



Emission Remission

Statewide attack on greenhouse gases generates more paperwork for managers.

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When California passed the Global Warming Solutions Act of 2006, the landmark legislation imposed the nation's toughest restrictions on greenhouse gas emissions and provided a template for the U.S. EPA, other states, and the rest of the world seeking to develop similar programs.

To facilitate the goal of reducing emissions by 30% to 1990 levels by 2020, the law combines regulatory enforcement, such as mandatory reporting, with market measures including a cap-and-trade program that will become part of a regional carbon market and cover 85% of the state's emissions. Calculating and tracking emissions and reductions is the foundation for the program's ultimate success, and represents the first — and most challenging — step for public agencies.

2008 is the first year agencies must report emissions, which means they must report 2008 emissions by April 2009. Subsequent years will be reported in the year immediately following.

So far the rule applies only to facilities that emit more than 25,000 metric tons of carbon dioxide equivalents (MTCO₂E) annually from stationary combustion and/or generate and sell 1 MW of electricity. Therefore, the mandatory reporting rule primarily affects the power sector and facilities that have stationary combustion sources. However, 25,000 MTCO₂E is a relatively low threshold for combustion sources, and can easily be exceeded by public agencies that have diesel generators, landfill gas flares, waste-water digester gas combustion, water pump engines, and/or green waste grinders. It's also likely that the rule will be extended in the future to cover more specific sources — such as a wastewater treatment plant or a landfill — and/or lower the emission threshold, which would capture more public agencies in the program.

To determine whether they'll be subject to mandatory reporting requirements, public agencies should calculate their 2008 emissions from specified sources — including all stationary combustion sources and sources previously deemed portable — from each of their facilities and compare it with the 25,000 MTCO₂E threshold. In addition, they must evaluate any electricity they generate and sell to the power grid. If the generated power is used directly by the agency, it may be exempt from reporting. Operations that include internal use of generated power but sells power to a utility when certain equipment or operations are off line, or when there is excess power, may need to consult an expert to assess applicability.



HOW TO INVENTORY OPERATIONS

The law sets emission caps, and will ultimately determine reductions goals, based on 1990 emissions levels, so it is critical for agencies to develop a 1990 emissions estimate. An agency can use another year if it didn't exist then, has completely reorganized, or, in some cases, hasn't retained the necessary records. But if it has dramatically upgraded facilities for energy conservation, switched to alternative-fuel vehicles, or even implemented ride-sharing, using 1990 or as early a year as possible as the baseline is the way to go because it demonstrates how much progress has been made in reducing emissions.

California's Global Warming Solution Act of 2006 mandates that facilities emitting more than 25,000 metric tons of carbon dioxide equivalents annually from stationary combustion must report emissions starting

If an agency doesn't have records from 1990, managers will have to "scale" — find a year for which they have data and look at the direct relationship between emissions and another operational parameter, such as material usage, number of personnel, square feet of office space, or population served. Scaling isn't as accurate as working from

this year. This could affect public agencies that have diesel generators, landfill gas flares, wastewater digester gas combustion, water pump engines, and/or green waste grinders. It's also likely that the rule will be extended in the future to cover more specific sources — such as landfills.

reliable data, but sometimes it's the only way to calculate emissions for years when no or little data are available. However, these calculations could be significantly off because they don't account for changes in consumption, efficiency, and other criteria from year to year.

Agencies should determine their baseline emissions and subtract that number from the levels they're producing when the cap-and-trade program begins. The difference will be the carbon footprint reductions

most-likely needed to comply with the 2020 threshold for any sources subject to the cap.

Whether they run a wastewater treatment plant or landfill or their employees drive government-owned vehicles, agencies must estimate how much carbon dioxide they've been putting into the atmosphere through daily operations.

They have to think back to 1990 to identify missing data. What kind of records do they have? Where are they? Who has access to them? Who remembers what happened then?

Agencies can use a consultant accredited by the California Climate Action Registry or The Climate Registry to calculate emissions, or compile their own report that must be verified by a third party accredited by the California Air Resources Board (CARB). Either way, department managers will be answering a *lot* of questions about financial data. To get started, they need:

- Utility records for both electricity and fuel use.
- The number of vehicles and how many miles a year they're driven, and how much fuel was purchased. While they won't have to document employees' commuting miles, agencies may want to start doing so to get a true carbon footprint. They also may have to review employee expense reimbursements, so if they don't track that information in a way that can easily be compiled, it's time to start.
- An inventory of stationary or portable engines that, for example, back up power, operate pumps, or run equipment that grinds green waste.
- To treat landfill and wastewater treatment plants as industrial sources, which could include the carbon output of "stacks" and less obvious "fugitive" emissions like leakage from equipment.
- Indirect emissions — defined as natural gas, electricity, and steam imports or heating and cooling obtained from centralized plants — outside the agency's boundaries.

BEYOND THE BASELINE

As agencies prepare for a baseline audit, they need to think about how to better centralize reporting systems. Record-keeping is critical to compliance. Get to the heart of the data, get a sense of the operation's processes, and evaluate how real the data are.

There's still some debate about the "cradle-to-grave" reporting of sources, such as offsite waste disposal. Are emissions attributed to the agency or to the company that processes the waste? Questions will arise about where boundaries are drawn with overlapping services and outsourcing. A key determinant is whether the agency has operation and/ or financial control over the source or operation in question. Managers will find themselves wrangling with other departments and agencies trying to protect their turf, particularly where there is shared operations. For the mandatory reporting program, CARB will make any final determinations as to whether certain sources should be included within the agency's boundary or not.

Another concern is growth: How can an agency reduce emissions to 1990 levels when the population is growing and residents expect essential public services?

These issues will sort themselves out over time, but wise managers are factoring them into their current baseline emissions calculations.

Although the data agencies report this year won't affect the carbon market or enable agencies to create reduction credits, CARB will use the figures to develop the cap-and-trade program. Determining which agencies may generate credits and which will need to buy them won't happen in earnest until the program is in place. This isn't expected to happen before 2010, with initial carbon-footprint reductions not required until 2012.

In the meantime, auditing operations *now* prepares agencies for future inventories as the laws are fine-tuned on the state and possibly, with a new administration in Washington, D.C., federal levels. And think about how much goodwill California's public agencies can generate by talking about how they're working to reduce their carbon footprint.

— Patrick Sullivan is senior vice president of SCS Engineers in Sacramento, Calif.

Agencies subjected to California's mandatory reporting rule must report emissions for the following sources:

- Direct stationary combustion emissions (generators, other engines, heaters, etc.)
- Specified process and fugitive emissions (landfill gas flares, digester gas, etc.)
- Fuel usage by fuel type; biomass fuels separate (diesel, gasoline, etc.)
- Indirect energy usage — electricity in kWh and thermal in Btu

- Mobile emissions (optional).

Contribution calculations

The public and private sectors collaborate to pin down an elusive target.

In June, California's Air Resources Board (CARB) released the details on how to determine and calculate how much greenhouse gas an agency or company produces. They have two choices: management control and equity share.

Management control is simpler, but forces a public agency to take credit for <i>all</i> emissions if it controls more than 50% of an operation. Equity share more accurately reflects distribution among a public agency and a for-profit entity, but detailed financial and management stake analyses are required to divvy up responsibility by percentage.

Mandatory reporting under California's Global Warming Solutions Act of 2006 focuses on specific emissions sources. But voluntary reporting programs enable cities and counties to determine a more true carbon footprint of operations by allowing coverage of a much wider range of sources. Whether or not they are subject to mandatory reporting, public agencies can report emissions through the California Climate Action Registry (CCAR) or The Climate Registry (TCR), which serves multiple U.S. states, some Canadian provinces, and a few Mexican states. Eventually, most cities and counties in California will be subject to mandatory reporting requirements, at which time they will be forced to report emissions to CARB; however, they can always voluntarily provide additional data to CCAR or TCR.

Formed in 2001, CCAR may give up its voluntary registry program for annual emission inventories next year to become the registry for reduction credits as part of a regional voluntary carbon market and California's cap-and-trade program. If that happens, TCR will be the primary and perhaps only voluntary registry for emissions in North America.

The registries share a Los Angeles office, have similar protocols, and accept reports that include emissions of six Kyoto-established pollutants: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Limited reporting options are available under both registries during the initial years of membership, such as CCAR's allowance for participants to "opt to limit their reports only to carbon dioxide emissions during the first three years of participation." Ultimately, though, reporting requirements will apply to all six Kyoto pollutants.

Both registries require reporting on direct emissions "from sources owned or controlled by the reporting entity," and only "encourage" reporting indirect emissions like employee commuting and business travel or product disposal and transport of purchased raw materials.

Reporting under CCAR is done through CARROT, the registry's online calculation tool. TCR has a similar online tool called CRIS. Learning how to use these tools is another basic step that public agencies are taking toward completing their inventories.

California generates 6.2% of the nation's, and 1.4% of the world's, greenhouse gases. In 1990, the state emitted 427 million metric tons carbon dioxide equivalent; 2020 levels are projected at 600 million. The goal of the state's Global Warming Solutions Act is to bring the 2020 projection down to the 1990 level. Source: California Air Resources Board

California's pending emissions cap-and-trade program is the cap and trade program the cornerstone of the cornerstone of the state's Global Warming Solutions Act. At this time, , it is unknown what sources or entities will be subject to the cap; however, it would be prudent for any agency to assume it will have to reduce emissions to achieve its 1990 baseline.

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