

California Energy Policy Simulator: Earlier Action Delivers Climate, Economic, Health Benefits

Meeting Climate Targets for a Vibrant, Healthy California

California has been a national and international climate leader, but the state is not on track to achieve its climate goals. Compared to historical trends, California will need to more than triple the pace of emissions reductions to hit its 2030 target of reducing greenhouse gas (GHG) emissions 40 percent below 1990 levels by 2030.

The California Air Resources Board (CARB) updates the state’s Climate Change Scoping Plan every five years as required by law to determine policies and programs capable of achieving California’s climate targets. Unfortunately, CARB’s recently issued Draft Scoping Plan relies on unproven carbon dioxide removal technology and focuses on the 2045 net-zero emissions target while saying little about the 2030 goal.

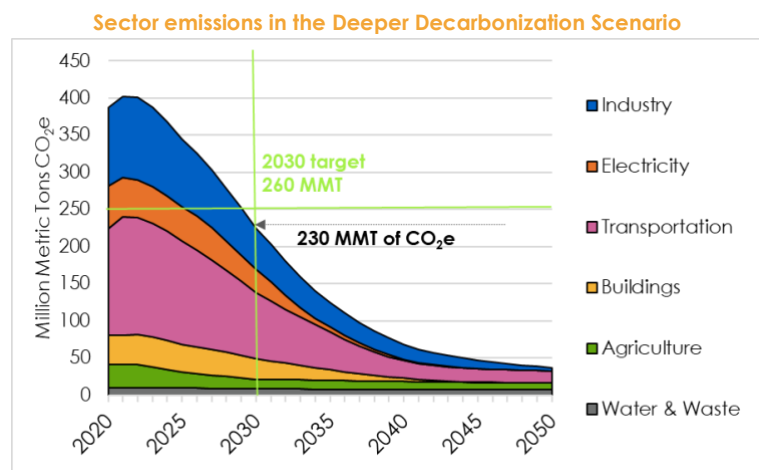
To help get California back on track, Energy Innovation (EI) used the [California Energy Policy Simulator](#) (EPS) to model a “Deeper Decarbonization Scenario,” identifying a policy pathway to achieve the state’s climate goals while creating jobs and protecting public health.

In contrast to the Draft Scoping Plan, the Deeper Decarbonization Scenario relies on mature technologies such as electric vehicles, renewable energy, and electric appliances to swiftly achieve near-term emissions reductions. This scenario’s policies would reduce emissions 47 percent below 1990 levels by 2030, 70 percent by 2035 and 87 percent below 1990 levels by 2045.

CARB’s Draft Scoping Plan reaches carbon neutrality by planning for uncertain technologies to extract almost 80 million metric tons of GHGs from the atmosphere in 2045. Instead of betting its future on risky strategies further down the road, California should rely on tried-and-true climate actions to lock in near-term reductions now as a downpayment on a safer future.

Near-Term Policy Recommendations to Achieve Climate Targets

The Deeper Decarbonization Scenario includes policies to rapidly electrify buildings and vehicles, sets efficiency and fuel switching targets for industry, requires a 100 percent clean electricity grid, and cuts process emissions from industry and agriculture. Because building appliances, vehicles, and industrial equipment are replaced every ten to twenty years, California has a short window to enact policies enabling a transition from fossil fuels to clean electricity.



The Deeper Decarbonization Scenario's most impactful policies are:

- A **zero-emission vehicle sales standard** (29 percent of scenario emissions), requiring 100 percent of new cars and light-duty trucks sold to be zero-emission vehicles (ZEVs) by 2030, and for 100 percent of heavy-duty freight trucks sold to be ZEVs by 2035.
- **Industry performance standards** (24 percent of scenario emissions), requiring industrial processes to use electricity or hydrogen for heat, starting with food and beverage processing.
- **Building electrification** (15 percent of scenario emissions), requiring 100 percent electrification of new appliances by 2030, covering new homes and end of life replacements in existing homes.
- A 92 percent by 2030 **clean electricity standard**, achieving a carbon neutral electricity system by 2035. California EPS results show that even modest increases in the clean electricity standard compound emissions reductions because of growing electricity use from economy-wide electrification.

Vehicle, building, and industry electrification are the primary drivers of deep decarbonization, so **policymakers should also prioritize electricity affordability** by insulating electricity rates from \$38.9 billion in looming wildfire-related costs. Otherwise rising costs could become a barrier to electric vehicle and appliance adoption.

Greater Climate Ambition Delivers Economic and Health Benefits

The Deeper Decarbonization Scenario includes building new renewable energy, installing vehicle charging infrastructure, expanding transmission lines, investing in higher-quality buildings, and more. These actions would generate enormous economic benefits. The California EPS estimates policies in this scenario would add \$28 billion to the state's economy and create nearly 170,000 new jobs in 2030, peaking at nearly 200,000 new jobs in 2036.

Additional policies not modeled by the EPS are necessary to ensure this growth benefits communities disproportionately harmed by or historically reliant upon the fossil fuel economy, with high-quality jobs paying fair wages. Switching to more efficient, electric vehicles and appliances would also save households more than \$1,500 per year in 2030, reaching savings of more than \$2,400 per year in 2035.

Fossil fuel power plant retirements, emissions-free buildings, zero-emission vehicles, and industrial fuel switching all reduce harmful air pollution created by burning fossil fuels. The California EPS estimates Deeper Decarbonization Scenario policies would prevent more than 1,300 deaths and 26,600 asthma attacks per year by 2030, preventing more than 4,100 deaths and 82,400 asthma attacks per year by 2050. In addition, the California EPS finds cleaner air and a safer climate would avoid \$20 billion in health and climate damages in 2030, and \$60 billion in health and climate damages 2050.

EI modeling shows California shouldn't bet its future on risky strategies like carbon dioxide removal, but can ensure the state meets its climate targets using readily available technologies that are proven to cut emissions.

The California Energy Policy Simulator Model

The California Energy Policy Simulator is a free, open-source, peer-reviewed model allowing users to estimate climate and energy policy impacts on emissions, the economy, and public health using publicly available data. The model estimates impacts through 2050, accounting for how policies interact with each other. [EPS models](#) have been developed for more than a dozen countries and several subnational regions, including [California](#), [Colorado](#), [Minnesota](#), [Nevada](#), and [Virginia](#). These models now cover 56 percent of global emissions. As an economy-wide model covering more than fifty types of policies, the California EPS is well suited to evaluating the effects of a multifaceted climate strategy such as California's.