

APPENDIX A.1

CALIFORNIA

Overview

California is a leader in climate change action. The California Global Warming Solutions Act of 2006 (AB 32) established California as a global leader in reducing GHG emissions. To meet the goals of AB 32, the state adopted a three-pronged approach to reducing emissions, including adopting standards and regulations, providing emission reduction incentives via grant programs, and establishing a market-based compliance mechanism known as cap and trade. As of May 2014, 23 percent of California's electricity produced derives from renewable sources. California's economy-wide, legally binding emissions trading system, the cap and trade program, is the only such program in the United States. By 2020, California will reduce greenhouse gas (GHG) emissions by 17 percent to 1990 levels to 431 million metric tons of CO₂e, and will generate at least 33 percent of its electricity from renewable sources. California is the world's leading market for electric vehicles and for stationary storage, including a requirement of 1300 MW of storage by 2020. These programs have become part of the dynamic economic engine that is California. Over the past five years, the State's gross domestic product has grown by five percent while the amount of carbon pollution has fallen. California solar companies employ more than 44,000 people. Over four decades, the state's appliance and building efficiency policies have saved consumers over \$65 billion and created 1.5 million jobs. California's 2030 GHG emission reduction target is 40 percent below 1990 emission levels, which is consistent with its 80 percent reduction target for 2050.

Specific Actions and Commitments

Understanding California's role in reducing GHG emissions to mitigate climate change and protect the state's residents and economy from a changing climate, Governor Jerry Brown issued Executive Order B-30-15 to establish a GHG emission reduction target of 40 percent below 1990 levels by 2030. Along with this target, the most ambitious in North America, the Governor also required state agencies to incorporate climate resiliency into planning and funding decisions to ensure that the State's resources withstand California's changing climate. To meet the GHG emission reduction target specified in the Executive Order, the Administration will pursue the following policies:

By 2030,

- Increase electricity derived from renewable resources to 50 percent.
- Reduce petroleum use in cars and trucks by up to 50 percent.
- Double energy efficiency achieved in existing buildings and make heating fuels cleaner.
- Reduce the release of short-lived climate pollutants, such as methane and black carbon.
- Increase carbon sequestration on farms and rangelands and in forests and wetlands.

Low Carbon Electricity

California will build on its 2020 target of a 33%-plus renewable portfolio with a goal of 50 percent by 2030. California will focus more specifically on GHG emission reductions from the power sector, through an increased renewable portfolio, demand reduction and response, increased storage paired with renewables, increased penetration of distributed renewables and storage, and actions at the grid level.

Decarbonization of Transportation

The transportation sector in California accounts for nearly 40 percent of its greenhouse gas emissions. Strategies for reducing carbon pollution must include transformation of the transportation fleet from older higher pollution vehicles and fuels to newer, near zero and zero emission vehicles and cleaner, less carbon intense fuels. California has set a goal of 1.5 million zero emission vehicles by 2025, adopted a Zero Emission Vehicle mandate, provided incentives for purchasers of ZEVs, established grants to accelerate charging infrastructure for battery electric vehicles and hydrogen fueling infrastructure for fuel cell electric vehicles, and developed programs to support near zero and zero emission vehicles and fuels in a wide variety of fleets from transit buses to port equipment. California's low carbon fuel standard requires a 10 percent reduction in the carbon intensity of transportation fuels in California by 2020. California is providing more zero emission transit options, changing land use and zoning to reduce vehicle miles traveled, and building a high speed rail network that will be the backbone of an integrated transit system. California has also adopted aggressive carbon pollution reduction requirements for all vehicles through 2026 and beyond. By 2030, California's transportation emissions will be significantly reduced, in line with the 2050 reduction goals. The State has set a goal of reducing the use of oil by up to 50% by 2030.

Energy Efficiency

California requires that all new residential construction be Zero Net Energy by 2020, and all non-residential be so by 2030. California's goal is to double energy efficiency in buildings by 2030. The State is developing additional cost-effective minimum efficiency standards for a variety of lighting, electronics and other common products. California is also instituting requirements for energy benchmarking of all non-residential buildings above 30,000 square feet. The State is also using standardized reporting and analysis tools for statewide assessment and trending of existing building energy performance patterns, which will call for evaluation of current and future actions. California's annual energy ratepayer investment of \$1.2 billion in end-use energy efficiency is likely to increase. California is promoting a number of financing tools for home energy retrofits and will increase efforts to ensure a higher percentage of energy retrofits for existing homes and buildings.

Climate Policies and Emissions Trading

California's cap and trade program sets statewide limits on sources of 85 percent of greenhouse gas emissions, and helps establish a price for emissions and drive investments

towards cleaner energy, infrastructure, and fuels. The emission cap declines 2 to 3 percent through 2020. Sending the market a signal that the cap-and-trade program will continue in the long-term is critical to fully realizing the benefits of the program. Extending the cap-and-trade program beyond 2020 will also reduce the costs of the program as California industry and households make long-term capital and investment decisions. The level of the cap decline beyond 2020 will be commensurate with the emission reductions needed to meet the 2030 goal.

Natural Resources, Waste and Green Infrastructure

California's 100 million acres are critical to meeting all of the State's climate goals. The land base includes one of the world's biodiversity hotspots, provides more than 65 percent of the potable water used in state, produces food for millions of people, and sequesters carbon in trees, wetlands, grasslands, rangelands and soils, among other land types. California's 2014-15 investment in urban greening nearly exceeds the budget set by the US Forest Service for the entire country. The State's Desert Renewable Energy Conservation Plan couples renewable energy development with conservation in a 23 million acre area. California will target landscape health through broader investments in natural lands to ensure their ability to withstand climate change while increasing sequestration and provisioning of ecosystem services such as clean water, air and erosion control. These efforts will be complemented by organic waste diversion to produce rich compost for California's healthy soils and support reduced fertilizer use in California's agricultural fields. Further, by increasing forest health management efforts, California's residents will experience cleaner air through reduced severity of wildfires and increased access to electricity and heat derived from biomass.

Funding

California has multiple funding mechanisms to drive emissions reductions and is evaluating others. Cap and trade auction revenue, bonds, ratepayer funds, Property Assessed Clean Energy funding, and on-bill financing are among the mechanisms currently being used.