

China's New National Carbon Market – Design Issues

Billy Pizer

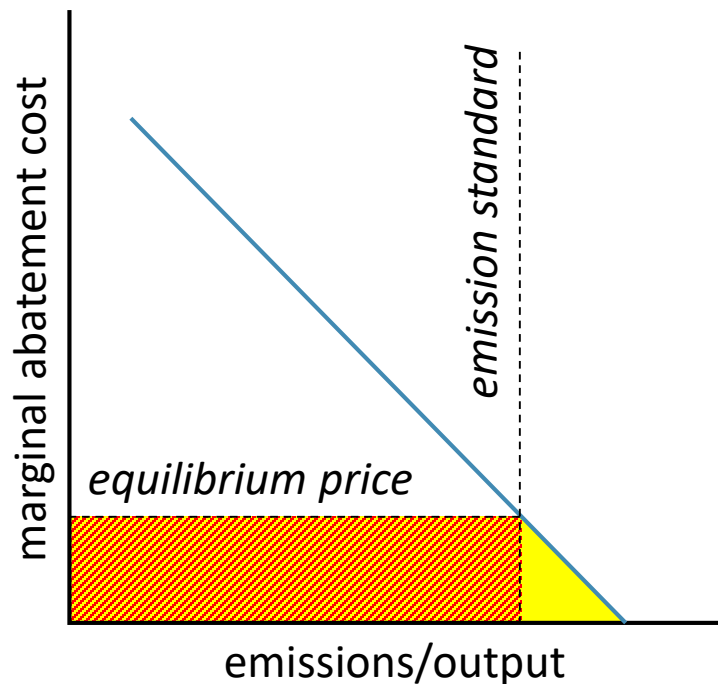
Sanford School and Nicholas Institute

Duke University

Three main points about design

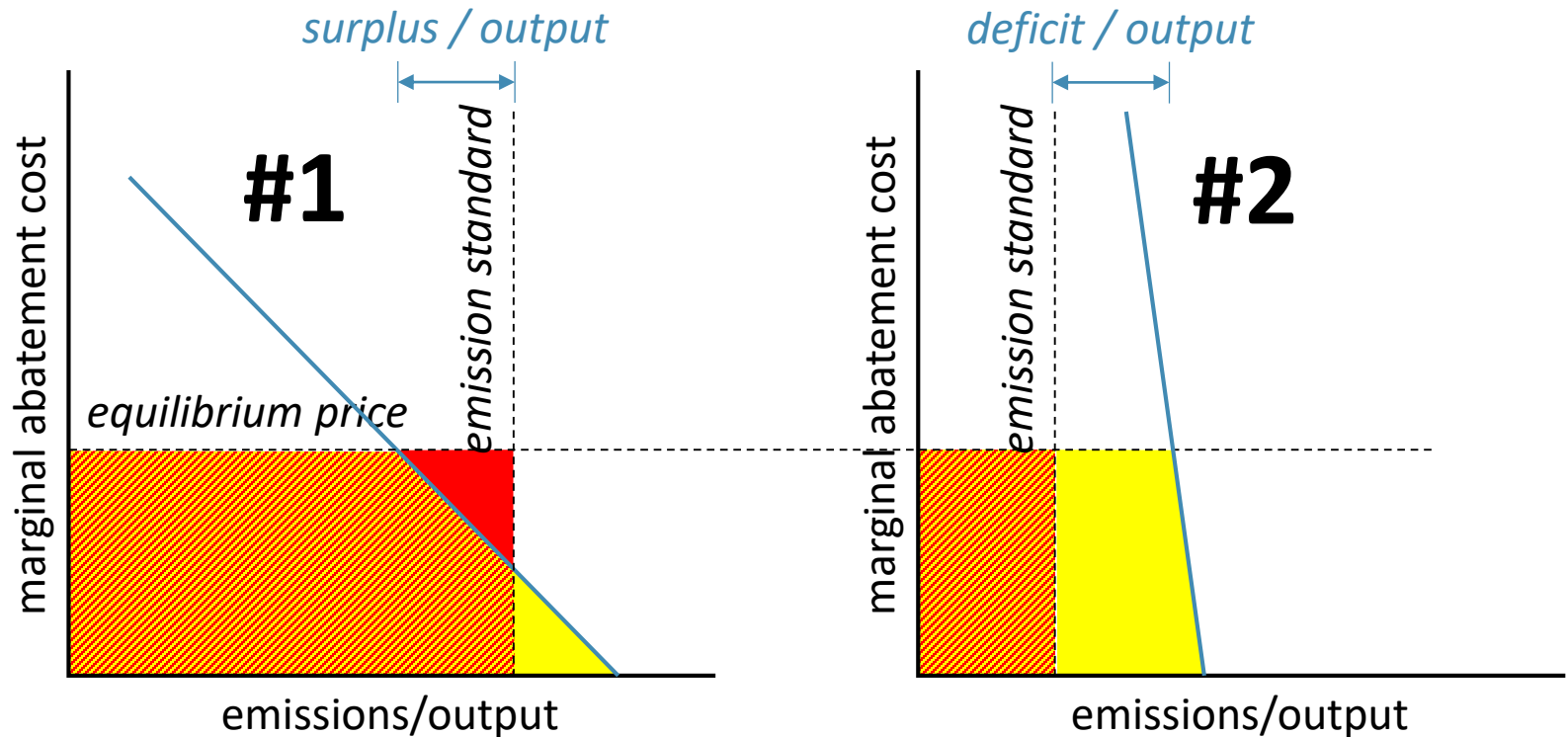
- *Product prices do not rise as much with a tradable performance standard.*
- A multi-sector (or sub-categorized) tradable performance standard has the potential to be a net subsidy to some sectors. If these are dirtier sectors, overall emissions could go up even as each sector is cleaner.
- A multi-sector tradable performance standard will encourage too much electricity use, unless industry indirect emissions are regulated.
- Price floors have been valuable in some programs; not clear how they could be incorporated in China.

Tradable performance standards do not price infra-marginal emissions; product prices do not rise as much.



Under cap-and-trade or a tax, infra-marginal emissions get priced. Under tradable performance standards, emission pricing is offset by output-based allocation (e.g., a subsidy). These exactly balance, on average, in a single sector.

With multiple sectors and standards, unit costs can decline in some sectors.

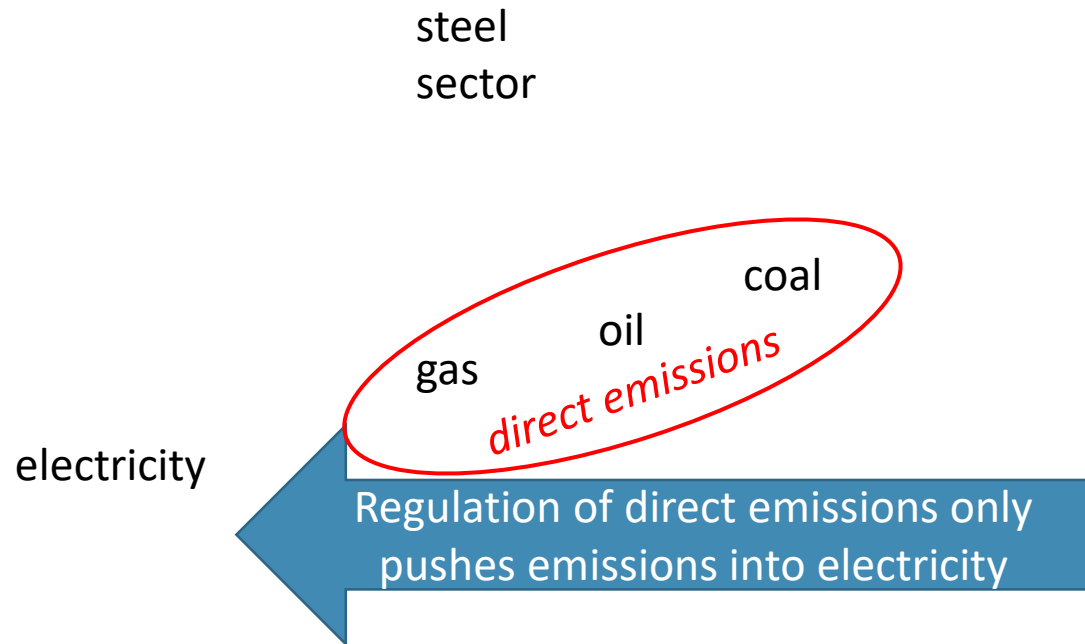


Sector #2 has lower emissions / output but steeper abatement costs and a tougher standard. When the allowance market is in equilibrium, sector #1 runs a surplus / output and sells to sector #2 who runs a deficit. Net costs (abatement + allowance cost in yellow – performance-based allocation in red) are negative in sector #1.

Possible ways to avoid subsidizing dirtier sectors / sub-categories

- Make standards more similar (tougher for dirtier / easier for cleaner sectors / sub-categories).
- Provide something like the “gas-shift” emission credits in the Clean Power Plan.
- Restrict trading from dirty sectors to clean sectors.
- Make adjustments over time: Tighten standards for sectors with significant surpluses / loosen for those with significant deficits.

Regulated industries need to include indirect electricity emissions to avoid too much substitution into electricity



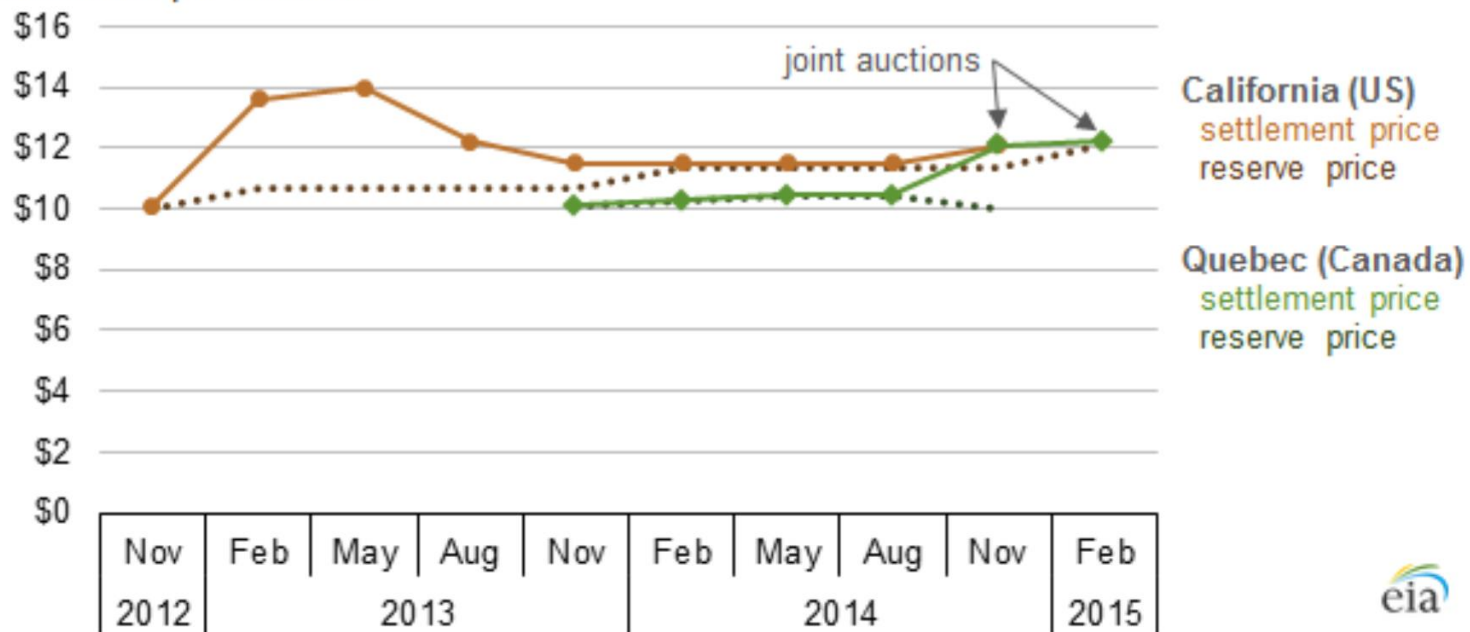
A tradable performance standard for direct emissions in industry will see emissions from their coal, oil, and natural gas use fully priced, but not indirect emissions from electricity. A tradable performance standard in the electricity sector does not sufficiently raise electricity prices.

Price floors have been valuable in the CA (and RGGI) programs. Not clear how to incorporate in China.

California and Quebec complete second joint carbon dioxide emissions allowance auction

Settlement price of current vintage carbon dioxide allowances (Nov 2012-Feb 2015)

US dollars per metric ton



Source: U.S. Energy Information Administration, based on California's Air Resources Board: [Archived Auction Information and Results](#) and Environment Quebec [The Carbon Market- Cap and Trade Auction Notices and Results](#)



How could a price floor work with a tradable performance standard, if China wanted one?

- Instead of allocating allowances based on production, allocate “revenue rights” based on production.
- Auction allowances with a price floor. Distribute revenue based on revenue rights.
- *If price floor is reached, same as a feebate.*
- *Not seen in practice.*
- *<current research with Clayton Munnings, Banban Wang>*

Three main points about design

- *Product prices do not rise as much with a tradable performance standard.*
- A multi-sector (or sub-categorized) tradable performance standard has the potential to be a net subsidy to some sectors. If these are dirtier sectors, overall emissions could go up even as each sector is cleaner.
- A multi-sector tradable performance standard will encourage too much electricity use, unless industry indirect emissions are regulated.
- Price floors have been valuable in some programs; not clear how they could be incorporated in China.