

Pricing Carbon with Taxes as an Alternative to Regulation.

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An expensive reality.

- Restricting greenhouse gas emissions or other pollutants is expensive, for the simple reason that doing so requires consumers and firms to use more costly alternatives.
- Emissions can be restricted either through regulatory caps or through higher prices that indirectly discourage emissions. Both work, but they are different.
- Older regulatory systems tended to impose clumsy quantity caps on a one-size-fits-all basis.
- More modern regulatory schemes use cap-and-trade systems, which limit quantities and thereby raise prices.
- And then there are environmental taxes, such as Alberta's, which operate directly on the price margin.

Carbon Taxes.

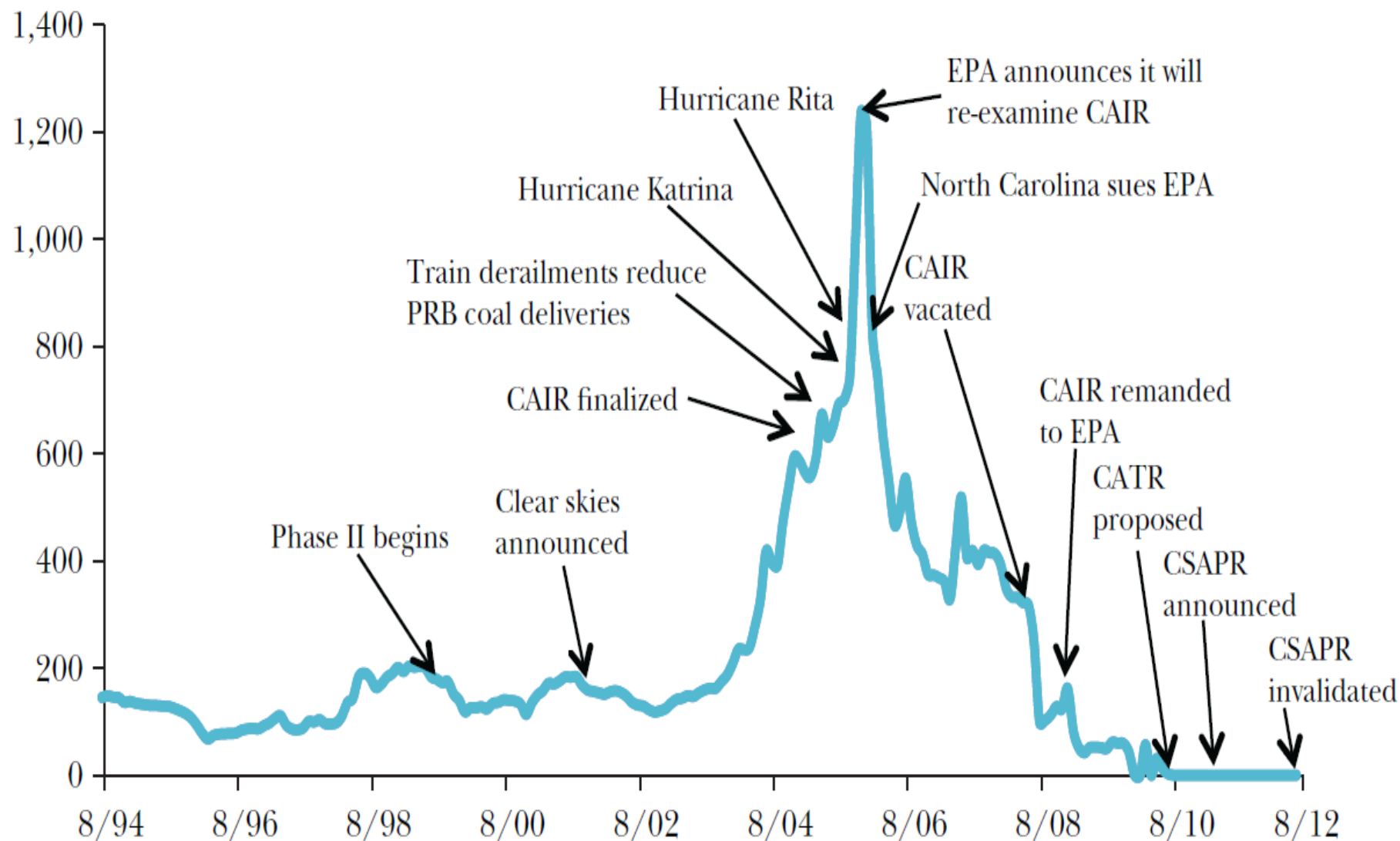
- Carbon taxes do two things:
 - Discourage carbon emissions by making them expensive.
 - Raise tax revenue.
- The first of these is usually the main point.
- Taxes have the great virtue of reducing carbon emission in an efficient manner, by imposing the same additional cost on all uses.
- What about the revenue?
- Advocates note that one of the benefits of carbon taxes is that they usually raise tax revenue more efficiently than do other taxes.
- As a result, even if the government returns the money to taxpayers by reducing other taxes carbon taxes can enhance the efficiency of the system as a whole.

What about Cap-and-Trade?

- An alternative to carbon taxes is to cap total quantities of greenhouse gas emissions, while permitting emitters to trade emission permits, which greatly lowers the cost (the estimates suggest it does so by roughly 50 percent in the U.S. SO₂ case).
- The market price of emission permits makes carbon emissions expensive, serving the same function as taxes do in the tax alternative to cap-and-trade.
- With cap-and-trade, total emission levels are chosen by the government, but the price of emission permits is set by the market and may fluctuate widely.
- From 1995-2006 SO₂ allowance prices were as volatile as world oil prices.
- CO₂ allowance prices in various world markets are also volatile.
- With taxes, the price (tax rate) is set by the government, and the emission level may fluctuate.

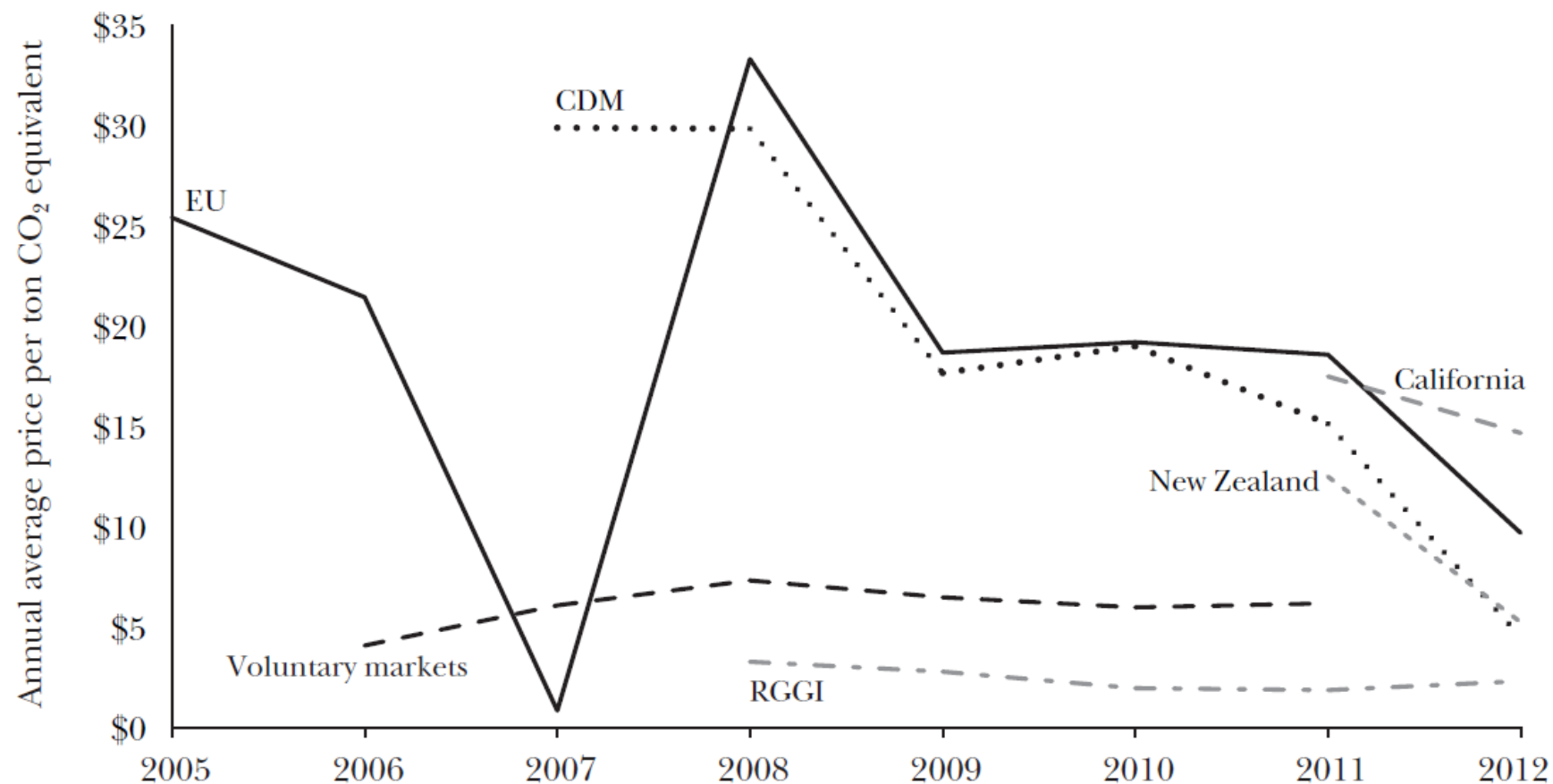
SO₂ Allowance Prices and the Regulatory Environment, 1994–2012

(1995 dollars per ton)



CO₂ Allowance Prices

(nominal)



Source: Authors.

Notes: “CDM” stands for the Clean Development Mechanism, which was set up as part of the Kyoto Protocol. “RGGI” stands for the Regional Greenhouse Gas Initiative, which operates in the northeastern United States. Exchange-traded prices are through June 30, 2012 as reported by Point Carbon, RGGI COATS, Ecosystem Marketplace/Bloomberg New Energy Finance. Our voluntary market data is based on year-end reports, and thus we have no data for 2012.

Comparing Alternatives.

- Carbon taxes have many appealing features.
 - Effectively and efficiently reduce carbon emissions.
 - Raise revenue that can be deployed for good purposes.
- There are two downsides to carbon taxes compared to cap-and-trade alternatives:
 - Taxes offer less precision in the level of carbon reductions.
 - Taxes impose real burdens on producers and consumers.
- The first of these is probably less of a problem than it seems, since tax rates can be adjusted over time.
- The second is a serious political and distributional issue.
- Alberta's policy clearly seeks a compromise approach to addressing the tax burden issue, while retaining carbon taxes that offer significant efficiency benefits.