



California's 2017 Climate Change Scoping Plan

Executive Summary

The strategy for achieving California's
2030 greenhouse gas target

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Decades of Leadership

From the first law to protect rivers from the impact of gold mining in 1884, to decades of work to fight smog, the Golden State has set the national – and international – standard for environmental protection. California pushes old boundaries, encounters new ones, and figures out ways to break through those as well. This is part of the reason why California has grown to become both the 6th largest economy in the world, and home to some of the world’s strongest environmental protections. And, we have seen our programs and policies adopted by others as they seek to protect public health and the environment.

California’s approach to climate change channels and continues this spirit of innovation, inclusion, and success. The 2030 target of 40 percent emissions reductions below 1990 levels guides this Scoping Plan, as the economy evolves to reduce greenhouse gas (GHG) emissions in every sector. It also demonstrates that we are doing our part in the global effort under the Paris Agreement to reduce GHGs and limit global temperature rise below 2 degrees Celsius in this century.

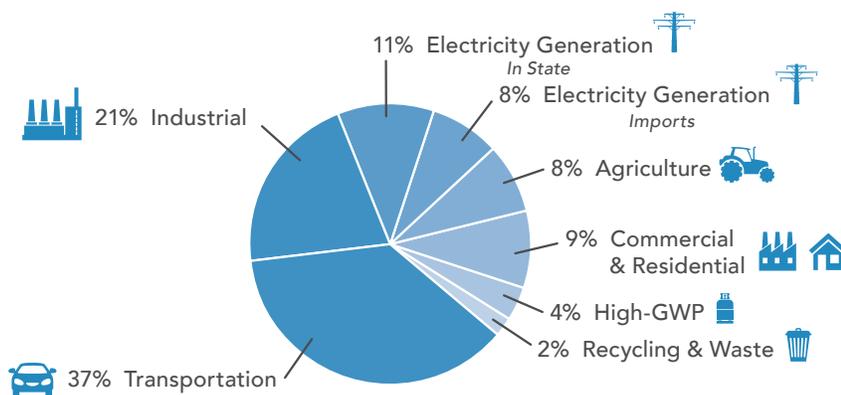
California’s 2017 Climate Change Scoping Plan: The Strategy for Achieving California’s 2030 Greenhouse Gas Target (Plan) builds on the state’s successes to date, proposing to strengthen major programs that have been a hallmark of success, while further integrating efforts to reduce both GHGs and air pollution. California’s climate efforts will:

- Lower GHG emissions on a trajectory to avoid the worst impacts of climate change;
- Support a clean energy economy which provides more opportunities for all Californians;
- Provide a more equitable future with good jobs and less pollution for all communities;
- Improve the health of all Californians by reducing air and water pollution and making it easier to bike and walk; and
- Make California an even better place to live, work, and play by improving our natural and working lands.



Governor Brown signs SB 32 recommitting California’s efforts to curb climate change.

CALIFORNIA CARBON EMISSIONS BY SCOPING PLAN SECTOR



2015 Total Emissions
440.4 MMTCO₂e

The Climate Imperative – We Must Act

The evidence that the climate is changing is undeniable. As evidence mounts, the scientific record only becomes more definitive – and makes clear the need to take additional action now.

In California, as in the rest of the world, climate change is contributing to an escalation of serious problems, including raging wildfires, coastal erosion, disruption of water supply,

threats to agriculture, spread of insect-borne diseases, and continuing health threats from air pollution.

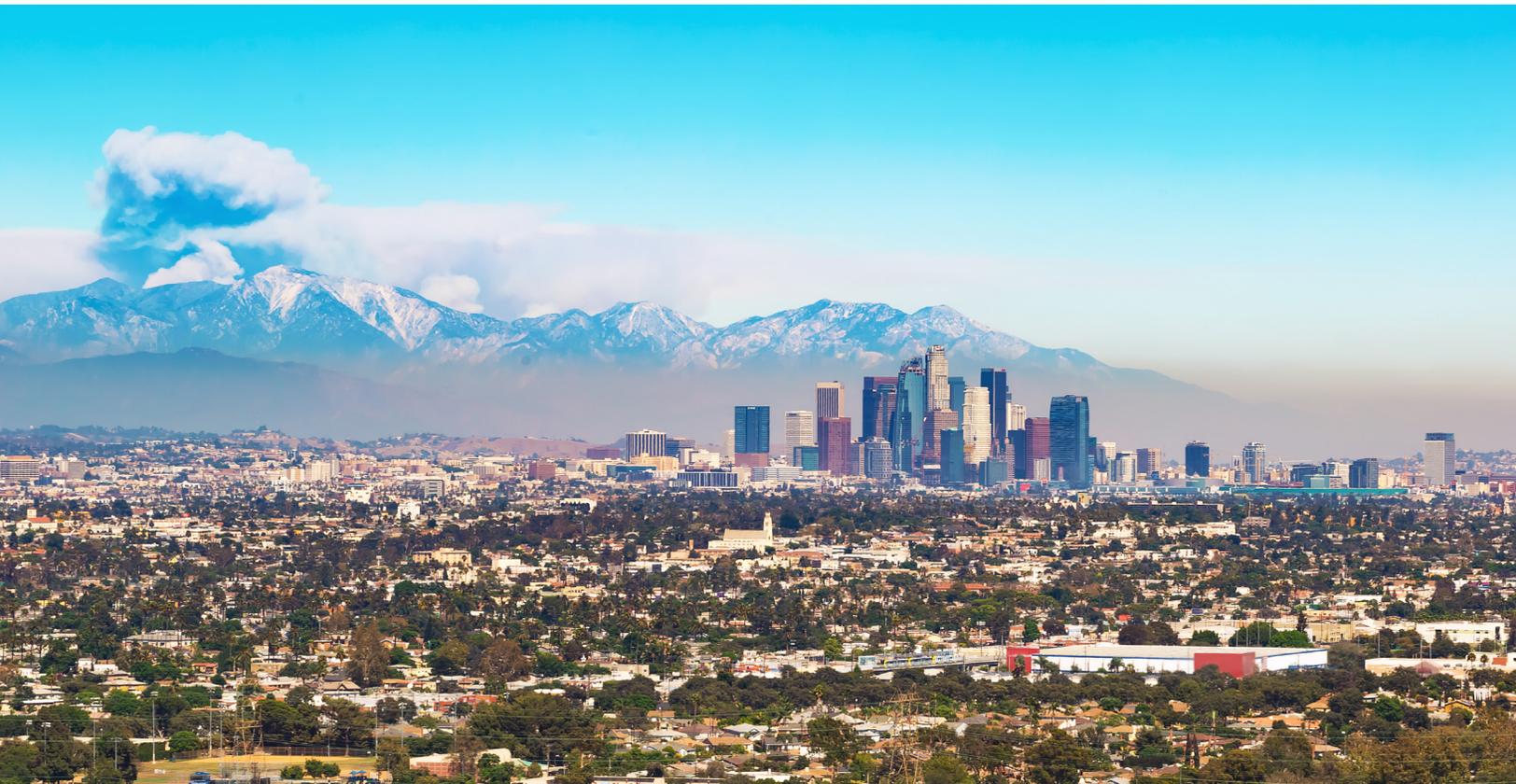
The drought that plagued California for years devastated the state's agricultural and rural communities, leaving some of them with no drinking water at all. In 2015 alone, the drought cost agriculture in the Central Valley an estimated \$2.7 billion, and more than 20,000 jobs. Last winter, the drought was broken by record-breaking rains, which led to flooding that tore through freeways, threatened rural communities, and isolated coastal areas. This year, California experienced the deadliest

wildfires in its history. Climate change is making events like these more frequent, more catastrophic and more costly. Climate change impacts all Californians, and the impacts are often disproportionately borne by the state's most vulnerable and disadvantaged populations.



CALIFORNIA
is already experiencing
the impacts of
CLIMATE CHANGE

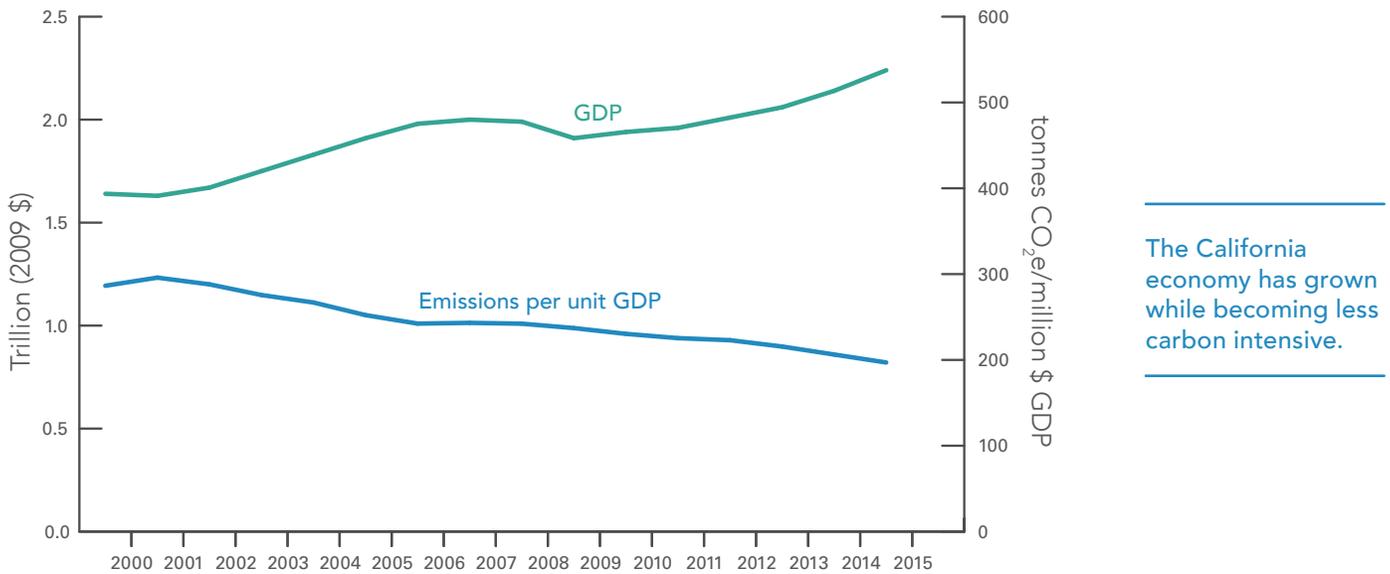
IN 2015 THE DROUGHT COST THE AGRICULTURE INDUSTRY IN THE CENTRAL VALLEY AN ESTIMATED \$2.7 BILLION & 20,000 JOBS



California is on Track – But There is More to Do

Although the California Global Warming Solutions Act of 2006 – also known as AB 32 – marked the beginning of an integrated climate change program, California has had programs to reduce GHG emissions for decades. The state’s energy efficiency requirements, Renewable Portfolio Standard, and clean car standards have reduced air pollution and saved consumers money, while also lowering GHG emissions.

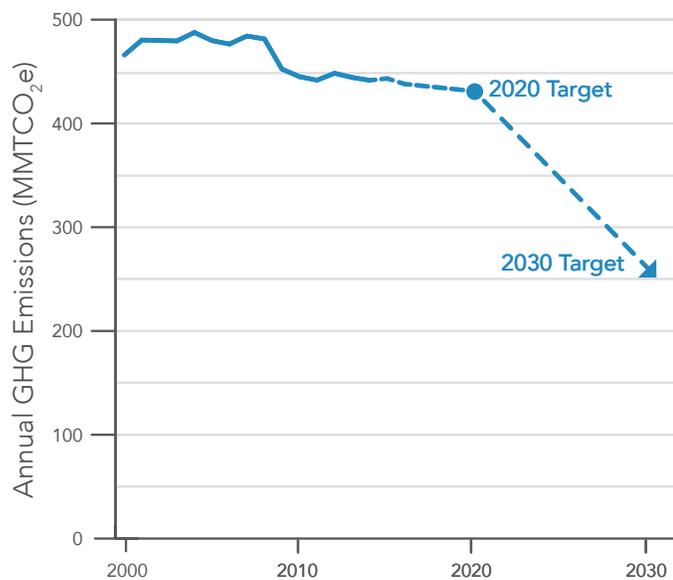
ENVIRONMENTAL PROGRESS AND A RESILIENT ECONOMY



AB 32 set California’s first GHG target called on the state to reduce emissions to 1990 levels by 2020. California is on track to exceed its 2020 climate target, while the economy continues to grow. Since the launch of many of the state’s major climate programs, including Cap-and-Trade, economic growth in California has consistently outpaced economic growth in the rest of the country. The state’s average annual growth rate has been double the national average – and ranks second in the country since Cap-and-Trade took effect in 2012. In short, California has succeeded in reducing GHG emissions while also developing a cleaner, resilient economy that uses less energy and generates less pollution.

Importantly, the State’s 2020 and 2030 targets have not been set in isolation. They represent benchmarks, consistent with prevailing climate science, charting an appropriate trajectory forward that is in line with California’s role in stabilizing global warming below dangerous thresholds. As we consider efforts to reduce emissions to meet the State’s near-term requirements, we must do so with an eye toward reductions needed beyond 2030. The Paris Agreement – which calls for limiting global warming to well below 2 degrees Celsius and pursuing efforts to limit it to 1.5 degrees Celsius – frames our path forward.

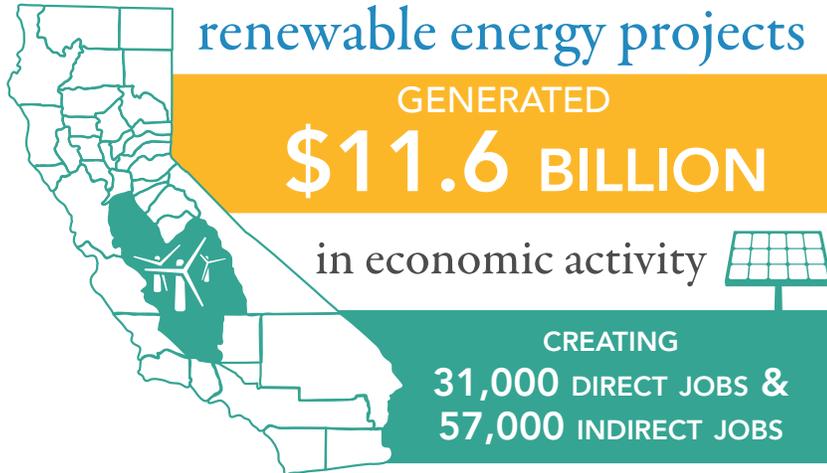
CALIFORNIA’S PATH FORWARD



California's Path to 2030

Executive Order B-30-15 and SB 32 extended the goals of AB 32 and set a 2030 goal of reducing emissions 40 percent from 2020 levels. This action keeps California on target to

FROM 2002-2015 SAN JOAQUIN VALLEY renewable energy projects



achieve the level of reductions scientists say is necessary to meet the Paris Agreement goals. This is an ambitious goal – calling on the State to double the rate of emissions reductions. Nevertheless, it is an achievable goal.

This Plan establishes a path that will get California to its 2030 target. Given our ambitious goals, this Plan is built on unprecedented outreach and coordination. Over 20 state agencies collaborated to produce the Plan, informed by 15 state agency-sponsored workshops and more than 500 public comments. The broad range of state agencies involved reflects the complex nature of addressing climate change, and the need to work across institutional

boundaries and traditional economic sectors to effectively reduce GHG emissions. As part of the Plan development, alternative strategies were considered and evaluated, ranging from carbon taxes to individual facility caps to relying solely on sector-specific regulations. In addition, efforts were made to ensure that the Plan would benefit all Californians. To this end, the Environmental Justice Advisory Committee (EJAC), a Legislatively created advisory body, convened almost 20 community meetings throughout California to discuss the climate strategy, and held 19 meetings of its own to provide recommendations on the Plan.

This Plan draws from the experiences in developing and implementing previous plans to present a path to reaching California's 2030 GHG reduction target. The Plan is a

package of economically viable and technologically feasible actions to not just keep California on track to achieve its 2030 target, but stay on track for a low- to zero-carbon economy by involving every part of the state. Every sector, every local government, every region, every resident is part of the solution. The Plan underscores that there is no single solution but rather a balanced mix of strategies to achieve the GHG target. This Plan highlights the fact that a balanced mix of strategies provides California with the greatest level of certainty in meeting the target at a low cost while also improving public health, investing

in disadvantaged and low-income communities, protecting consumers, and supporting economic growth, jobs and energy diversity. Successful implementation of this Plan relies, in part, on long-term funding plans to inform future appropriations necessary to achieve California's long-term targets.

CALIFORNIA'S CLIMATE POLICY PORTFOLIO

- | | |
|--|---|
|  Double building efficiency |  Cleaner freight and goods movement |
|  50% renewable power |  Slash potent "super-pollutants" from dairies, landfills and refrigerants |
|  More clean, renewable fuels |  Cap emissions from transportation, industry, natural gas, and electricity |
|  Cleaner zero or near-zero emission cars, trucks, and buses |  Invest in communities to reduce emissions |
|  Walkable/Bikeable communities with transit | |

California's Climate Vision

Create Inclusive Policies and Broad Support for Clean Technologies

Remarkable progress over the past 10 years has put the global energy and transportation sector on a transformative path to cleaner energy. Far outpacing previous predictions, today solar and wind power are often less expensive than coal or natural gas, and they now comprise the majority of global investment in the power sector. Electric vehicle battery costs have tumbled even more quickly than solar costs, while performance has improved dramatically, and the auto industry is committed to an electric future.

California's policies have created markets for energy efficiency, energy storage, low carbon fuels, renewable power – including utility-scale and residential-scale solar – and zero-emission vehicles. Our companies are thriving, making those markets grow. California is home to nearly half of the zero-emission vehicles in the U.S., 40 percent of North American clean fuels investments, the world's best known electric car manufacturer, and the world's leading ride-sharing services. California is further advancing efficient land use policies that reduce auto dependency. Altogether, we're unleashing nonlinear transitions to clean energy and clean transportation technologies that will put California on the path to meeting our 2030 target and the goals of the Paris Agreement.

California policymaking has succeeded through thoughtful planning, bolstered by an open public process that solicits the best ideas from a wide array of sources, and by integrating effective regulation with targeted investments to provide broad market support for clean technologies. A key element of California's approach continues to be careful monitoring and reporting on the results of our programs and a willingness to make mid-course adjustments. As the State looks to 2030 and beyond, all sectors of the economy must benefit from these ideas to create a new and better future.

California is home to

NEARLY **50%**
OF THE ZEVs
IN THE U.S.

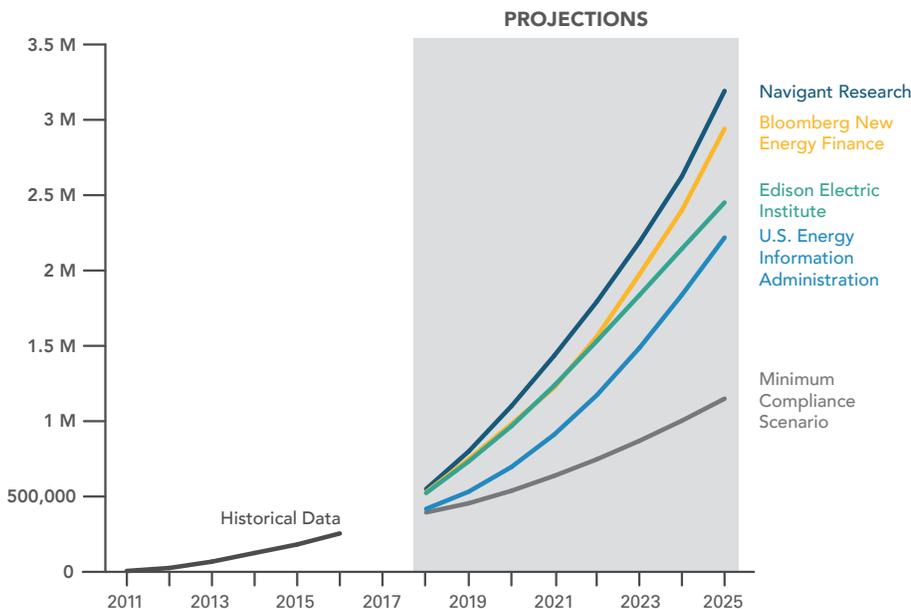


40%
OF NORTH AMERICAN
CLEAN FUEL
INVESTMENTS



90% OF TOTAL U.S. INVESTMENT IN
CLEAN TRANSPORTATION

CUMULATIVE CALIFORNIA ZEV SALES PROJECTIONS



Experience has shown clean technology and markets continue to outpace expectations.

LEGISLATIVE LEADERSHIP ON CLIMATE

The California Legislature has shaped the State's climate change program, setting out clear policy objectives over the next decade:

- 40% reduction in GHG emissions by 2030;
- 50% renewable electricity;
- Double energy efficiency savings;
- Support for clean cars;
- Integrate land use, transit, and affordable housing to curb auto trips;
- Prioritize direct reductions;
- Identify air pollution, health, and social benefits of climate policies;
- Slash "super pollutants";
- Protect and manage natural and working lands;
- Invest in disadvantaged communities; and
- Strong support for Cap-and-Trade.

The benefits of innovative technologies need to reach all residents and businesses. Air pollution reductions and the associated health benefits should be targeted to communities where they are needed most. All Californians need access to clean transportation options that enable healthy communities to develop and thrive, including walking, cycling, transit, rail, and clean vehicle options.

Although GHG reductions can help to reduce harmful air pollution, California must concurrently employ other strategies to accelerate reductions of pollutants from large industrial sources that adversely impact communities. Newly passed AB 617 strengthens existing criteria and toxic air pollutant programs and our partnerships with local air districts to further reduce harmful air pollutants and protect communities. More fundamentally, AB 617 establishes a comprehensive statewide program – the first of its kind – to address air pollution where it matters most: in neighborhoods with the most heavily polluted air.

CALIFORNIA'S GOALS



California's environmental justice and equity movement is establishing a blueprint for the nation and world. The State is pioneering targeted environmental and economic development programs to help those most in need. So far, half of all California Climate Investments, stemming from the State's Cap-and-Trade-Program, have been used to provide benefits in the 25 percent of California communities that are most disadvantaged by environmental and socio-economic burdens. By increasingly engaging with, and investing in, these communities – investing in technical assistance resources, holding listening sessions, improving our programs, and accelerating our efforts to bring the cleanest technologies to mass market – all California residents can have clean air to breathe, clean water to drink, and opportunities to participate in the cleaner economy.

ACHIEVING SUCCESS IN EQUITY AND ACCESS

- Continue to engage local organizations and invest in disadvantaged communities to ensure broad access to clean technologies;
- Ensure air pollution reductions happen where they are needed the most;
- Integrate across programs and agencies to ensure complementary policies provide maximum benefits to disadvantaged communities;
- Implement California Energy Commission and CARB recommendations to overcome barriers to clean energy and clean transportation options for low-income residents;
- Provide energy-efficient affordable housing near job centers and transit; and
- Implement AB 617 to dramatically improve air quality in local communities through targeted action plans.



Enhance Industrial Efficiency & Competitiveness

California leads the country in manufacturing and industrial efficiency. For every dollar spent on electricity, our manufacturers produce 55 percent more value than the national average. And the efficiency of California industry continues to grow at rates faster than the national average. High efficiency rates, coupled with the Cap-and-Trade Program's firm emission cap, allow economic activity to increase without corresponding increases in GHG emissions. In other words, the more California produces, the better it is for the planet. Maintaining and extending our successful programs – from the Cap-and-Trade Program and Low Carbon Fuel Standard to zero-emission, renewable energy and energy efficiency programs – will reduce GHGs, increase energy cost savings, offer businesses flexibility to reduce emissions at low cost and provide clear policy and market direction, and certainty, for business planning and investment. This will encourage continued research, evaluation, and deployment of innovative strategies and technology to further reduce emissions in the industrial sector through advances in energy efficiency and productivity, increased access to cleaner fuels, and carbon capture, utilization and storage.

ACTION ON HFCs

Hydrofluorocarbons (HFCs) represent one of the biggest opportunities to reduce GHGs in the State through 2030 due to their high climate impacts, and in many cases, offer energy efficiency and financial savings, as well. The world recently agreed to phase down their use, but California has committed to move more quickly, in line with the scope of the opportunity for cost-effective emissions reductions in the State.

ACHIEVING SUCCESS IN INDUSTRIAL EFFICIENCY AND COMPETITIVENESS

- Evaluate and implement policies and measures to continue reducing GHG, criteria, and toxic air contaminant emissions from sources such as refineries;
- Improve productivity and strengthen economic competitiveness by further improving energy efficiency and diversifying fuel supplies with low carbon alternatives;
- Prioritize procurement of goods that have lower carbon footprints
- Support and attract industry that produces goods needed to reduce GHGs; and
- Cut energy costs and GHG emissions by quickly transitioning to efficient HFC alternatives.

Prioritize Transportation Sustainability

California's transportation system underpins our economy. The extensive freight system moves trillions of dollars of goods each year and supports nearly one-third of the state economy and more than 5 million jobs. The way we plan our communities impacts everything from household budgets to infrastructure needs, productivity lost to congestion, protection of natural and working landscapes, and our overall health and well-being. And transportation is the largest source of GHG, criteria, and toxic diesel particulate matter emissions in the state.

RENEWABLE DIESEL USE

has increased 7000% since 2011

California's ability to remain an economic powerhouse and environmental leader requires additional efforts to improve transportation sustainability with a comprehensive approach that includes regulation, incentives, and investment.

This approach addresses a full range of

transportation system improvements relating to efficient land use, affordable housing, infrastructure for cyclists and pedestrians, public transit, new vehicle technologies, fuels and freight. One example is the deployment of the nation's first high-speed rail system, which will include seamless connections to local transit.

The approach is working: California is home to nearly half of the country's zero-emission vehicles. Innovative alternative fuel producers and oil companies are bringing more low carbon fuels to market than required by the Low Carbon Fuel Standard. And, the State has committed to investing billions in zero-emission vehicles and infrastructure, land use planning, and active transportation options such as walking and biking. In fact, renewable fuels in the heavy-duty vehicle sector are displacing diesel fossil fuel as quickly as renewable power is replacing fossil fuels on the electricity grid. California's climate policies will also reduce fossil fuel use and decouple the state from volatile global oil prices. CARB's analyses show fossil fuel demand will decrease by more than 45 percent by 2030, which means Californians will be using less gasoline and diesel resulting in healthier air and cost-savings on transportation fuels. These benefits will be further amplified as we move away from light-duty combustion vehicles.

By re-doubling our efforts, California can make sure that markets tip quickly and definitively in the favor of electric cars, trucks, buses, and equipment, while increasing the use of clean, low carbon fuels where zero-emissions options are not yet available. Local transportation planning can make communities become healthier and more vibrant and connected – encouraging housing, walking, biking and transit policies that reduce GHGs and promote good quality of life. And, we can work to ensure that an efficient sustainable freight system continues to power our ever-growing economy.





ACHIEVING SUCCESS IN TRANSPORTATION SUSTAINABILITY

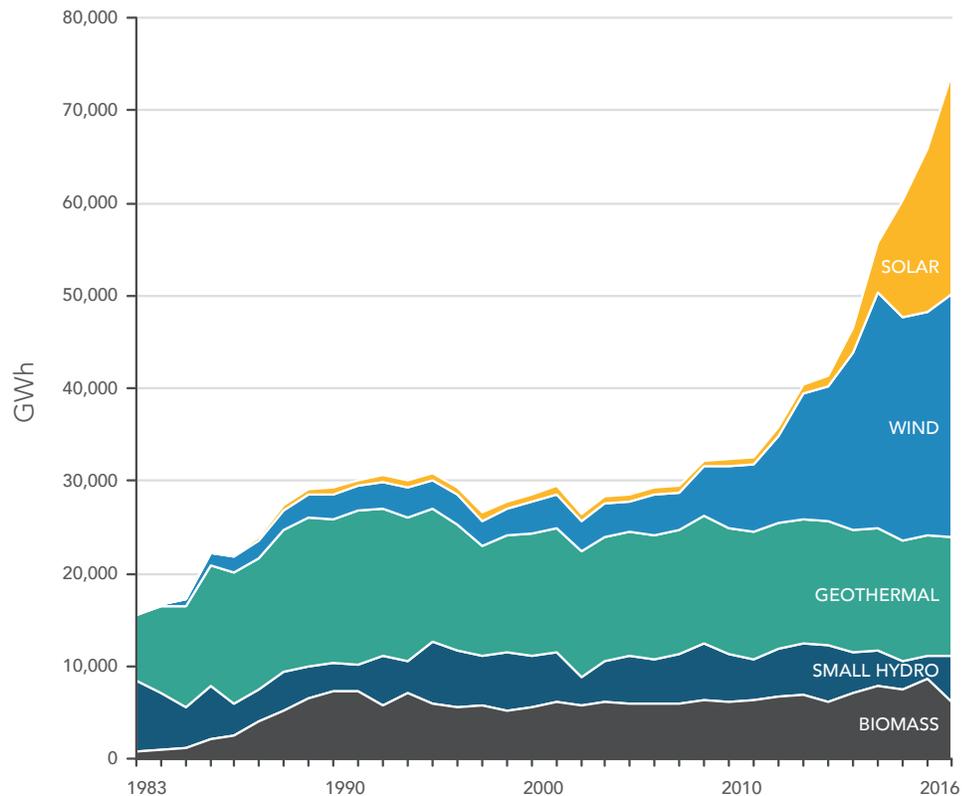
- Connect California's communities with a state of the art high speed rail system;
- Promote vibrant communities and landscapes through better planning efforts to curb vehicle miles traveled and increase walking, biking and transit;
- Build on the State's successful regulatory and incentive based policies to quickly make clean cars, trucks, buses, and fuels definitive market winners;
- Coordinate agency activities to ensure that emerging automated and connected vehicle technologies reduce emissions; and
- Improve freight and goods movement efficiency and sustainability to enable California's continued economic growth.



Continue Leading on Clean Energy

California is well ahead of schedule in meeting its renewable energy targets. Wind and solar generation have grown exponentially in recent years, while hydroelectric, geothermal, and biomass have consistently contributed renewable power to our energy supply. Californians are the ones who will take action to meet energy efficiency targets, integrate renewable power through demand response, and drive demand for net zero energy buildings. This includes self-generation which also grew exponentially in recent years with installed solar totaling 2,000 megawatts (MW) in 2014 and 5,100 MW of the total statewide self-generation installed solar in 2015. By June 2017, solar installed in California was about 5,800 MW, far exceeding the State's goals.

INCREASING RENEWABLE ELECTRICITY GENERATION (IN & OUT OF STATE)



The Renewable Portfolio Standard, Carbon Pricing, and lower costs for renewable technology are delivering real environmental benefits.



While at this time natural gas is an important energy source, we must move toward cleaner heating fuels and replicate the progress underway for electricity. As with electricity, this starts with efficiency and demand reduction, including building and appliance electrification where these advancements make sense. It calls for minimizing fugitive methane leaks throughout the system, including beyond California’s borders where 90 percent of the natural gas used here originates. And, it includes using more renewable gas – a valuable in-state resource made from waste products – especially in the transportation sector. Replacing fossil fuels with renewable gas can reduce potent short-

Reaching California’s Clean Electricity Goals



The State’s 3 largest investor-owned utilities are on track to achieve a 50% RPS by 2020.

lived climate pollutants, and state policies should support this effort. Reducing demand for natural gas, and moving toward renewable natural gas, will help California achieve its 2030 climate target. However, switching from natural gas to electricity – where feasible and demonstrated to reduce GHGs – is needed to stay on track to achieve our long-term goals.

ACHIEVING SUCCESS IN CLEAN ENERGY

- Effectively integrate at least 50 percent renewables as the primary source of power in the State through coordinated planning, additional deployments of energy storage, and grid regionalization;
- Utilize distributed resources and engage customers by making net zero energy buildings standard, implement Existing Buildings Energy Efficiency Action Plan to double existing building efficiency, and increase access to energy efficiency, renewable energy, and energy use data; and
- Reduce the use of heating fuels while concurrently making what is used cleaner by minimizing fugitive methane leaks, prioritizing natural gas efficiency and demand reduction, and enabling cost-effective access to renewable gas.



Put Waste Resources to Beneficial Use

Effectively managing waste streams is perhaps the most basic of environmental tenets. “Reduce, re-use, and recycle” is a mantra known even to elementary school students. For decades California law has reduced waste reaching landfills and recaptured value from waste streams through recycling and composting. California law requires reducing, recycling, or composting 75 percent of solid waste generated by 2020. The State also has specific goals for diverting organic waste, which decomposes in landfills to produce the super pollutant methane. State law also directs edible food to hungry families rather than having it discarded.

Capturing value from waste makes sense. As described in the Healthy Soils Initiative, compost from organic matter provides soil amendments to revitalize farmland, reduces irrigation and landscaping water demand, and potentially increases long-term carbon storage in rangelands. Organic matter can also provide a clean, renewable energy source in the form of bioenergy, biofuels, or renewable natural gas.

California should take ownership of its waste and adhere to a waste “loading order” that prioritizes waste reduction, re-use, and material recovery over landfilling. The State can take steps to reduce waste from packaging, which constitutes about one-quarter of California’s waste stream. It can invest in and streamline in-state infrastructure development to support recycling, remanufacturing, composting, anaerobic digestion, and other beneficial uses of organic waste. And, it can help communities in their efforts to recover food for those in need.

ACHIEVING SUCCESS IN PUTTING WASTE RESOURCES TO BENEFICIAL USE

- Develop and implement programs, including edible food waste recovery, to divert organics from landfills and reduce methane emissions;
- Develop and implement a packaging reduction program; and
- Identify a sustainable funding mechanism to support waste management programs, including infrastructure development to support organics diversion.

Support Resilient Agricultural and Rural Economies and Natural and Working Lands

California’s natural and working landscapes, like forests and farms, are home to the most diverse sources of food, fiber, and renewable energy in the country. They underpin the state’s water supply and support clean air, wildlife habitat, and local and regional economies. They are also the frontiers of climate change. They are often the first to experience the impacts of climate change, and they hold the ultimate solution to addressing climate change and its impacts. In order to stabilize the climate, natural and working lands must play a key role.

Work to better quantify the carbon stored in natural and working lands is continuing, but given the long timelines to change landscapes, action must begin now to restore and conserve these lands. We should aim to manage our natural and working lands in California to reduce GHG emissions from business-as-usual by at least 15-20 million metric tons in 2030, to complement the measures described in this Plan.

Natural and working lands can be better incorporated into California’s climate change mitigation efforts by encouraging collaboration with local and regional organizations and increasing investment to protect, enhance, and innovate in our rural landscapes and communities.

The State is partnering with tribes to preserve carbon, protect tribal forest lands and increase their land base. Transportation and land use planning should minimize the footprint of the built environment, while supporting and investing in efforts to restore, conserve and strengthen natural and working lands. California’s forests should be healthy carbon sinks that minimize black carbon emissions where appropriate, supply new markets for woody waste and non-merchantable timber, and provide multiple ecosystem benefits.

Rehabilitating and strengthening wetlands and tidal environments, and incorporating natural landscapes into urban environments will also help make natural and working lands part of the state’s climate solution. Finally, California farmers can be a powerful force in the fight against climate change, in how they manage their lands, tend their crops, and husband their livestock.



Improved forest management on tribal lands has preserved almost 3 million metric tons of carbon in California and the revenues from the carbon offsets have been used to secure ownership of ancestral lands.

ACHIEVING SUCCESS IN SUPPORTING RESILIENT AGRICULTURAL AND RURAL ECONOMIES AND NATURAL AND WORKING LANDS

- Protect, enhance and innovate on California’s natural and working lands to ensure natural and working lands become a net carbon sink over the long-term;
- Develop and implement the Natural and Working Lands Implementation Plan to maintain these lands as a net carbon sink and avoid at least 15-20 metric tons of GHG emissions by 2030;
- Measure and monitor progress by completing CARB’s Natural and Working Lands Inventory and implementing tracking and performance monitoring systems; and
- Unleash opportunity in the agricultural sector by improving manure management, boosting soil health, generating renewable power, electrifying operations, utilizing waste biomass, and increasing water, fertilizer, and energy use efficiency to reduce super pollutants.



Secure California's Water Supplies

Water is California's lifeblood. It sustains communities and drives the economy. An elaborate network of storage and delivery systems has enabled the state to prosper and grow. But this aging system was built for a previous time and is increasingly challenged by the realities of climate change and population growth.

THE WATER-ENERGY NEXUS

- About 12% of the total energy used in the state is related to water, with 2% for conveyance, treatment and distribution, and 10% for end-customer uses like heating and cooling.
- The water-energy nexus provides opportunities for conservation of these natural resources as well as reduction of GHGs.

Producing, moving, heating and treating water demands significant energy and produces commensurately significant emissions. As California looks to the future, meeting new demands and sustaining prosperity requires increased water conservation and efficiency, improved coordination and management of various water supplies, greater understanding of the water-energy nexus, and deployment of new technologies in drinking water treatment, groundwater remediation and recharge, and potentially brackish and seawater desalination. State efforts must support systemic shifts toward conservation, efficiency, and renewable energy in the water sector.

ACHIEVING SUCCESS IN SECURING CALIFORNIA'S WATER SUPPLIES

- Increase water savings by certifying innovative technologies for water conservation and developing and implementing new conservation targets, updated agricultural water management plans, and long term conservation regulations;
- Develop a voluntary registry for GHG emissions from energy use associated with water; and
- Continue to increase the use of renewable energy to operate the State Water Project.

Cleaning the Air and Public Health

The benefits of this Plan are broader than just climate change – implementation of the Plan will also help improve public health. The Plan incorporates freight and mobile source strategies which will deliver reductions in criteria and toxic air pollutants to improve air quality.

Climate Plan Provides Health Benefits in 2030

AVOIDED
PREMATURE DEATHS



~ 3,300

VALUE OF AVOIDED
HEALTH IMPACTS



\$1.2-1.8 billion

VALUE OF AVOIDED
DAMAGES USING
SOCIAL COST OF CARBON



\$1.9-11.2 billion

California continues to seek ways to improve implementation of its climate program and its ability to address the unique set of impacts facing the state’s most pollution burdened communities. In addition, CARB’s environmental justice efforts are intended to reach far beyond climate change. While this Plan provides a path for reducing GHG emissions in disadvantaged communities, it also includes new tools that will complement the Plan and lead to further air quality improvements.

In particular, implementation of AB 617 will improve air quality in local communities, in partnership with local air districts, using targeted investments in neighborhood-level air monitoring and the development of air pollution reduction action plans with strong enforcement programs. These plans will require pollution reductions from both mobile and stationary sources. Through these efforts, CARB anticipates, and will work for, increased data transparency and the adoption of new statewide air pollutant emission controls that will not only confer short-term benefits to those most in need of improvement, but which will ultimately benefit all Californians.

Under the leadership of CARB’s first executive-level environmental justice liaison, the agency is also laying a roadmap to better serve California’s environmental justice communities in the design and implementation across its broader programs.



Successful Example of Carbon Pricing and Investment

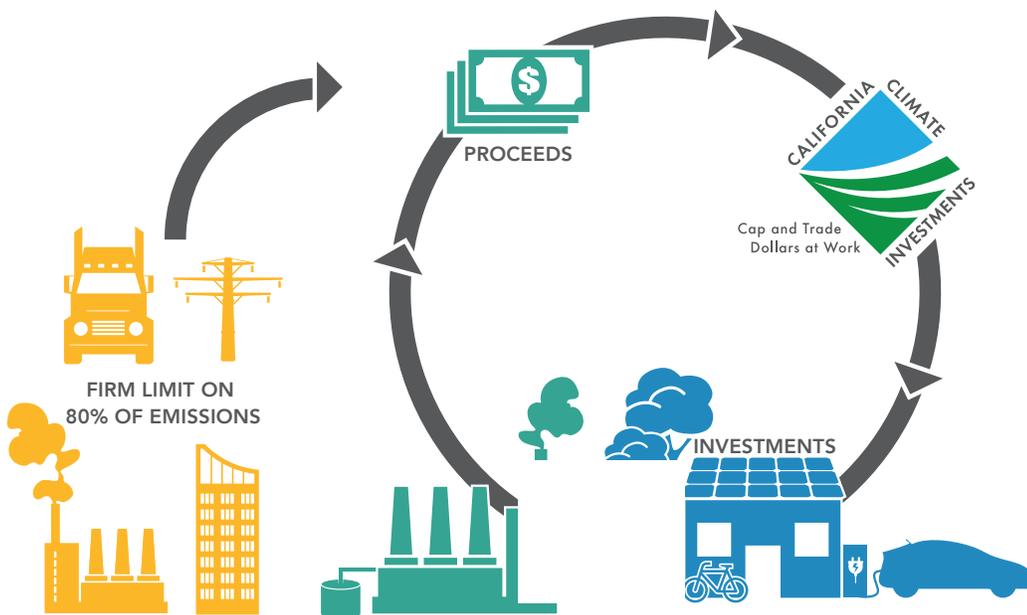
The Cap-and-Trade Program is fundamental to meeting California’s long-range climate targets at low cost. The Cap-and-Trade Program includes GHG emissions from transportation, electricity, industrial, agricultural, waste, residential and commercial sources, and caps them while complementing the other measures needed to meet the 2030 GHG target. Altogether, the emissions covered by the Cap-and-Trade program total 80 percent of all GHG emissions in California. California’s response to climate change has led to many innovative programs designed to reduce GHG emissions, including the Renewable Portfolio and Low Carbon Transportation Standards, but the Cap-and-Trade Program guarantees GHG emissions reductions through a strict overall emissions limit that decreases each year, while trading provides businesses with flexibility in their approach to reducing emissions. The Cap-and-Trade Program also generates revenue when the allowances to emit pollution are auctioned. Some of the revenue is returned directly to electricity ratepayers, and the rest is dedicated to reducing GHG emissions by making Legislatively directed investments in California with an emphasis on programs or projects that benefit disadvantaged and low-income communities.

CAP-AND-TRADE PROGRAM

- Firm, declining cap provides highest certainty to achieve 2030 target.
- Low cost GHG emission reductions minimize impact on consumers and economy.
- Flexibility for businesses
- Can be linked with similar programs worldwide.

Including the latest budget, approximately \$5 billion has been appropriated to reduce GHG emissions, reduce air pollutant emissions where reductions are needed most, grow markets for clean technologies, and spur emissions reductions in sectors not covered by Cap-and-Trade. These investments are strengthening the economy and improving public health – especially in the areas of the state most burdened by pollution. So far, half of the \$1.2 billion spent provides benefits to disadvantaged communities, and one-third of those investments were made directly in those communities.

CALIFORNIA’S CARBON PRICING & INVESTMENTS OVERVIEW



CAP-AND-TRADE DOLLARS AT WORK (2017)

California's Cap-and-Trade Program is the most comprehensive, effective, and well-designed carbon market on the planet. Today, the Program is linked with a similar program in Quebec and will link with a similar program in Ontario beginning in 2018. Nearly 40 countries and over 20 subnational entities – altogether representing nearly a quarter of global emissions – have developed, or are developing, emissions trading programs. Each of them looks to California and our linked Western Climate Initiative Partners as they design, implement, and refine their own programs.



Nearly 30,000 projects installing efficiency measures in homes



105,000+ rebates issued for zero-emission and plug-in hybrid vehicles



16,000+ acres of land preserved or restored



200+ transit agency projects funded, adding or expanding transit options



6,200+ trees planted in urban areas



1,100+ new affordable housing units under contract



50% of projects benefiting Disadvantaged Communities (\$614M)



140,000+ total projects implemented

Fostering Global Action

Through the State's leadership in the Cap-and-Trade Program, innovative sector-specific policies that are reducing technology costs and GHG emissions, and community-scale engagement and investments to reduce GHGs and promote equity, California is playing a significant role in addressing global climate change.

Governor Brown has stated that climate change is the most important issue of our lifetime, and has promoted scientifically sound approaches to address climate change in California and beyond. He has participated in international climate discussions at the United Nations headquarters in New York, the United Nations Climate Change Conference in Paris, the Vatican, and the Climate Summit of the Americas in Canada – calling on other subnational and national leaders to join California in the fight against climate change. He has signed climate change agreements with leaders from Chile, China, the Czech Republic, Israel, Japan, Mexico, the Netherlands, other North American states and provinces, and Peru. He has joined an unprecedented alliance of heads of state, city and state leaders – convened by the World Bank Group and International Monetary Fund – to urge countries and companies around the globe to put a price on carbon. And California is a founding member of the International Zero Emission Vehicle (ZEV) Alliance, a coalition of national and subnational governments working to accelerate the adoption of ZEVs and make all new



cars zero emissions. Delegations from around the world travel to Sacramento to meet with the architects and implementers of California's climate policies to learn how to successfully combine strong greenhouse gas policies with a strong economy.

Perhaps most significant is the Under2Coalition. It is a global climate pact – spearheaded by Governor Brown – among states, provinces, countries, and cities all committing to do their part to limit the increase in global average temperatures below the dangerous levels. Signatories commit to either reducing greenhouse gas emissions 80 to 95 percent below 1990 levels by 2050 or achieving a per capita annual emission target of less than 2 metric tons by 2050. More than 200 jurisdictions from 38 countries and six continents have now signed or endorsed the agreement. Together, members of the Under2Coalition represent more than 1.2 billion people and \$28.8 trillion in GDP, equivalent to 39 percent of the global economy.

Unleashing the California Spirit

This Plan is a declaration of California's path forward. It builds on the State's successful approach to addressing climate change and harnesses the California spirit to propel a cleaner economy, while serving as an example for others.

But this Plan will not be successful on its own. Our collective, and individual, efforts must reach every sector of California's economy, and every community in the state. As California faces the challenge of climate change, it will succeed as it always has – through open, inclusive processes, through support of clean technology markets, and through a relentless pursuit of a healthy California for all.

There should be no doubt that California is united in understanding the need to act, and in the will to act. Investments in clean, low-carbon options will pay off – for the environment and the economy. Investments and training in education and workforce development for a lower carbon economy are a critical part of this transition.

This Plan is only the beginning. All of the measures in the Plan will be developed in their own public process, shaped not just by the vision of this Plan, but also by the best understanding of the technology, costs and impacts on communities – and by input from a broad range of stakeholders and perspectives with the recognition that achieving the 2030 target is a milestone on our way to the deeper GHG reductions needed to protect the environment and our way of life. The Plan also proposes developing a long-term funding plan to inform future appropriations necessary to achieve our long-term targets, which will send clear market and workforce development signals.

Climate change presents unprecedented challenges, but just as we have always done, Californians will tackle them with innovation, inclusion and ultimately, success.



California's 2030 Vision

CAP-AND-TRADE

Firm limit on 80% of emissions



CLEAN ENERGY

At least 50% renewable electricity

Double energy efficiency in existing buildings

CLEAN FUELS

18% carbon intensity reduction

High density, transit-oriented housing

NATURAL & WORKING LANDS RESTORATION
15-20 million metric tons of reductions

Walkable & bikable communities

On-road oil demand reduced by half

CLEAN TRANSIT
100% of new buses are zero-emission

REDUCE "SUPER POLLUTANTS"
40% reduction in methane and HFCs

CLEAN CARS
Over 4 million affordable electric cars on the road

SUSTAINABLE FREIGHT
Transitioning to zero emissions everywhere feasible, and near-zero emissions with renewable fuels everywhere else