GHG emissions by over 80% by 2050. We must choose how to accommodate this growth – in a manner that helps or hinders GHG emission reductions; in ways that harm or protect critical resources and working lands. The EGPR provides a thoughtful forward-looking strategy for continued prosperity in a climate constrained environment.

We look forward to your input as we continue to develop the Strategy and the conversation about California's future.

Sincerely,

Ken Alex
Director, Governor's Office of Planning and Research

Forward – Revisiting the Urban Strategy

California is at an important juncture. If California were a country, its economy would stand as the world's 8th largest. California is leading the nation, and the world, in responding to climate change. At the same time, its population continues to grow, with continued development across the State's regions. Supporting this growth while protecting the environment, public health, and natural resources requires a comprehensive approach to planning across California.

Assembly Bill (AB) 2070 (1970) created the Governor's Office of Planning and Research (OPR) and directed OPR to prepare and maintain an Environmental Goals and Policy Report (EGPR). The EGPR includes goals and objectives that focus on land use, population growth and distribution, conservation of natural resources, and air and water quality, as well as a discussion of programs and policies required to implement the state's environmental goals. The EGPR works in conjunction with the state's planning priorities, established in 2002 to guide land use decisions. The planning priorities identify efficient infill development, preservation of the state's natural and working lands and lands of significant cultural value, and efficient development patterns that take advantage of existing infrastructure and minimize costs to taxpayers as the key policies.[1]

The 1978 *Urban Strategy for California* was the last EGPR prepared and adopted.[2] The *Urban Strategy* set forth an action plan for revitalizing and preserving the state's urban areas, with a broad suite of strategies focused on housing, education, health, safety, and infrastructure. Many of the issues addressed in the *Urban Strategy* resonate today with our efforts to combat climate change and build sustainable communities. Therefore, now is an important time to revisit the *Urban Strategy*, but with an eye to the State as a whole, not just the urban areas.

As California moves toward its long-term goals, it needs to make choices that will support its long-term climate change and environmental goals. This Strategy recognizes the substantial changes that are underway and outlines the development path that is needed to accommodate and, in some cases, accelerate these changes.

[1] California Government Code Section 65041.1

[2] The Urban Strategy for California remains a highly relevant document, reflecting many of the sustainability concepts that shape current policies and goals for the state and its communities. It is available here: http://www.opr.ca.gov/docs/urban_strategy.pdf

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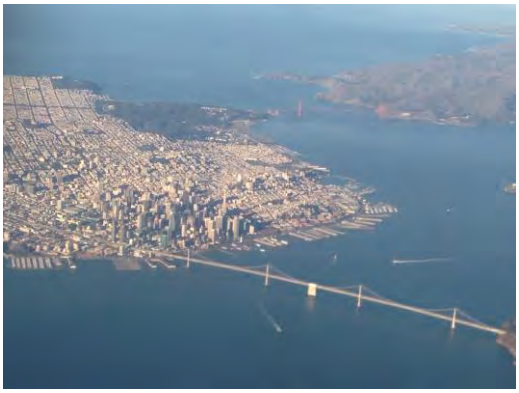
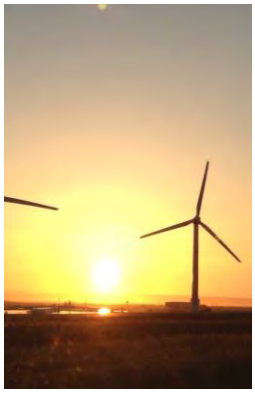
Envisioning California's Future


photos (l-r): San Francisco – aerial view, wind turbines in the Central Valley, burn Area from 2013 Rim Fire

California is changing.

Population is growing and demographics are shifting. The State's population will reach fifty million by 2050, with a larger share of the population over the age of 65.

The State's energy and transportation sectors are undergoing massive transformations as California leads the world in the effort to reduce greenhouse gas emissions.

And, the climate is changing – drought, wildfire, and storms are increasing in frequency and severity, while average temperatures and sea levels rise.

As we look to the next several decades, California needs to make land use and planning decisions that accelerate and support the transformation of the State's energy and transportation to low-carbon, clean choices and protects critical natural resources and agriculture and working lands. Land use planning also needs to accommodate a growing and aging population, while enabling the state to continue to grow and thrive in the face of a changing climate.

Five Pillars for the State's Future

As the guiding vision for this document, we see a vibrant state with a robust economy that functions in harmony with the environment and provides a high quality of life for all Californians. Achieving sustainable growth in California with 50 million residents requires a clear plan of action and sustained effort.

In his inaugural address, Governor Brown identified five pillars to support the long-term reduction of climate pollution, protect public health, and steward the state's natural resources to support resilience and other environmental benefits:

1. Increasing the share of renewable energy in the State's energy mix to at least 50 percent by 2030,
2. Reducing petroleum use by up to 50 percent by 2030,
3. Increasing the energy efficiency of existing buildings by 50 percent by 2030,
4. Reducing emissions of short-lived climate pollutants, and
5. Stewarding natural resources, including forests, working lands, and wetlands, to ensure that they store carbon, are resilient, and enhance other environmental benefits.

These five pillars lay the groundwork for the major initiatives that will determine the course that California takes in the coming years and decades to achieve long-term sustainability.

Over its history, California has both undergone and led significant transformations. It is no different at this stage of California's history. California continues to lead, grow, and strive – and, as we look ahead to 2030, 2050, and beyond, we need to create a State that will sustain and shape change.

A Strategy for California @ 50 Million – A Vision and Long-Term Goals

With a focus on planning and development, the Strategy outlined in this plan will help to build a foundation on which California can implement and achieve the five pillars and the State's climate change goals.

Development Goals for 2050

Smart and strategic development choices will help California respond to changes underway. Smart land use decisions will also facilitate the transformations already underway to achieve GHG emission reductions and prepare for the changes already underway. To ensure we meet this challenge, we need to set development goals that are compatible with the State's long-term climate change goals established by the State's five pillars for the future.

These development goals are to:

- Reduce land consumed for development 50 percent relative to today's trend by 2050
- Reduce vehicle miles traveled per capita at least 15 percent by 2020 and 25% by 2040
- Prioritize the conservation of high quality agricultural land, including rangelands

California must implement effective growth and management strategies to achieve these long-term goals. This Strategy outlines five key areas that work together to help the State achieve these goals:

1. Prioritize and support infill development to build healthy, equitable, and sustainable communities

2. Build a resilient and sustainable water system
3. Steward and protect natural and working landscapes
4. Incorporate climate change adaptation into all planning and investment
5. Lead by example to make the state a model for long-term sustainability

These elements work together to protect the environment, enhance public health, and ensure a sustainable future for California. One common thread across each of these action areas is the need for integrated actions that promote multiple benefits. Within each of these critical areas, this plan outlines actions to date, key actions to build and accelerate progress, and actions to integrate policies and programs across agencies and scales.

California's Environment and Economy – Partners for the Future

California's long-standing commitment to environmental stewardship and its abundant natural resources have provided significant economic benefits to the state. From its burgeoning clean economy, to its productive agricultural lands, to the natural attractions that fuel tourism and recreation, California's commitment to its environment is a key element of a balanced and prosperous economy. While this document focuses on the state's environmental goals, it is important to note that our climate, natural resources, and clean environment are key contributors to the state's economy through job creation, driving large economic sectors, and attracting a productive workforce.

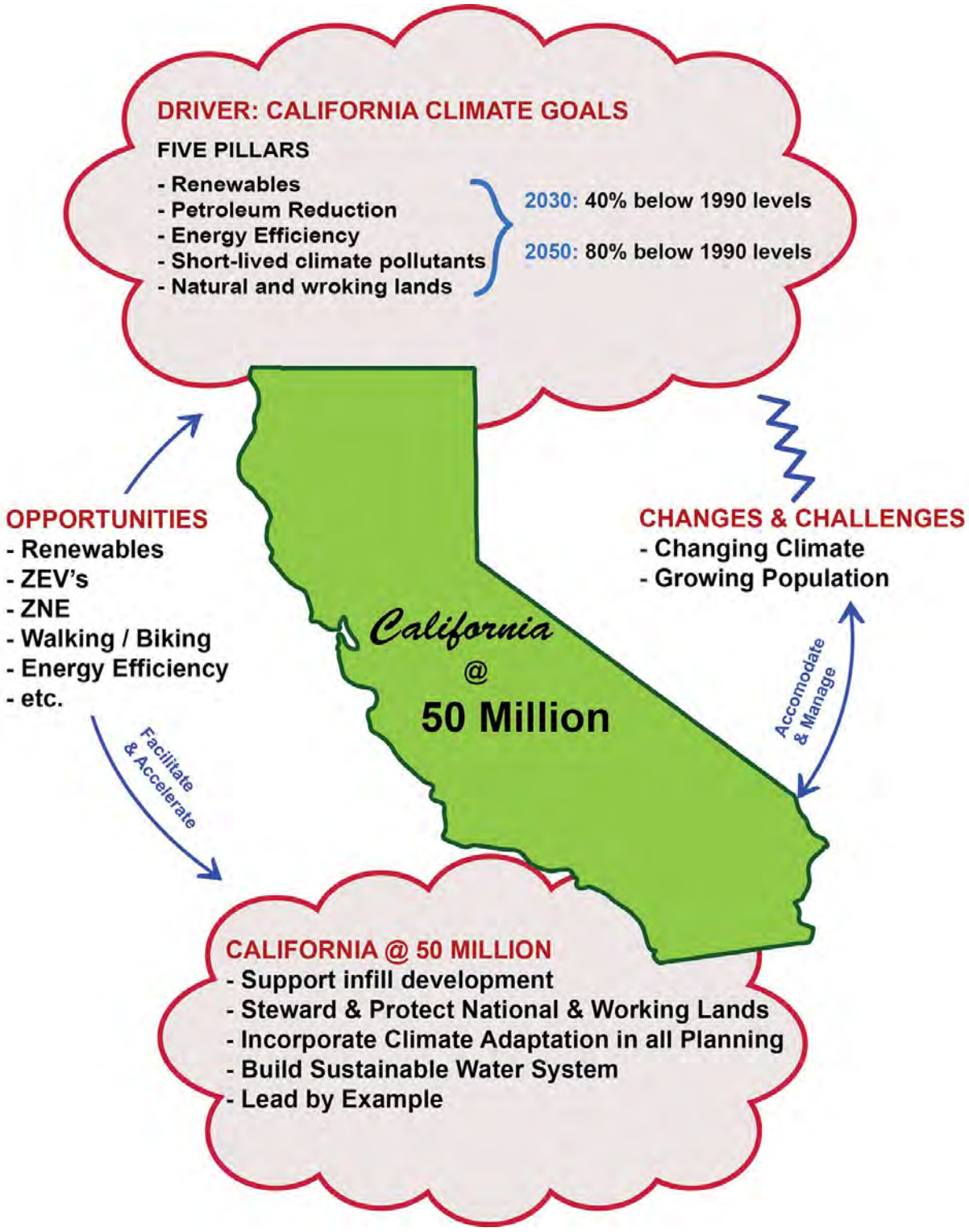
California's leadership on environmental and energy issues has provided significant economic benefits. The state's energy efficiency standards have saved Californians more than $74 billion in reduced electricity bills since 1975.[3] Almost all analyses show that California is home to the largest number of green jobs in the country.

A sound environment also serves as a foundation for several of the state's defining industries – tourism, agriculture, and forestry. The state's agricultural areas rely on fertile soils and temperate climate. Preserving agricultural land is important economically for many of the state's regions, and socially by supporting local, healthy food systems for Californians. MPAs support the state's fishing industries. The state's tremendous forest areas are the foundation for a robust timber industry. California's natural resources are also a key attraction that drives the state's tourism industry. In 2012, travel in California resulted in over $105 billion in direct spending and supported over 900,000 jobs.[4]

[3] Roland-Holst, D. 2006. Energy Efficiency, Innovation and Job Creation in California, Next 10, San Francisco, CA. Available: http://next10.org/sites/next10.huang.radicaldesigns.org/files/UCB_Energy_Innovation_and_Job_Creation_10-20-08.pdf

[4] Data from VisitCalifornia.com: http://industry.visitcalifornia.com/Research/California-Statistics-and-Trends/

California's natural infrastructure provides clean drinking water, fertile soils, and protection from storms, floods, and other extreme events. Much of the state's water flows from mountain stream systems. Healthy, intact watersheds provide natural filtration and storage for the state's drinking water.


DRIVER: CALIFORNIA CLIMATE GOALS
FIVE PILLARS
- Renewables
- Petroleum Reduction
- Energy Efficiency
- Short-lived climate pollutants
- Natural and wroking lands
2030: 40% below 1990 levels
2050: 80% below 1990 levels
OPPORTUNITIES
- Renewables
- ZEV's
- ZNE
- Walking / Biking
- Energy Efficiency
- etc.
CHANGES & CHALLENGES
- Changing Climate
- Growing Population
California
@
50 Million
Facilitate & Accelerate
Accomodate & Manage
CALIFORNIA @ 50 MILLION
- Support infill development
- Steward & Protect National & Working Lands
- Incorporate Climate Adaptation in all Planning
- Build Sustainable Water System
- Lead by Example

A Growing and Changing California

California is growing, changing, and taking a leadership role in the fight on climate change. These forces will shape the future of the State.

Climate Leadership

> *…California, as it does in many areas, must show the way. We must demonstrate that reducing carbon is compatible with an abundant economy and human well-being. So far, we have been able to do that.*
>
> *- Governor Edmund G. Brown, Inauguration Speech, January 5, 2015*

California leads the nation and the world in developing clean energy and transportation technologies, renewable electricity, and energy efficiency. As part of the State's efforts to reduce greenhouse gas (GHG) emissions, it is continuing transformation of the energy and transportation sectors.

Assembly Bill (AB) 32 (2006) established a 2020 reduction requirement for GHG emissions (return to 1990 emission levels). The State is on target to meet the 2020 reductions. Executive Order B-30-15 reaffirmed the State's commitment to reduce GHG emissions 80 percent below 1990 levels by 2050 and established an emission reduction goal for 2030 to ensure that the State gets on the path to deep emission reductions (Figure 1).

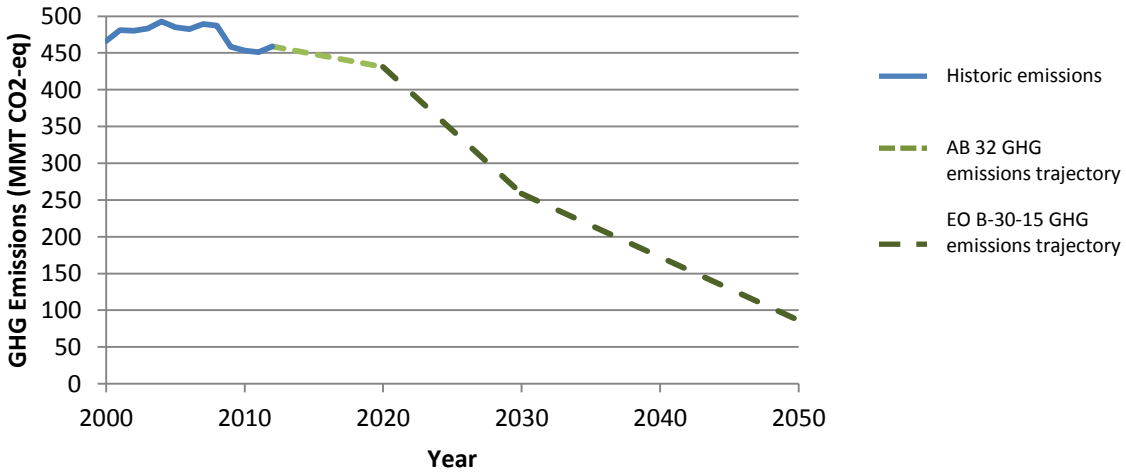


Figure 1: California is on track to meet is 2020 GHG emission reduction goal and is committed to achieving deep emission reductions in 2030 and 2050[5]

[5] GHG emission data from the California Air Resources Board, available here: http://www.arb.ca.gov/cc/ccei.htm

Achieving reductions needed in the 2030 time frame and beyond will require action in all sectors, from energy and transportation to the management of the state's natural resources. It will also require integration and coordination – among state agencies and institutions, but also across local, regional, and state jurisdictions. The state needs aggressive action to modernize and cleanup our energy and transportation systems; to manage responsibly our forests, watersheds, and working lands; and to support and promote local and regional planning that aligns with these goals. This set of challenges is overarching and therefore ubiquitous within the State's environmental goals and policies.

Many of these transformations are already underway. California has forty percent of the country's sales of zero-emission vehicles. The state is on a path to exceed the renewable energy standard of 33 percent by 2020. California has long led the nation on energy efficiency and, as a result, as consistently had electricity use per capita that is far below the national average. These transformations will continue and accelerate in the coming decades as the state progresses toward its 2030 and 2050 GHG emission reduction goals.

A Growing Population

During the next 20 years California's population will continue to increase, with millions of new residents added each decade. This growth will lead to increased demand in all areas of infrastructure and public services—including education, transportation, corrections, housing, water, health, and welfare.
- Public Policy Institute of California

California's population is projected to top 50 million residents by the middle of this century. While the rate of population growth in California is moderating, some important demographic shifts are underway that will affect the state's future and how we plan for it. Population projections from the State's Department of Finance[6] show that the state's population is aging, with a much larger share of the population projected to be over age 70 by 2035 and 2050. In addition, these same projections show that population growth is projected to be much higher in the inland parts of the state as opposed to the more urbanized coastal areas.

[6] Population projection data by age and county from Department of Finance: http://www.dof.ca.gov/research/demographic/reports/projections/P-3/

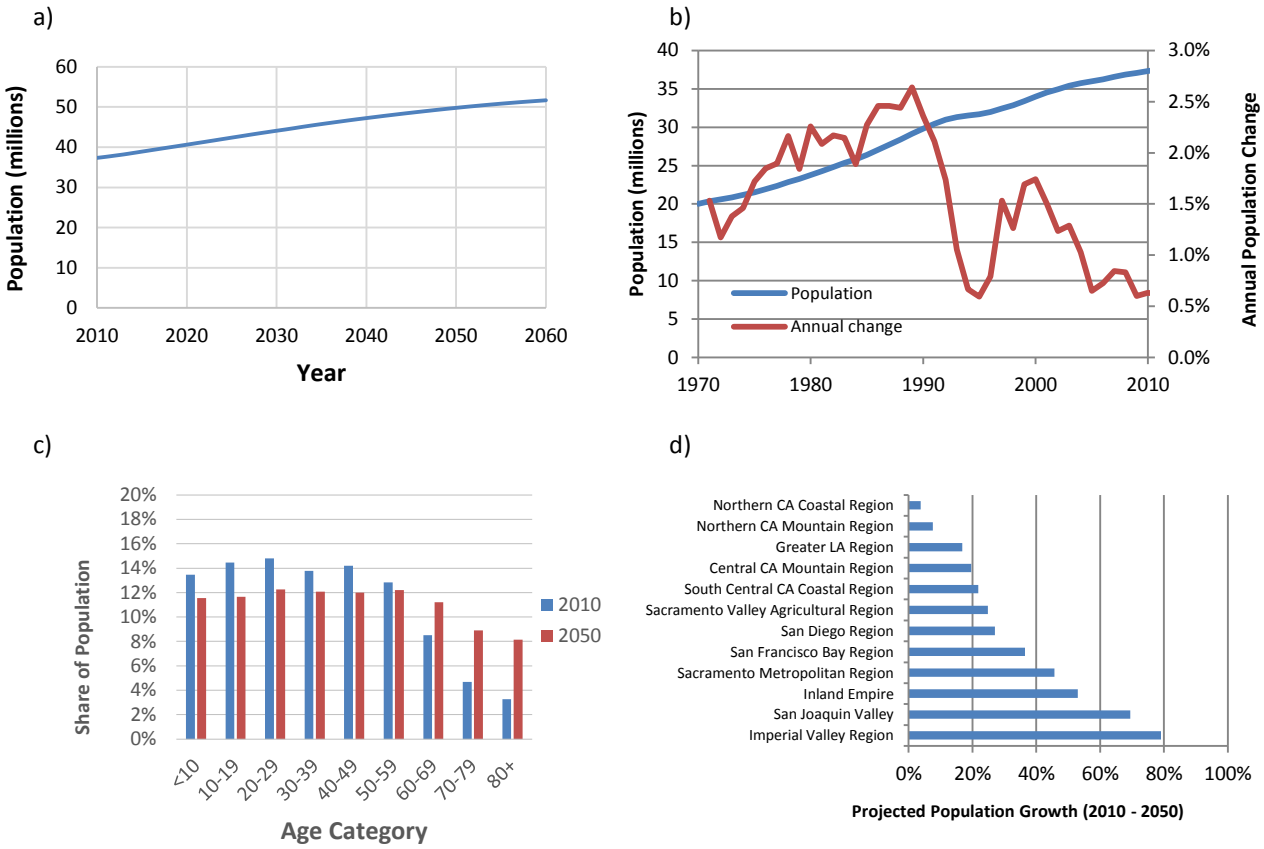


Figure 2: California's population growth rate has slowed (a), but population is projected to hit 50 million by 2050 (b). The population is aging (c) and the greatest growth is projected to occur in the state's inland regions (d)[7]

As we look to 2050, we need to continue to address the inequities that are growing across the State. Currently, there are large disparities in opportunities and outcomes for the state's citizens. Using the Human Development Index, which combines health, access to knowledge, and standard of living, as a metric, *A Portrait of California* finds large inequities across the state's regions (Figure 3). The inequity in the Human Development Index arises from disparities in life expectancy, income, and education.

[7] Regional definitions from Department of Finance, and include the following counties: **Central California Mountain Region:** Alpine, Amador, Calaveras, Inyo, Mariposa, Mono, Tuolumne; **Imperial Valley Region:** Imperial; **Inland Empire:** Riverside, San Bernardino; **Greater Los Angeles Region:** Los Angeles, Orange, Ventura; **Northern California Coastal Region:** Del Norte, Humboldt, Mendocino; **Northern California Mountain Region:** Lake, Lassen, Modoc, Nevada, Plumas, Sierra, Siskiyou, Trinity; **Sacramento Metropolitan Region:** El Dorado, Placer, Sacramento, Sutter, Yolo, Yuba; **Sacramento Valley Agricultural Region:** Butte, Colusa, Glenn, Shasta, Tehama; **San Diego Metropolitan Region:** San Diego; **San Francisco Bay Region:** Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma; **San Joaquin Valley:** Fresno, Kern, Kings, Madera, Merced, San Benito, San Joaquin, Stanislaus, Tulare; **South Central California Coastal Region:** Monterey, San Luis Obispo, Santa Barbara, Santa Cruz

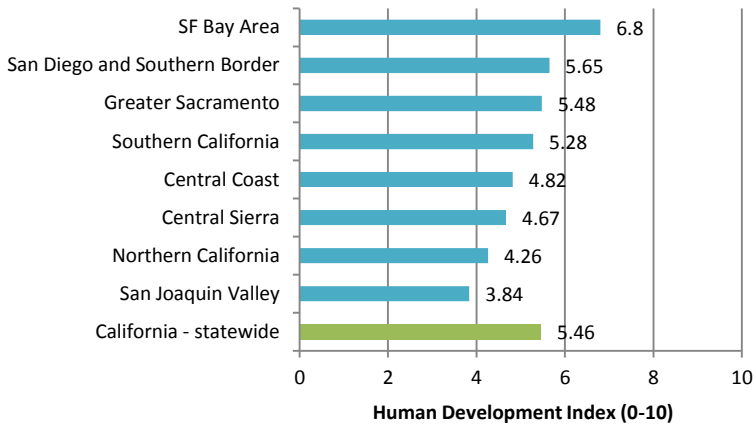


Figure 3: Measurement of the Human Development Index shows large disparities across regions[8]

These inequities are not only geographic, but also relate to other factors, including education, income, and race and ethnicity. For example, the rate of ill-health of adults is much higher among Californians with lower educational attainment.[9] Similar disparities are seen for race and ethnicity. Of particular note is the growing income gap in California. Since the 1980s, the incomes of the highest earners have grown substantially while the lowest income Californians' incomes have stagnated or declined.[10]

The State is already taking steps to address equity issues. The 2013 State budget dramatically changed the way that the State funds local school with the adoption of the Local Control Funding Formula (LCFF). The LCFF targets funds to districts that serve English learners, students from low-income families, and youth in foster care. The cap and trade program has generated nearly $1 billion since its inception in 2013. Proceeds from the auctions are being invested in programs to further reduce GHG emissions, and State law requires that one quarter of these investments benefit disadvantaged communities and that ten percent of these investments need to be located in disadvantaged communities.

As we look ahead and work to achieve the goals identified in this plan, California will continue to take steps minimize the disparities across socio-economic groups and geographic regions. Strong policies coupled with thoughtful implementation will help to improve health and address inequities across the state.

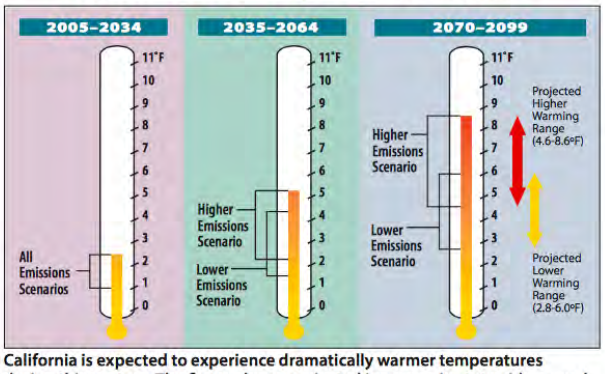
[8] Burd-Sharps, Sarah and Kristen Lewis. 2011. *A Portrait of California: California Human Development Report 2011*. American Human Development Project.
[9] Data from Robert Woods Johnson Foundation Commission on Health (http://www.commissiononhealth.org/PDF/CA_ahs.pdf)
[10] Bohn, Sarah and Eric Schiff. 2011. The Great Recession and the Distribution of Income in California. San Francisco: Public Policy Institute of California.

A Changing Climate

By the time today's children reach middle age, it is extremely likely that Earth's life-support systems, critical for human prosperity and existence will be irretrievably damaged by the magnitude, global extent, and combination of these human-caused environmental stressors, unless we take concrete, immediate actions to ensure a sustainable, high-quality future.
- Scientists' Consensus on Maintaining Humanity's Life Support Systems for the 21st Century, May 2013

Evidence of carbon pollution and climate change is all around us. Severe drought, large wildfires, and reductions in mountain snowpack serve as reminders of the close ties between the environment and the health and stability of California's economy, population, and infrastructure. Climate change is the defining issue of this generation and one that we must confront as we plan for California's future. Our efforts to reduce carbon pollution and prepare for climate change will affect all sectors of the state's economy, affect our natural and built environments, and touch the lives and health of all Californians – especially our future generations.

California is experiencing a changing climate. Statewide, temperatures increased 1.7 degrees Fahrenheit between 1895 and 2011, with the greatest amount of warming in the Sierra Nevada. These changes are projected to become much more severe, and to accelerate, absent a reductions in global GHG emissions. By 2050, temperatures are projected to increase 2.7 degrees Fahrenheit above the 2000 average – which represents a threefold increase in the rate of warming that the State has been experiencing. Much of the warming anticipated between today and 2050 is unavoidable, due to the buildup of GHG emissions in the atmosphere over the past decades. Looking to the end of the century, temperatures are projects to increase 4 to 8.6 degrees Fahrenheit, depending on the path that global emissions take.[11]



California is expected to experience dramatically warmer temperatures during this century. The figure shows projected increases in statewide annual temperatures for three 30-year periods. Ranges for each emissions scenario represent results from state-of-the-art climate models.

Impacts of climate change on precipitation amounts are uncertain, but with higher temperatures, more precipitation will fall as rain than as snow, reducing snowpack amounts. Snowpack is critical water storage for the State. Earlier snowmelt and longer hot spells will also result in drier soils and vegetation, which will result in an increased in wildfire risk. Higher temperatures will also contribute to worse air quality and

[11] California Energy Commission. 2012. Our Changing Climate 2012.

increasing energy demand. Higher temperatures and melting ice will also contribute to rising sea levels. Sea levels are projected to rise 31-55 inches by the end of the century. This will lead to coastal inundation, along with higher storm surges.

Alongside changes in average temperatures, California is expected to experience an increase in the frequency and severity of extreme events. In Sacramento, the number of extreme heat events is projected to increase fivefold by the middle of this century. The State will experience more prolonged and severe droughts, as well as more intense and frequent storms.

Preparing to and responding to these changes will require investments to protect communities, infrastructure, and natural systems. Preservation of natural lands will be needed to ensure that the State's animals and plants are able to migrate and adapt as the climate changes. Well-maintained and managed natural systems can also provide critical protection from flooding, wildfire, and other natural phenomenon expected to increase under a changing climate.

A Strategy for the Future – Our Choices Matter

Without conscious choice and action, California risks a future with haphazard development patterns – likely sprawl – that strain resources, increases economic burdens on its citizens, and place the State's working and agricultural lands, unique biodiversity, and public health at risk. Such choices will also make it difficult, if not impossible, to achieve the State's long-term environmental goals and meet the needs of its growing population.

Policy and land use decisions affect the environment, resource consumption, the economy, and public health. For example, with compact, smart growth development, California can reduce the amount of land that needed to accommodate the state's population of 50 million by nearly 75%, relative to business as usual (BAU) land use policies. Such a strategy would foster higher density, mixed-use development, better access to transit, and other policies that facilitate reductions in driving (Figure 4). Reduced land consumption also reduces pressures on agricultural and working lands, forests, and other areas of critical habitat. It will also help to facilitate more efficient transportation, housing, and business location choices.

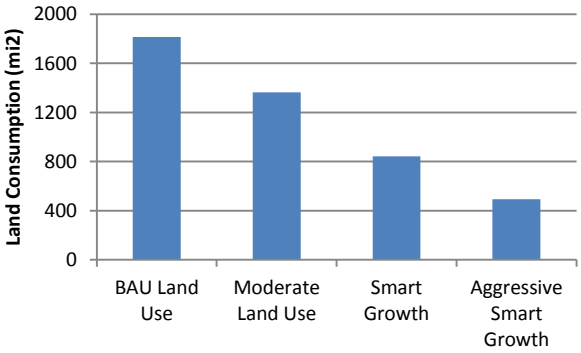


Figure 4: Close to 75% less land can be developed under aggressive smart growth policies than continuing traditional development patterns[12]

Land use choices also impact other important environmental and public health outcomes, including GHG emissions, infrastructure and energy costs, and public health costs (Figure 6).

[12] Analysis based on modeling prepared by Calthorpe Associates for a set of four land use and three policy scenarios.

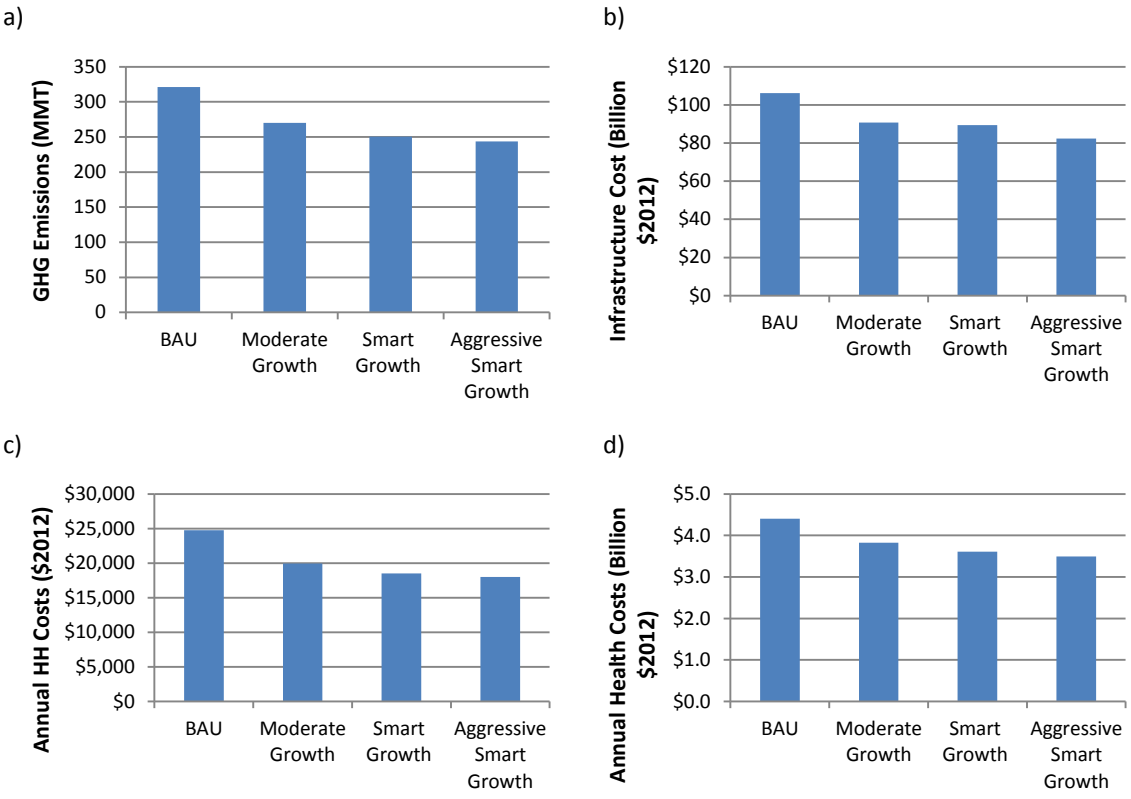
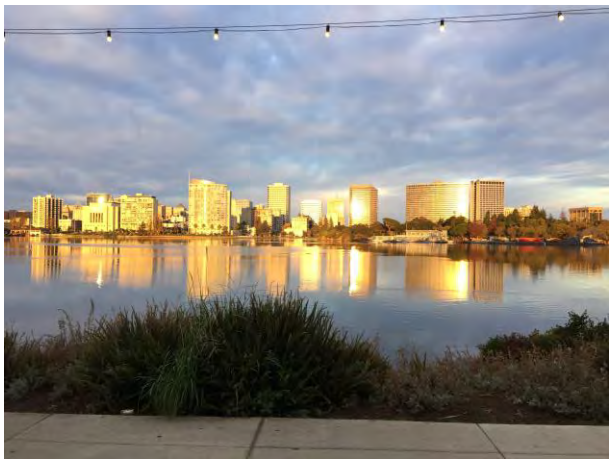


Figure 5: More compact growth results in lower GHG emissions (a), lower cumulative infrastructure costs (b), lower household costs for energy and water (c), and reduce health costs (d)[13]

[13] Analysis of future land use and policy scenarios prepared for OPR by Calthorpe Associates using the RapidFire model.

Support Compact and Infill Development for Healthy and Equitable Communities



The State Planning Priorities identify infill development in previously developed areas as the number one priority for new development. In addition to providing better access to destinations and increasing opportunities for active transportation choices and public transit, infill development helps to relieve pressure on the State's natural and working lands. Encouraging and streamlining infill development will provide benefits for the State's urban and rural areas.

Progress to Date

- Through the Strategic Growth Council, California has invested over $150 million to support sustainable community planning and urban greening. The SGC is now investing over $100 million annually to support project implementation in the Affordable Housing and Sustainable Community Program, which is being funded with proceeds from Greenhouse Gas Reduction Fund.
- Enhanced Infrastructure Financing Districts enable local governments to use tax increment financing to support new construction and rehabilitation of existing infrastructure.
- Updates to the California Environmental Quality Act (CEQA) have provided streamlined review for infill development projects, as required under Senate Bill (SB) 226. The implementation of SB 743 is providing additional support for infill projects by changing the metric by which we measure the transportation impacts of projects.
- Passage of Assembly Bill 2 (Alejo, September 2015), which allows for the formation of community revitalization agencies that can use tax increment financing to build infrastructure, develop affordable housing, and combat blight.

Accelerating Progress

Additional state actions are needed to help support markets for infill development, provision of safe and affordable housing, and to promote healthy and sustainable infill communities.

1. Ensure that State funding programs promote planning and development that aligns with California's short- and long-term environmental goals

With limited resources, California will focus funding to support communities that produce plans and make investments consistent with the State Planning Priorities and the goals outlined in this *Strategy for Sustainable Growth*. Alignment can be demonstrated through several mechanisms, including:

- Plans and policies designed to reduce vehicle miles traveled through coordinated land use and transportation planning and/or more efficient, intensified land use in infill areas.
- Plans and policies that explicitly prioritize infill areas for new development and public investment – such as incentives or special tax districts to promote development in infill areas.
- Policies that prioritize affordable housing in locations with good access to transit and active transportation choices
- Strategies to expand transit and active transportation choices that connect centers of jobs and housing and promote expanded economic opportunity for low-income populations
- Natural resource protection plans that reflect long-term environmental goals.
- Adoption of climate change or sustainability plans that address emission reduction as well as steps to build climate resilience.

2. Require the integration of economic development planning into local and regional project planning

Thoughtful consideration of economic development around transportation, housing, and other land use projects is a key element of maximizing the benefits of infill projects. Considering job creation and economic development in the planning process will help to maximize the benefits of these investments. State investments in transportation and other development projects will be conditioned on the consideration of economic development in project planning.

3. Enhance access to financing and other resources to catalyze and support a sustainable market for infill development

Securing funding and financing for infill projects and the infrastructure that supports them is a critical challenge to achieving an overall greater share of growth in infill areas. This is particularly true in more fiscally- and economically-constrained locations where infill could provide maximum benefit to underserved populations and disinvested areas. Additionally, infill projects may require advanced technical knowledge that can handicap communities that are

inexperienced with infill development. To overcome these challenges, the State will provide new or expanded tools and resources to support infill development and infrastructure projects. These could include technical support, regulatory incentives, and changes to existing State programs to better align with and support local infill initiatives. The Strategic Growth Council will play a role in evaluating and developing measures to support infill development state-wide. Additionally, the State can provide funding and financing for priority infill projects that help achieve State Planning Priorities. This could include, for instance, revolving loan funds, loan guarantees, patient capital, or other support to infill projects to make them financially feasible. All such tools and resources should be prioritized for critical infill locations such as high-speed rail station areas and other transit-oriented areas.

4. Develop a priority order for State transportation investments

When investing in State transportation projects related to development projects, the State will develop a priority for investments that provides a parallel to the State's loading order for electricity procurement. In order to protect the environment, alleviate additional pressures on natural resources, and minimize induced travel demand, the State will prioritize:

- Active transportation options;
- Investments in public transportation, ride-sharing, and other alternatives to single-occupant vehicles;
- Additional roadway infrastructure when other possibilities have been exhausted.

5. Enhance support for infill development and transit-oriented development in communities along the high-speed rail corridor

California's high-speed rail line provides a critical opportunity to connect regions of the State and to link inter-regional and intra-regional transportation systems. Through the Strategic Growth Council, the state will prioritize investment in infill development and transit-oriented development in these communities. In particular, the State will fund projects that promote high-speed rail system ties into and support for local public transportation systems.

6. Develop a strategic plan for broadband as infrastructure for the future

Access to broadband throughout the State can provide regional connectivity and bring critical resources, such as health care to remote communities. Broadband can also provide connectivity needed for advanced monitoring and control systems that can help to conserve water, energy, and other resources. The Office of Planning and Research, in coordination with

the Public Utilities Commission and Infrastructure Bank, will develop a strategic vision and plan for broadband in California.

7. Engage local governments in planning around State highways within their jurisdictional boundaries

State highways run through many communities in California. The State will encourage local governments to be engaged in planning around these routes in a manner that maximizes potential for active transportation, infill and mixed-use development, and public transit access. Where feasible, local governments should be given authority over streetscaping, development along the roadway, and other uses.

8. Support and provide incentives for the development of regional conservation plans

Regional conservation plans, or *greenprints*, are a valuable companion to planning documents for transportation, housing, and other infrastructure elements. State programs that provide resources to local governments should consider conservation plans alongside other planning documents to assess consistency with the State's long-term goals.

9. Invest in education for the future, including skill-building and workforce training in higher education and strong community schools for K-12.

Training workers for jobs in the growing and changing economy is imperative for building and sustaining a strong workforce. A growing clean technology sector requires new skills from workers. State and private investment in workers' training is essential to meet demands of new industries and also for attracting businesses to California. The State will build on its additional State investment in community to ensure student success and increase access to students from underrepresented groups.

Strong schools are also central to building strong communities. Better school environments correlate to higher academic performance by students and schools, which can in turn be an important attractor of families to neighborhoods.[14] As the State prioritizes efficient, infill development, K-12 schools will be integrated into planning. Special consideration will be given to schools that provide community services including play space, community-gathering spots, and wrap-around services including health and childcare for students, particularly in low-income and underserved communities.

[14] Information from CA Department of Education research summary

Build a Resilient and Sustainable Water System

The State's historic drought is placing the State's need for a sustainable water system in broad relief. These conditions are only likely to be more common under a changing climate.

California's complex and sophisticated water system underpins most everything in the most populous state in the nation, the world's most productive farm economy, and the home of rich abundance of wildlife and natural beauty. We know, however, that Californians must get much smarter about how we use water. Over the next several decades, the State's population will grow to reach 50 million, and climate change will raise temperatures, shift precipitation patterns, and shrink the Sierra Nevada snowpack, which provides a significant share of California's water supply.

No quick or singular fix will satisfy California's future water demand. Rather, it will take a multitude of actions, most of them local or regional, as well as cooperation across boundaries and disciplines. Water projects will also need to provide multiple benefits, such as managing floodwaters, saving on water treatment costs, and enhancing the environment.

This integrated approach requires first, that we reduce water waste wherever possible. We must also capture and store water when streams run high; recycle wastewater; strip salts and chemicals from ocean, brackish, and polluted water; bank more water in aquifers; and transfer water between willing buyers and sellers. It will take the widespread use of efficient faucets, showers, toilets, and washing machines; the lining of canals and installation of farm micro-irrigation systems; the replacement of thousands of front lawns with drought-tolerant and native plants; and vigilant action by property owners to fix leaks and adjust sprinklers based on the weather.

Progress to Date

In the last decade, California has invested at least $1.43 billion in general obligation bond funds to develop new local water supply projects. Collectively, these projects have enhanced the State's water supply by an estimated two million acre-feet a year – enough to supply 4 million households. On the federal side, the U.S. Bureau of Reclamation has awarded $556 million to date for 116 California projects. Together, those projects are expected to eventually save 883,000 acre-feet a year.

More recently the State has furthered these actions through:

- California issued the State's first Water Action Plan in January 2014. The California Water Action Plan provides a roadmap for the start of the State's journey to a sustainable water

system. Funding for implementation of the Water Action Plan was included in the Governor's 2014-15 budget.
- Voter approval of Proposition 1, a $7.545 billion water bond, provides critical financial support for the implementation of the California Water Action Plan.
- In September 2014, California adopted historic groundwater legislation that will, for the first time, put the State on a path to sustainable groundwater management.

Accelerating Progress

Over the next several decades, the State will undertake the following actions to ensure that California has a resilient and sustainable water system that will provide safe, clean drinking water to all Californians and water necessary for habitat and species protection.

1. Require water efficiency in all new buildings and provide incentives for retrofits in the existing building stock

In meeting electricity demand, the most favored action (first in the "loading order) is energy efficiency. Similarly, we must make water conservation the first step in meeting new water demand. All building and development must meet the highest standards for water efficiency, with incentives for low-water demand appliances, landscaping, and design principles. Water conservation should be integrated into efforts to retrofit and improve the energy efficiency of existing buildings. No State funds will be provided for projects that are unable to demonstrate water use efficiency.

2. Achieve co-equal goals for the Sacramento-San Joaquin Delta

The Bay Delta Conservation Plan (BDCP) has been divided into two separate but parallel programs: California Water Fix and California Eco Restore. Both are designed to advance the co-equal goals of enhancing State water reliability and the ecological health of the Sacramento-San Joaquin Delta. The Sacramento-San Joaquin Delta is a critical element of the State's water system. The California Water Fix modernizes water conveyance facilities in the Delta in a way that improves river flow conditions in the heart of the Delta. It also enables the state and federal water projects to efficiently capture water in wet years for storage and use during dry years, an increasingly important climate adaptation strategy that improves water supply security for 2 in 3 Californians. California Eco Restore identifies 30,000 acres of habitat restoration in the Delta to be completed during the next three years. With only 5 percent of the Delta's natural habitat remaining, many fish and wildlife species once dependent on it have become threatened and endangered with extinction. California Eco Restore will begin the process of reversing this trend so that native species become more resilient in the face of

climate change. Both programs balance these goals in the context of a multitude of important uses in the Delta including flood protection, agriculture and recreation.

3. Align State funding with integrated water management

Over the past decade, California has provided technical and financial assistance to regions and incentives for inter-agency/stakeholder cooperation in planning and implementation of actions that provide both regional and statewide benefits to water resources management and protection. Called "integrated water management", this approach balances the objectives of improving public safety, fostering environmental stewardship and supporting economic stability. Developing local supplies can also save energy by reducing the distance that water must be transported. State grants provide incentives for regional integration and to leverage local financial investment.

4. Develop a State guidebook and strategy to facilitate and maximize the use of recycled water

We need to reduce barriers to using recycled water more extensively. To that end, a cross-agency group led by the State Water Resources Control Board will develop a plan to identify the potential for the use of recycled water and necessary steps to reduce barriers to those applications.

5. Prioritize watershed protection and health in ecosystem management

Nearly two-thirds of the state's rain falls in the sparsely populated northern and mountain regions of the state, while most of the demand occurs in the more populated coastal and southern parts of the state.[15] Preservation of these watersheds, therefore, is a critical component of the state's water system. Protecting these resources is critical under current conditions, and is likely to be even more important under a changing climate, where they will face additional stresses. Watershed-scale impacts should be included in project assessment. Likewise, watershed-scale mitigation measures should be prioritized in environmental mitigation efforts. This approach will be employed in all environmental review for State projects. Resources will be allocated to protect and enhance these ecosystems to maximize benefits to State water quality and quantity.

[15] Hanak, Ellen et al. 2011. *Managing California's Water: From Conflict to Reconciliation*. San Francisco: Public Policy Institute of California.

Steward and Protect Natural and Working Landscapes

California's natural resources provide critical environmental, recreation, and economic benefits to California. These lands and resources face multiple threats. In order to best protect these lands and resources, the State must better understand and consider the value of these resources in planning and decision-making and account for the strong interconnections between the state's rural and urban areas.

Key ecosystems provide essential habitat for the State's native species and provide migration corridors and access to additional habitat and food. With a changing climate, it becomes even more critical that these ecosystems remain intact and that pathways are available for species to migrate as the climate changes. Movement of some species has already been noted in California – with some species moving to higher latitudes and elevations as temperatures have increased. Ocean resources are also at risk. Commercial and recreational fisheries will be affected as some commercial stocks move and others disappearing. Migration patterns will be disrupted, fishing grounds will be altered, and the very chemistry of the sea will change. The shellfish industry is already seeing the impact of rising ocean acidity.

Progress to Date

- The State, along with federal partner, releases to multi-objective conservation plans for two of the State's critical resources areas: the Sacramento-San Joaquin Delta and the southeastern dessert. The Bay Delta Conservation Plan and the Desert Renewable Energy Conservation Plan both represent major steps toward realizing comprehensive, multi-stakeholder resource management.
- Over $70 million from the State's Greenhouse Gas reduction fund are being used to support resource conservation and stewardship programs. These include the Sustainable Agriculture Land Conservation program administered through the SGC, the Urban Forestry, Forest Health Restoration, and Reforestation program being administered by the California Department of Forestry and Fire Protection, and the Wetlands and Watershed Restoration program being administered by the Department of Fish and Wildlife.

Accelerating Progress

The State will undertake the following actions to achieve its long-term goals for natural resource stewardship and management.

1. Support landscape-scale approaches to conservation and mitigation that account for multiple benefits

Healthy, intact ecosystems provide multiple benefits. For all habitat protection, conservation, and mitigation efforts, California will undertake a landscape-scale, multiple benefits approach. This approach will include consideration of:

- Multiple ecosystem benefits, including disturbance regimes, species habitat and protection, and impacts on air and water quality;
- Effects of management actions on upstream and downstream communities and ecosystems, including marine and coastal ecosystems;
- The quality of mitigation measures, not just the quantity.

2. Develop models for permit streamlining that are relevant for rural regions

The State will develop incentives for resource management that align with the State's long-term environmental goals, as it has for urban development that aligns with the State Planning Priorities. Examples include streamlined environmental review and permitting for timber management plans that prioritize watershed protection, conservation plans that identify priority conservation areas, and other programs that consider multiple benefits of natural landscapes.

3. Support and expand the farmland monitoring and mapping program to continue to track land conversion rates

Agricultural land and working landscapes including rangelands provide several important benefits for the State, including food security, economic support, and, in many cases, carbon sequestration. The State will continue to invest in and expand the farmland mapping program to maintain an accurate picture of farmland conversion and threat. In addition, the program will collect data on practices and current status, to better understand the impacts of potential conversion and subsequent land uses.

4. Streamline land acquisition and management

Several departments within the Natural Resources Agency are engaged in land acquisition and/or land management, including the Department of Parks and Recreation, Department of Conservation, Department of Fish and Wildlife, Department of Forestry and Fire Protection, Department of Water Resources, Wildlife Conservation Board, and the Coastal Conservancy. Better coordination is needed to ensure consistency and maximum benefits from the State's land acquisition and management.

Consolidating land acquisition functions would:

- Enable better implementation of the State's strategic land acquisition goals.
- Establish procedures that place the State in a better position to conduct negotiations to achieve the lowest price possible.
- Eliminate procedures that are disadvantageous.
- Better leverage the State's large purchasing power.
- Reduce administrative costs by eliminating unnecessary processes and produce greater efficiencies.

Effectively leveraging these resources to meet common goals under the leadership of the Office of the Secretary for Natural Resources, combined with increased staffing flexibility, would maximize the benefits yielded from public expenditures to protect and conserve California's natural resources and biodiversity.

5. Provide resources for long-term stewardship of lands

For many years, general obligation bonds have funded the acquisition of land, but not its long-term stewardship. The lack of viable and sustainable funding for ongoing management puts at risk the protection of resource lands. Funding resources are needed for management and stewardship of key lands across the State – parks, wildlife habitat, coastal lands, and agricultural and working lands – to protect them for the benefit of future generations.

6. Build resilience into natural systems and prioritize natural and green infrastructure solutions

The State's natural lands and working landscapes are critical elements of the efforts to address climate change. Forests, wetlands, grasslands, and other landscapes provide important carbon sequestration opportunities for California. Proper management of natural systems is also a key for weathering changes that occur with a changing climate. For instance, responsibly managed

forests can mitigate risks from wildfire, and well-maintained watersheds and floodplains can lessen flood risks resulting from variations in stream flow and timing of runoff.

7. Reflect the value of natural resources to promote stewardship and the economy

Recognizing the range of values that ecosystems and natural resources provide is essential for preserving the economic, environmental, and societal benefits that they provide. Appropriate valuation of ecosystems and natural resources (economic and otherwise) will enable the State to allocate investments and reflect the benefits of these resources in future planning and decision-making.

8. Identify opportunity areas for bioenergy to support forest health and rural economic development

Increased use of biomass-based sources of energy, which include crop residues and forest waste have the potential to provide GHG emission reductions and other environmental benefits. Development of these resources can also provide important economic support to rural regions and encourage responsible management of natural systems. The State will develop a comprehensive strategy to strategically locate and size bioenergy facilities to support sustainable forest practices, forest health, and community scale energy.

Incorporate Climate Adaptation into all Planning and Investment

Rising temperatures and sea level will have important consequences for California's natural and built environments. More precipitation is likely to fall as rain than as snow, which will affect snowpack levels, and therefore stream runoff timing and volume, posing greater flood risks and risks to species adapted to current conditions. Reduced snowpack will also have important consequences for the State's water supply, as snowpack in the mountains is a critical water storage resource for the State's water system. Under high warming scenarios, it is estimated that snowpack in the Sierra Nevada could decrease by as much as 90%.[16]

California's comprehensive climate policy includes both programs and policies to reduce carbon pollution and to prepare for the impacts of a changing climate. Through their joint consideration, we can seize opportunities to both reduce emissions and boost climate resilience. This is especially true in the case of energy and water efficiency measures and in many programs that support sustainable natural resource management.

Progress to Date

- California was the first state in the nation to have a comprehensive State adaptation plan. Updated in 2014, Safeguarding California provides a roadmap for steps the State needs to take to prepare for a changing climate. Each sector prepared a draft implementation plan, which was released for public comment in October 2015.
- California has completed its third comprehensive assessment of climate change impacts on the State, and is starting its fourth assessment in 2015. These assessments have provided critical information to help the State prepare for climate impacts and inform State and local planning, policy, and investment.
- Under the guidance of the Coastal and Ocean working group of the Climate Action Team, the Ocean Protection Council has adopted guidelines that provide clear guidance to State and local managers on the amount of sea level rise that the State needs to prepare for.

Accelerating Progress

The following actions will be taken to help prepare California for the changes that are already underway and to boost the State's resilience in the face of a changing climate.

[16] Knowles, Noah and Daniel R. Cayan, 2002. Potential Effects of Global Warming on the Sacramento/San Joaquin Watershed and the San Francisco Estuary. *Geophysical Research Letters*, 29(18).

1. Develop Guidelines to consider climate change in all state infrastructure investments

California needs to consider climate change on all infrastructure projects, including improvements to existing infrastructure.

California's Planning Priorities provide guidelines to inform land use planning decisions. However, rising sea levels, increase in the frequency and severity of extreme events, including storms, wildfires, and heat, pose potential risks to new and existing infrastructure. Up front consideration of these risks is important to avoid higher costs in the future. In some cases, the risks are worth bearing because of the other benefits afforded by a project. In other cases, careful evaluation is needed to understand the implications of these risks. The State will develop a set of guidelines to inform State agency planning and investment. Evaluation should consider current and future risks to infrastructure projects, the benefits associated with the project, and the impact of the proposed project and alternatives on climate resilience.

2. Prioritize GHG emission reduction actions that provide climate resilience benefits, especially in the natural resource sector

When taking steps to reduce GHG emissions, the State will prioritize actions that provide climate resilience benefits, too. Examples include investments in urban forestry, land management practices, and energy and water efficiency programs. Climate resilience will be a factor considered in all State programs and investments.

3. Invest in and support research to understand current conditions, trends, and the projected impacts of climate change

Monitoring and tracking climate changes underway and building a better understanding of potential future conditions is critical for building resilience. The California Natural Resources Agency and the California Energy Commission will coordinate and maintain a strong research program that meets the needs to California's state agencies and local and regional governments as they work to build resilience. The Climate Action Team will provide information in a digestible and accessible format that can easily be incorporated into decision-making and decision support tools.

4. Support a strong climate change research program

California has invested considerable resources in developing an understanding of current and future impacts of climate change on the State. This research has been invaluable in supporting policy development and has been designed to respond directly to policy needs. Maintaining

this investment in research through regular preparation of the California Climate Assessment will provide a basis for informed policy decisions and adaptive management in the face of uncertain future conditions.

5. Consider the effects of climate change on public safety in land use planning

Changes in climatic conditions is increasing extreme fire danger and threatening many local communities and the water supply. Therefore, an important goal of any future land use planning will include the consideration of the effects of climate change on fire risk and other aspects of public safety. In anticipation of continued population growth in the State's wildland-urban interface areas and uncertainties related to climate change, public safety impacts from more frequent, intense wildfires must be addressed through strategic planning.

Lead by Example – Making the State a Model for Long-Term Sustainability

California invests considerable resources in its buildings, lands, and citizens. Therefore, the State is undertaking and will continue to take a number of steps to ensure that it is acting as a model for long-term sustainability. The state will continue to report on its progress on improving the sustainability of its infrastructure and practices.

1. Prioritize "fix it first" infrastructure investments

As the State continues to grow and there are increasing demands for transportation, water, energy, and other services, the State will prioritize investments on maintaining the existing infrastructure to provide these services. Where new capacity is needed to serve communities, decisions will be made in a manner that minimize the climate impact of that investment.

2. Ensure that all new State building projects and leases are consistent with the State Planning Priorities

As the State plans for new state facilities, it will ensure consistency with the State Planning Priorities, with particular attention paid to the facility's accessibility for biking, walking, and public transportation.

3. Make state buildings and garages zero-emission vehicle-ready

In addition to providing infrastructure to support the greening of the State's vehicle fleet, the Department of General Services will take steps to assure that adequate infrastructure is available to support State employees' use of electric and hydrogen-fueled.

4. Launch a program to address deferred maintenance and get State buildings to be zero net energy ready

Implementing the Strategy

California has an ambitious agenda to secure the long-term sustainability of the State. The current policy agenda builds on the leadership and ambitions of the past and sets a path for continued leadership in the future. The actions outlined in this document stretch the bounds of our institutional structures and traditional sectoral approached to policymaking. The following efforts will be implemented to facilitate realization of the actions outlined in this document.

Link Long-Term Goals to State Funding and Investment

In a time of limited resources, state investment in projects at the state, regional, and local level need to align with the State's long-term goals. Resilience guidelines and linkages across program areas will facilitate this alignment. The State will use its financing instruments to provide incentives for development patterns and investments that support the state's long-term vision.

From this document, the Governor's Office of Planning and Research will develop a set of sustainability guidelines to be considered in all state funding programs and other State investments, including the five-year infrastructure plan. These guidelines will summarize the goals and identify strategies for achieving them through funding programs, including identifying opportunities to link and leverage state funding programs. The guidelines will provide a series of considerations that will be addressed in all state agency plans, funding programs, and budget requests.

The Strategic Growth Council will serve as a forum to develop connections and linkages across related State funding programs. The goal of this collaboration will be:

- To identify key points of leverage to garner the largest benefit from State investments,
- To best support and streamline local planning that aligns with State goals,
- To better align state, local, and regional planning and investment.

Facilitate Cross-Agency Collaboration

To implement the actions outlined in this report, the State needs to create a culture of collaboration through institutional and procedural means. State agencies need to have the space, incentive, and capacity to work together to achieve our long-term sustainability. The Strategic Growth Council will lead these efforts.

To facilitate coordination, the State will implement the following:

- Coordination of long-term planning process by creating and maintaining a master planning calendar. The calendar will provide the ability to track and coordinate state planning processes, highlight points of connection across planning efforts, and identify opportunities to engage in and coordinate efforts.
- Building cross-agency collaboration and associated responsibilities into relevant job descriptions, especially for planning staff and staff working on climate change issues.
- Leverage outreach for planning processes to provide opportunities for the public and interested parties to engage in state planning in an integrated, cross-sectoral forum.

Measure and Report on Progress to Support Adaptive Management

To ensure that the State is on the right path to long-term sustainability, it is developing a set of key metrics and indicators to track progress. In addition, the State will improve and inform decision-making by making data accessible and compatible across state agencies, departments, and to the public. These metrics will be included in all state documents to provide a common platform for comparison and picture of state progress.

In addition, the State will pursue several data projects, including:

- Development of a statewide open data portal that will provide public access to all data sets.
- Compiling data on water use and quality across California, in order to get a full picture of water use in the State;
- Building data to understand groundwater location, extent, and drawdown/recharge;
- Use metrics and indicators to track progress toward meeting statewide and agency-specific goals.
- Build transparent, accessible systems for sharing data across state agencies and with the public and to facilitate mapping of geospatial data.