



CALIFORNIA'S CLIMATE PLAN

The Climate Change Scoping Plan is the state's roadmap to reach the greenhouse gas reduction goals required in the Global Warming Solutions Act of 2006, or AB 32. This plan calls for an ambitious but achievable reduction in California's carbon footprint – toward a clean energy future. Reducing greenhouse gas emissions to 1990 levels means cutting approximately 30% from business-as-usual emissions levels projected for 2020, or about 15% from today's levels. On a per-capita basis, that means reducing annual emissions of 14 tons of carbon

dioxide for every man, woman and child in California down to about 10 tons per person by 2020. This challenge also represents an opportunity to transform California's economy into one that runs on clean and sustainable technologies, helping secure our energy independence and security, and ensure that all Californians are able to enjoy their rights to clean air, clean water, and a healthy and safe environment.

KEY STRATEGIES IN THE AB 32 SCOPING PLAN

- **Cap-and-Trade Program:** Broad-based to provide a firm limit on emissions; covers 85% of California's emissions: electricity generation, large industrial sources, transportation fuels, and residential and commercial use of natural gas, and provides regional linkage with the Western Climate Initiative which allows greater environmental and economic benefits. *Air Resources Board.*
- **Transportation:** Reduction of 30% in vehicle greenhouse gas emissions by 2016 (known as the 'Pavley standards') followed by further reductions from 2017. Decrease 10% by 2020 carbon intensive vehicle fuels through the low-carbon fuel standard. Lastly, changes in the way we build, plan and develop our cities through better land-use planning (SB 375). Other transportation measures include more efficient delivery trucks, heavy duty trucks and goods movement. *Air Resources Board, Business, Transportation and Housing Agency, California Energy Commission, California Public Utilities Commission, Office of Planning and Research.*
- **Electricity and Energy (imported included):** Improved appliance efficiency standards and other aggressive energy efficiency measures; 33% renewables by 2020; increased use of efficient "combined heat and power"; Million Solar Roofs, Solar Hot Water Heating; Green Buildings; and water efficiency. *Air Resources Board, State and Consumer Services Agency, California Energy Commission, California Public Utilities Commission, Department of Water Resources.*
- **Industry:** 800 largest emission sources in California including cement; audit of the largest industrial sources to identify greenhouse gas reduction opportunities; regulations on refinery flaring, and fugitive emissions; considerations for cement to address "leakage." *Air Resources Board, Business, Transportation and Housing Agency.*
- **High Global Warming Potential Gases:** Capture refrigerants and other high global warming potential gases already in use; reduce future impact through leak-resistant equipment, restrictions on use, and fees. High global warming chemicals trap heat in the atmosphere at levels many times that of carbon dioxide, the primary cause of global warming. *Air Resources Board.*
- **Forestry:** Preserve forest sequestration and voluntary reductions possible from forestry projects. *Air Resources Board, Cal-Fire.*
- **Agriculture:** More efficient agricultural equipment, fuel use and water use through transportation and energy measures; reductions from manure digesters at dairies; address impacts on productivity of crops and livestock. *Air Resources Board, California Department of Food and Agriculture, State Water Resources Control Board.*
- **Waste and Recycling:** Reduce methane emissions from landfills and move toward high recycling and zero waste. *Air Resources Board, Department of Resources Recycling and Recovery.*

DRIVING THE DEVELOPMENT OF A GREEN ECONOMY

The plan generates jobs, promotes a growing, clean-energy economy and a healthy environment for California at the same time.

- **The Scoping Plan continues California's legacy of efficiency-driven job growth.** Achieving the greenhouse gas emissions reduction targets mandated by AB 32 supports a \$76 billion increase in our Gross State Product (GSP), \$48 billion increase in real household incomes, and the creation of 403,000 new efficiency- and climate-driven jobs. (Source: [Energy Efficiency, Innovation, and Job Creation in California](#), David Roland-Holst, UC Berkeley)
- **California gets more clean energy venture capital investment than all states combined.** In 2009, while other sectors saw little or no investment, the clean technology sector in California received \$2.1 billion, 60% of the total in North America. Venture capital investments in the Golden State totaled nearly \$6.6 billion from 2006 to 2008, about five times more than our nearest competitor, and more than all other states combined. (Source: [California Green Innovation Index, Next 10](#))
- **Green technologies produce new jobs faster.** Investments in green technologies produce jobs at a higher rate than investments in comparable conventional technologies. And the first beneficiaries of green job growth will be workers who are currently unemployed. (Source: [Putting Renewables to Work: How Many Jobs Can the Clean Energy Industry Generate](#), UC Berkeley, [California Green: Opportunities and Challenges](#), Center for Continuing Study of the California Economy)
- **Venture capital investment produces thousands of new jobs.** Each \$100 million in venture capital funding helps create 2,700 jobs, \$500 million in annual revenues for two decades and many indirect jobs. AB 32 likely will increase venture capital investment in California. (Source: [Venture Impact 2004: Venture Capital Benefits To The U.S. Economy](#), Global Insight, National Venture Capital Association)
- **Green jobs are growing faster than any other industry.** From 2007 to 2008, jobs in green businesses grew 5% while total jobs in California fell 1%. The green economy could soon become the nation's fastest-growing job segment, accounting for roughly 10% of new jobs over the next 20 years – up to 4.2 million new green jobs – 500,000 in California. (Source: [Many Shades of Green: Diversity and Distribution of California's Green Jobs, Next 10](#), [U.S. Metro Economies: Current and Potential Green Jobs in the U.S. Economy](#), U.S. Conference of Mayors)
- **California leads the nation in every clean technology category.** California entrepreneurs opened more green businesses (10,209), created more new jobs (125,390), and garnered the most clean energy venture capital funding (\$6.5 billion) than any other state. (Source: [The Clean Energy Economy](#), Pew Charitable Trusts)
- **California's economic powerhouses support AB 32.** AB 32 enjoys the strong support of a diverse and formidable alliance of California's economic powerhouses including Google, Gap Inc., eBay, Bloom Energy, E2, Small Business California, Yahoo!, California Business Alliance for a Green Economy, Cleantech, California Ski Industry Association, and much more. (Source: [California's Global Warming Solution – the Economic Stimulus We Need](#))

The plan expands California's successful track record of saving money through efficiency.

- **Energy efficiency is the greatest energy resource.** The state's energy efficiency policies have saved Californians \$56 billion, and are expected to save another \$23 billion over the next five years – money that is reinvested back into the California economy. (Source: [Energy Efficiency: California's Highest-Priority Resource](#), California Public Utilities Commission and California Energy Commission)
- **Investment in greening existing buildings is good for business.** By upgrading existing facilities to improve energy efficiency, businesses can save approximately 60 cents per square foot, reducing per-square-foot energy costs (currently \$1.50 to \$2.50) by as much as 40%. (Source: [Center for Energy & Climate Solutions](#))
- **Energy efficiency saves consumers money.** Under AB 32, homeowners can save about \$200 per year through energy efficiency – savings between 1,500 and 1,800 kWh per year and over 300 therms of natural gas per year by improving energy efficiency by 25%. (Source: [Options for Energy Efficiency in Existing Buildings](#), California Energy Commission)

- **Energy efficiency helps reduce the need for new power plants.** For every dollar invested in improving energy efficiency, two dollars are saved by not having to build additional power plants and transmission facilities. (Source: [Energy Efficiency in the North American Existing Building Stock, International Energy Agency](#))
- **Clean cars cost less to drive.** Under California's cleaner car law (the Pavley greenhouse gas standards), consumers save on operating costs through reduced fuel use – an extra \$30 each month for other expenditures. (Source: [ARB Final Statement of Reasons for Pavley Regulations, California Air Resources Board](#))
- **Californians already save on energy bills.** If California's annual statewide electricity bill were the same fraction of the gross state product as Texas, Californians would be paying almost \$25 billion more for electricity each year. (Source: [California Green Innovation Index, Next 10](#))

PREPARING FOR THE FUTURE BY INVESTING TODAY

The plan helps reduce risks that could be costly to California.

- **California's real estate assets are at risk.** \$2.5 trillion in real estate assets in California are at risk from extreme weather events, sea level rise, and wildfires, with a projected annual price tag of \$300 million to \$3.9 billion over this century, depending on how warm the world gets. (Source: [California Climate Risk and Response, David Roland-Holst and Fredrich Kahrl, UC Berkeley](#))
- **If no action is taken there will be losses throughout California's economy.** In the face of rising temperatures, six economic sectors -- water, energy, transportation, tourism and recreation, agriculture, and public health-- would together incur tens of billions per year in direct costs, even higher indirect costs, and expose trillions of dollars of assets to collateral risk. (Source: [California Climate Risk and Response, David Roland-Holst and Fredrich Kahrl, UC Berkeley](#))
- **Scarce water supplies could cost millions annually.** Water supply costs due to scarcity and increased operating costs would increase as much as \$689 million per year by 2050. Researchers found that changes in yields (mostly negative) and changes in water availability could result in gross revenue losses of up to \$3 billion by 2050. (Source: [Climate Warming and Water Supply Management in California, Estimating the Economic Impacts of Agricultural Yield Related Changes for California](#))
- **Costly wildfires will continue to increase.** Scientists estimate that wildfire risk will increase throughout the end of the century. Average annual monetary impacts due to home loss may plausibly be on the order of \$2 billion per year by mid-century and up to \$14 billion per year by the end of the century. (Source: [Climate Change, Growth, and California Wildfire; Potential Effects of Climate Change on Residential Wildfire Risk in California](#))

The plan relies on a strong network of climate partnerships – so California is not going it alone.

- **Local government will play an essential role in fighting climate change.** More than 100 California cities and counties have signed the U.S. Conference of Mayors Climate Protection Agreement. Many have established offices of climate change and are developing and implementing comprehensive plans to reduce their carbon footprint. (Source: [U.S. Conference of Mayors](#))
- **Many are participating in voluntary programs.** Nearly 350 companies, municipalities, organizations and corporations are members of the California Climate Action Registry, reporting their greenhouse gas emissions on an annual basis. Californians have also been on the leading edge of purchasing offsets to mitigate their own personal emissions. The state intends to ensure our citizens that they can be assured of the credibility of these offsets. (Source: [California Climate Action Registry](#))
- **Western states are building strong regional program.** There are seven American states and four Canadian provinces that make up the Western Climate Initiative. The WCI is an historic effort to collaborate climate action policies of the western United States, Canada and Mexico. More than half of U.S. states have climate policies in various stages. (Source: [Western Climate Initiative](#))

- **State government will lead by example.** As an employer of more than 350,000 Californians, state government is uniquely situated to adopt and implement policies that give worker the ability to decrease their individual carbon impact, including encouraging transit use, telecommuting and use of alternative work schedules. (Source: [Climate Change Scoping Plan, California Air Resources Board](#))

The plan promotes improved public health, lowers health care costs.

- **Public health benefits save billions.** Preliminary analysis indicates that the total economic value associated with public health benefits is likely to be on the order of \$4.3 billion in 2020. (Source: [Climate Change Scoping Plan, California Air Resources Board](#))
- **AB 32 will significantly reduce harmful pollution.** The estimated reduction of combustion-generated soot (PM 2.5) associated with the recommended regulatory measures is 15 tons per day. The estimated reduction of oxides of nitrogen (a precursor to smog) totals 61 tons per day. (Source: [Climate Change Scoping Plan, California Air Resources Board](#))
- **Improved air quality promotes public health.** These reductions in harmful air pollution lead to 770 fewer premature deaths and 76,000 fewer work days lost. (Source: [Climate Change Scoping Plan, California Air Resources Board](#))

TIMELINE FOR AB 32 IMPLEMENTATION

By Jan 1, 2009	Air Resources Board (ARB) adopts plan indicating how emission reductions will be achieved from significant sources of greenhouse gas emissions via regulations, market mechanisms and other actions.
During 2009-11	ARB staff drafts rule language to implement its plan and holds a series of public workshops on each measure (including market mechanisms).
By Jan 1, 2010	Early action measures take effect.
During 2010	ARB conducts series of rulemakings, after workshops and public hearings, to adopt greenhouse gas emissions regulations including rules governing market mechanisms.
By Jan 1, 2011	ARB completes major rulemakings for reducing greenhouse gas emissions including market mechanisms. ARB may revise the rules and adopt new ones after Jan. 1, 2011 in furtherance of the 2020 cap.
By Jan 1, 2012	Greenhouse gas emissions rules and market mechanisms adopted by ARB take effect and are legally enforceable.
Dec 31, 2020	Deadline for achieving 2020 greenhouse gas emissions cap.

GLIMPSE OF CALIFORNIA'S CLEAN ENERGY FUTURE

The plan will create a more efficient California and grow the economy.

- More efficient cars cost less to drive
- More efficient buildings use fewer resources
- More efficient homes and appliances use less energy
- More efficient land use means less time driving, less fuel used and more transit opportunities
- More efficient factories produce less pollution
- More efficient faucets, sprinklers and shower heads protect our water resources

Fighting climate change will help:

- Reduce our dependence on oil
- Protect human health
- Protect California's forests, ocean and wildlife
- Conserve precious natural resources
- Reduce air pollution
- Promote the development of clean, locally-produced energy
- Create new jobs for California workers in clean tech industries
- Increase energy efficiency, which will save us all money on what we pay for energy
- Create more livable, walkable cities

BALANCED AND COMPREHENSIVE MIX OF MEASURES

Recommended Reduction Measures	Reductions Counted Towards 2020 Target (MMTCO ₂ E)
ESTIMATED REDUCTIONS RESULTING FROM THE COMBINATION OF CAP-AND-TRADE PROGRAM AND COMPLEMENTARY MEASURES	146.7
California Light-Duty Vehicle Greenhouse Gas Standards <ul style="list-style-type: none"> • Implement Pavley standards • Develop Pavley II light-duty vehicle standards 	31.7
Energy Efficiency <ul style="list-style-type: none"> • Building/appliance efficiency, new programs, etc. • Increase CHP generation by 30,000 GWh • Solar Water Heating (AB 1470 goal) 	26.3
Renewables Portfolio Standard (33% by 2020)	21.3
Low Carbon Fuel Standard	15
Regional Transportation-Related Greenhouse Gas Emissions Targets ¹	5
Vehicle Efficiency Measures	4.5
Goods Movement <ul style="list-style-type: none"> • Ship Electrification at Ports • System-Wide Efficiency Improvements 	3.7
Million Solar Roofs	2.1
Medium/Heavy Duty Vehicles <ul style="list-style-type: none"> • Heavy-Duty Vehicle Greenhouse Gas Emission Reduction (Aerodynamic Efficiency) • Medium- and Heavy-Duty Vehicle Hybridization 	1.4
High Speed Rail	1.0
Industrial Measures (for sources covered under cap-and-trade program) <ul style="list-style-type: none"> • Refinery Measures • Energy Efficiency & Co-Benefits Audits 	0.3
Additional Reductions Necessary to Achieve the Cap	34.4
ESTIMATED REDUCTIONS FROM UNCAPPED SOURCES/SECTORS	27.3
High Global Warming Potential Gas Measures	20.2
Sustainable Forests	5.0
Industrial Measures (for sources not covered under cap and trade program) <ul style="list-style-type: none"> • Oil and Gas Extraction and Transmission 	1.1
Recycling and Waste (landfill methane capture)	1.0
TOTAL REDUCTIONS COUNTED TOWARDS 2020 TARGET	174
Other Recommended Measures	Estimated 2020 Reductions (MMTCO ₂ E)
State Government Operations	1-2
Local Government Operations	TBD
Green Buildings	26
Recycling and Waste (other measures)	9
Water Sector Measures	4.8
Methane Capture at Large Dairies	1.0