

Leakage in California's Carbon Market

Although California's carbon market is generally seen as a model climate policy, recent reforms now credit utilities for shifting legacy coal contracts to their unregulated neighbors, a practice that causes leakage. To the extent the market relies on leakage to generate compliance on paper, it is producing the false appearance of emissions reductions through an accounting scheme that does not reflect real climate benefits.

Danny Cullenward

Danny Cullenward is the Philomathia Research Fellow at the Berkeley Energy and Climate Institute (BECI) at the University of California, Berkeley. An energy economist and lawyer by training, his work focuses on the design and implementation of science-based climate policy. He holds a Ph.D. in Environment & Resources (E-IPER) from Stanford University and a J.D. from Stanford Law School.

This work was conducted during a research fellowship supported by the Philomathia Foundation. Thanks to Michael Wara, Debbie Sivas, David Weiskopf, Alex Jackson, Jon Koomey, Grace Hsu, Dan Sanchez, Severin Borenstein, Jim Bushnell, Dallas Burtraw, Larry Goulder, Jeremy Carl, George Schultz, and Margaret Taylor for productive discussions on resource shuffling. Any remaining errors and all opinions are the author's own.

I. Introduction

Will California's carbon market reduce net greenhouse gas emissions to the atmosphere? Or will it merely produce the false appearance of emissions reductions through an accounting scheme that transfers liability for emissions to other states?

Responsibility for the answer rests with the California Air Resources Board (CARB), which regulates the state's carbon market. The problem is this:

California is the only western state pricing greenhouse gas emissions, but it participates in regional and global energy markets. Thus, state climate policy raises costs for energy consumed in California—including energy imports—but does not apply to businesses operating wholly outside of the state's borders. As a result, companies in California have an incentive to transfer their high-emitting activities outside the state, replacing them with low-emitting activities.

Table 1: California's Legacy Coal Power Plants (California Air Resources Board, 2013a; Cullenward and Weiskopf, 2013).

Coal Power Plant	California Utilities/Load-Serving Entities
Navajo Generating Station	LADWP
Four Corners	SCE
Reid Gardner	DWR
Intermountain Generating Station	LADWP, Glendale, Pasadena, Burbank, Anaheim, Riverside
San Juan	Imperial ID, Silicon Valley Power, Modesto ID, Anaheim, Glendale, Redding, Colton, Azusa, Banning
Boardman	SDG&E

When emissions reductions in one location cause emissions increases in another, economists call the resulting phenomenon leakage. This article addresses CARB's treatment of imported power emissions, the largest potential source of leakage. Although California consumes very little electricity produced from coal-fired power plants located in the state, several California utilities and government agencies own or have long-term contracts with six out-of-state coal facilities (Table 1). As a result, the greenhouse gas emissions impact of California's total electricity consumption profile is significantly greater than the emissions from its in-state generation only (Figures 1 and 2).

Emissions from coal power imports are included in California's cap-and-trade system, which places the emissions liability on "first deliverers" of electricity inside state borders.¹ Because the carbon market puts a price on the emissions associated with those out-of-state plants, the plants' owners (and customers)

have an incentive to reduce emissions. Unfortunately, the easiest way to reduce these emissions is to swap coal power contracts with other suppliers who produce cleaner power and do not face a price on carbon—a form of leakage called resource shuffling, which produces the false appearance of emission reductions without reducing net emissions to the atmosphere.

Resource shuffling is best illustrated by example. For

example, when a utility importing coal-fired electricity replaces its legacy coal contract with a lower-emitting alternative—such as electricity produced from natural gas, renewables, or even unspecified sources²—it will no longer report the emissions associated with the legacy coal power plant. Whatever replacement power it secures, the utility will report a reduction in emissions, since coal has the highest greenhouse gas emissions profile. This result would suggest that the market has reduced greenhouse gas emissions, but total emissions to the atmosphere will not go down if the legacy coal plant continues to produce power for its new owners.

Economists have repeatedly warned about the potential for leakage in the electricity sector of sub-national carbon markets (Chen, 2009; Cullenward and Wara, 2014). For example, James

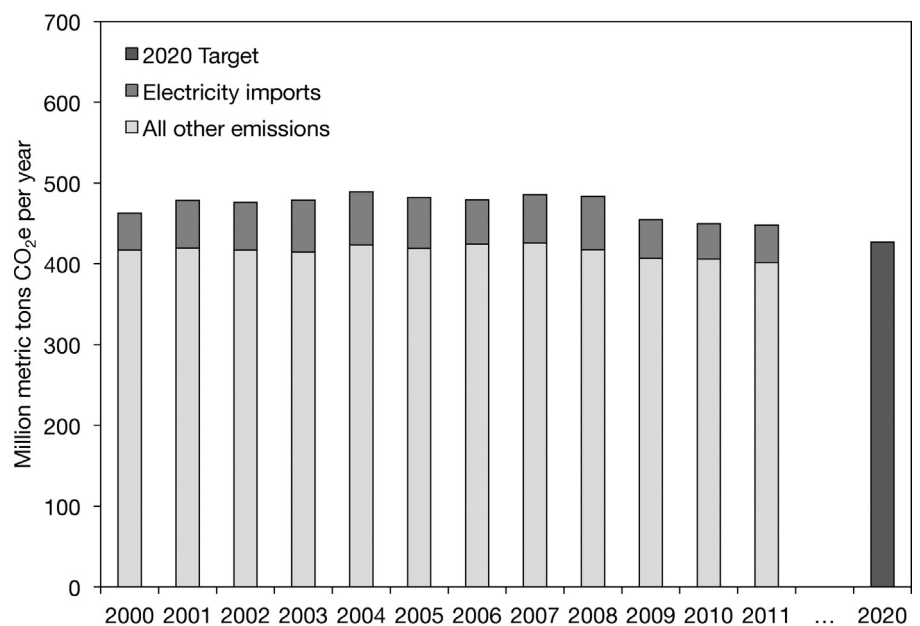


Figure 1: California's Greenhouse Gas Emissions (California Air Resources Board, 2013a)

Download English Version:

<https://daneshyari.com/en/article/706363>

Download Persian Version:

<https://daneshyari.com/article/706363>

[Daneshyari.com](https://daneshyari.com)