

California Climate Choices

California's Global Warming Solutions Act (AB 32) requires California to cut its global warming pollution to 1990 levels by 2020. To meet that requirement, the California Air Resources Board (CARB) will implement a package of global warming policies that includes sectoral regulations (such as clean car and renewable energy standards) designed to achieve roughly 80 percent of the needed reductions, and a cap-and-trade program to achieve the remaining 20 percent of reductions.

CARB has proposed that **offsets** could substitute for up to 49 percent of the total reductions that will be achieved relative to the state's emissions in 2012. Offsets are credits based on estimated global warming emissions reductions made in areas or sectors not covered by global warming regulations. One offset is typically equal to one ton of estimated emission reductions. Regulated polluters could buy offsets to substitute for reductions they otherwise would have made directly or traded with others in the capped sectors.

When polluters reduce their global warming emissions, they often simultaneously reduce smog-forming and toxic

air pollutants as well. Because many regions of California rank among the worst in the country for air quality, reduced air pollution is a critically important "co-benefit" of global warming action. Using offsets to meet all or part of California's global warming emissions reductions required under AB 32 can jeopardize these important air quality improvements.

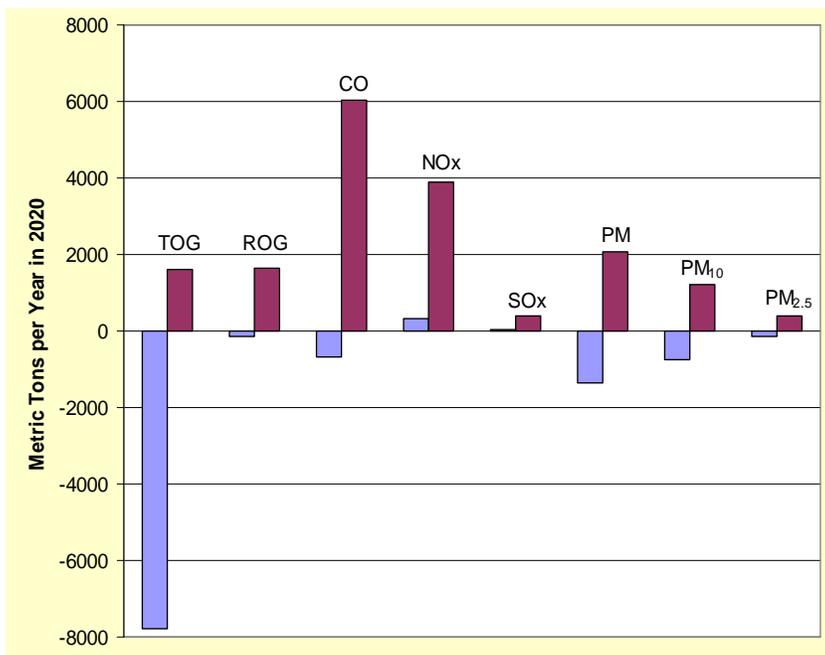
New Results

A study released in March 2009 from the University of California at Berkeley examines how different offset scenarios may affect air pollution. Two scenarios are described below.

In-State Offsets Only

The first offset scenario allows some of the state's global warming emissions reductions to be achieved through the use of offset projects based exclusively in California—mostly in the agriculture, landfill, and forestry sectors. This in-state offsets scenario produces mixed results on air quality benefits for California relative to what would have happened if AB 32 were implemented without offsets.

The effect of offsets on criteria air pollution levels in California



Offset policies could have a significant impact on criteria air pollutants in California, including total organic gases (TOG) like methane; reactive organic gases (ROG) like benzene; carbon monoxide (CO); and smog-forming pollutants such as nitrogen oxides (NOx) and fine particles (PM, PM₁₀, and PM_{2.5}).

The **blue bars** show how these pollutant levels would change if roughly half of the emissions reductions expected under a cap-and-trade system were achieved through offsets generated in California (mostly from the agriculture, landfill, and forestry sectors), compared with implementing AB 32 without offsets. The results are mixed, with decreases in methane but increases in NOx.¹

The **red bars** show what would happen if all of the cap-and-trade reductions were achieved through the use of out-of-state offsets, compared with implementing AB 32 without offsets. As the chart shows, all air pollutant levels would be higher.



Many regions of California rank among the worst in the country for air quality. Reduced air pollution is an important “co-benefit” of efforts to reduce global warming emissions. LA smog photo courtesy of the Environmental Protection Agency.

Methane and several other toxic gas emissions, like benzene, are lower, in part because the global warming emission reduction efforts are shifted to the methane-intensive agriculture and landfill sectors.¹

However, smog-forming nitrogen oxide (NOx) pollution levels are higher than in the scenario in which no offsets are allowed. This is because the entities buying the offsets are likely to have more NOx-intensive operations than those selling the offsets. For instance, a refinery that buys an offset continues to emit global warming and NOx pollution, and though the dairy that sold the offset reduces its global warming and NOx pollution, the refinery has more NOx associated with every ton of global warming pollution, thereby increasing total NOx emissions.

Out-of-State Offsets

The other offset scenario allows the state’s global warming emissions reductions to be achieved through offset projects based outside of California.² If out-of-state offsets are allowed to substitute for half or more of the emissions reductions expected through a cap-and-trade system, nearly every air pollutant increases relative to what would

have happened if AB 32 were implemented without offsets.

For example, if all of the cap-and-trade reductions are achieved through out-of-state offsets, levels of NOx and particulate matter (PM) pollution could increase by roughly 4,000 and 2,000 tons per year, respectively, in 2020 compared with pollution levels expected under AB 32 implementation without offsets. The tiniest and most harmful form of particulate matter, PM_{2.5} (particles less than 2.5 microns in diameter), increases by nearly 400 tons per year—equivalent to the amount of pollution emitted annually by roughly 9,000 big-rig trucks operating on California’s roads.

By substituting direct emissions reductions from regulated sectors with offsets from out-of-state projects, California would effectively export air quality co-benefits.

Conclusion

Deciding how many offsets will be allowed, and where offset projects can be located, can have a significant impact on California air quality.

While AB 32 achieves dramatic gains in reduction of global warming pollution, its potential to reduce other air pollutants will depend on how the policies are implemented. Deciding how many offsets will be allowed, and where offset projects can be located, could have a significant impact on California air quality.

ENDNOTES

¹ In the in-state offset scenario, the economic model that was used assumes that every available global warming emissions reduction in the forestry, agriculture, and landfill sectors will be available as an offset. In reality, not every reduction may be easily and cost-effectively quantified, packaged, and sold in the offset market. Therefore, in-state co-pollutant reductions may not be as large as shown in the chart.

² For the purposes of exploring a range of offset prices, the study considered scenarios where offsets could be sourced anywhere in the United States as well as internationally.

A fully referenced version of this fact sheet is available online at www.ucsusa.org

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