

How California's Emissions Program Can Benefit Wind

The state's cap-and-trade program could make wind projects more price-competitive with conventional resources.

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California is finalizing rules for a cap-and-trade program for controlling greenhouse gas (GHG) emissions. Under this program, emitters of significant quantities of GHG emissions will be required to obtain carbon allowances. In the electric sector, this will increase the cost of selling power from GHG-emitting power plants to off-takers located in California. It is likely also to increase the wholesale price of power in the state. This could benefit owners of wind projects, which are exempt from the program.

The cap-and-trade program is one of the key tools the California Air Resources Board (CARB) will use to meet the strict GHG emission reduction targets that California set for itself when it passed climate-change legislation, known as A.B.32. Under A.B.32, California must reduce its GHG emissions to 1990 levels by 2020 and begin work toward a longer-term goal of reducing GHG emissions by 80% by 2050.

CARB expects more than 25% of the 2020 emissions reductions to come from the cap-and-trade program. The board also expects additional emissions reductions (16% of expected 2020 emissions reductions) to come from a renewable portfolio standard that requires both investor-owned and municipal utilities to sup-

ply 33% of their loads from renewable resources by 2020. In addition, CARB will rely on a massive expansion of end-use energy efficiency, GHG emissions standards for light-duty vehicles, a low-carbon standard for transportation fuels and a number of other programs to reduce GHG emissions to the levels required by A.B.32.

The cap-and-trade program creates allowances for emitting GHGs, with the overall number of allowances being reduced each year. Each allowance represents the equivalent of a metric ton of carbon dioxide (CO₂) emissions. So-called "covered entities" subject to the program must have allowances equal to the difference between their GHG emissions and any allowed offsets. As the cap on the overall supply of allowances declines, the cost of allowances should increase, making emitting GHGs more expensive. This, in theory, will provide covered entities with an economic incentive to improve operating efficiency or otherwise reduce emissions.

As presently structured, beginning in 2012, so-called "first deliverers" of electricity (such as generators located in California or entities that sell imported electricity in-state) and certain large industrial facilities will be covered entities unless they receive exemptions. In 2015, the cap-and-trade system will expand to cover

distributors of transportation fuels, natural gas and other fuels. Entities that emit less than the equivalent of 25,000 metric tons of CO₂ per year are exempt from the program. Exempt entities, such as wind generators and other low-GHG-emitting renewable generators, may participate on a voluntary basis.

Implications for wind projects

In the electric sector, generators of fossil-fueled power and other covered entities typically will not receive free allowances from CARB. Instead, these entities must either purchase allowances from other entities or purchase and/or provide offsets, which CARB defines as the reduction or removal of GHG emissions not covered in the cap-and-trade program. Entities may use offsets to fulfill no more than 8% of their allowance requirements.

While CARB adopted a preliminary set of regulations in December 2010 that outlines how the cap-and-trade program will operate, the agency is still working on some aspects of the regulations. This makes estimating the impact of the program on wholesale prices difficult to predict at this point.

However, it is expected that most generators will pass along the costs of their allowances and offsets to their off-takers. This could make the

New Mexico's Cap-And-Trade Program Under Fire

In the waning days of New Mexico's former governor Bill Richardson's term, the New Mexico Environmental Improvement Board (EIB) approved regulations for the state's cap-and-trade program. The state's current governor, Susanna Martinez, R-N.M., strongly opposed the program and took quick actions against it. On her third day in office, Martinez removed all seven members of the EIB, stating, "They are more interested in advancing political ideology than implementing common-sense policies that balance economic growth with responsible stewardship."

She also attempted to delay the publication of the EIB's climate-

change regulations in the state's register, which would have kept the regulations from taking effect; however, the New Mexico Supreme Court overrode the governor and ordered the state records administrator to publish the regulations.

Two legislative attempts have been made to overturn the program, but as of early March, the Democrat-dominated legislature had completed more than half of its 60-day session without bringing a cap-and-trade repeal bill out of committee. As an alternative to legislative action, Martinez's new EIB appointees, all of whom are expected to be strong opponents of the cap-and-trade program, could

move to repeal the current regulations directly. However, this would require new testimony, fact-finding and public hearings, which would likely result in a lengthy process. At press time, this process had not been initiated.

Given the New Mexico Supreme Court's ruling, New Mexico's cap-and-trade program remains in effect even in the face of strong gubernatorial opposition. However, efforts to weaken or cancel the program are likely to continue. Thus, it is uncertain whether a cap-and-trade program will be implemented in New Mexico as scheduled in 2012 and, if implemented, how strong of a market it will create.

price for wind power more competitive with fossil-fueled generation, because wind generators will not have allowance or offset costs to pass along. It could also increase the wholesale price of power by an increment that is less than or equal to the allowance cost for the marginal plant on the system.

In California, the marginal plant is typically a natural-gas-fired plant that has an emissions rate of 117 pounds of CO₂ per million Btus of fuel. A gas-fired plant with a heat rate of 7,500 Btus/kWh would require 0.40 allowances per megawatt-hour of generation. The cost of these allowances could vary over a wide range. CARB has set a floor price for allowances sold at auction of \$10 per metric ton of CO₂, plus an annual increase of 5% above inflation.

CARB has not set a price cap but has determined to hold a certain number of allowances in reserve to be released as needed to increase market supply if allowance prices spike at auction. The California Public Utilities Commission (CPUC) has proposed using three different allowance price forecasts in its current long-term procurement proceeding, with

allowance prices in 2020 ranging from \$32.44 to \$54.06 per metric ton (see Figure 1).

An allowance price of \$40 per metric ton would increase the cost of power from a 7,500 Btus/kWh gas-fired plant by \$16/MWh. If this were the marginal plant on the system, these compliance costs could increase the market price of power by as much as \$16/MWh. However, the use of lower-priced offsets or actions to reduce GHG emissions could reduce compliance costs. In addition, the full

compliance amount will not be passed through to the off-taker in some circumstances and will not be reflected in the market price.

The cost of allowances is expected to increase over time as CARB reduces the number of allowances on the market. As shown in Figure 1, the CPUC's base case assumes that allowance costs would increase from about \$10 per metric ton in 2012 to about \$44 per metric ton by 2020. Of course, if implementation of the cap-and-trade program is delayed, covered entities

Figure 1: GHG Allowance Prices Assumed By The CPUC (in nominal dollars per metric ton)

Year	Low Carbon Price	Base Carbon Price	High Carbon Price Estimate
2011	0	0	0
2012	10.00	10.44	13.05
2013	13.37	17.83	22.29
2014	15.81	21.08	26.35
2015	18.26	24.35	30.44
2016	20.93	27.91	34.89
2017	23.62	31.49	39.36
2018	26.53	35.37	44.21
2019	29.47	39.29	49.11
2020	32.44	43.52	54.06

SOURCE: MRW Associates

will not incur compliance costs until the program starts.

Legal challenges

A tentative decision issued in January by the California Superior Court may delay the implementation of California's cap-and-trade program. Environmental justice organizations and community groups filed suit against CARB, alleging, among other things, that CARB violated the California Environmental Quality Act (CEQA) by not analyzing alternatives to a cap-and-trade program, such as a carbon tax or source-specific regulations. This is a relatively narrow lawsuit that objects only to the cap-and-trade market, not to California's climate-change policies.

The court's tentative decision states that CARB violated CEQA by approving and implementing the cap-and-trade scoping plan before

completing an environmental review. If the decision stands, it would not repeal the cap-and-trade program; rather, it simply would require that CARB perform an environmental review before the program is implemented. CARB filed objections to the tentative decision in February. If the court affirms the tentative decision, it may result in a delay in the start date for the cap-and-trade program until after January 2012.

CARB developed its cap-and-trade program in coordination with the Western Climate Initiative (WCI), a cooperative effort to reduce GHG emissions on a regional basis. CARB's program is designed to allow California entities to trade allowances freely with entities covered by cap-and-trade programs in other WCI partner jurisdictions. However, none of California's neighboring states will have a cap-and-trade program in place in

2012. Of the four WCI partners that may have programs in place by 2012, three are in Canada.

Five additional WCI member states and one other Canadian province are also planning cap-and-trade programs, but these will not be operational until after 2012. As such, at least for the first program year, California may be the only U.S. state in the western region with a cap-and-trade program. **NP**

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