

Integrating Clean Energy in State Air Quality and Climate Change Policies and Programs: Carbon Compliance

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Key Points for Policymakers

- Energy and Environment Regulators have overlapping responsibilities
 - ❖ Working together is critical for success
- Keep your eye on the ball
 - ❖ Will the compliance system be effective getting reductions?
 - ❖ Will the system minimize costs to consumers for a given level of effectiveness?
- There will be winners and losers, most of them already know who they are and are practicing opportunism or damage control



Working Together

- Environment regulators
 - ❖ Understand sources and control technologies of supply
 - ❖ Understand sulfur and NO_x trading systems
 - ❖ Understand role of power sector among carbon sources
 - ❖ Spotty understanding of all electric alternatives, including energy efficiency, and markets
 - ❖ May not see cost and reliability as priorities
 - ❖ May not appreciate shortcomings of existing emissions trading systems applied to carbon



Working Together

- Utility regulators
 - ❖ Understand reliability and cost imperatives
 - ❖ Growing understanding of supply and demand alternatives, which are evolving
 - ❖ Spotty understanding of emissions trading systems
 - ❖ Spotty understanding of control technologies
 - ❖ Focus on power sector, little/no attention on other carbon sources (transport, non-power point sources)



Working Together on carbon is constrained by...

- ❖ Daily demands and responsibilities
- ❖ Turf
- ❖ Lack of vision, priority and leadership
- ❖ Jurisdictional limits
 - ◆ State Statutes
 - ◆ State -- Federal lines
 - ◆ Within states, coops and munis are often regulated differently than investor owned utilities



Working Together

- Requires constant effort, and often leadership from governors and direction from statutes to clarify priorities
- Is critical to sustained, exemplary results (carbon control is hard and complex!)
 - ❖ Extending across regions is especially useful



Carbon Control: Tax or Cap

- Common distinction between carbon tax and cap and trade
 - ❖ Tax assures that you know what “it” costs
 - ❖ Cap and trade assures that you know what emission result you get



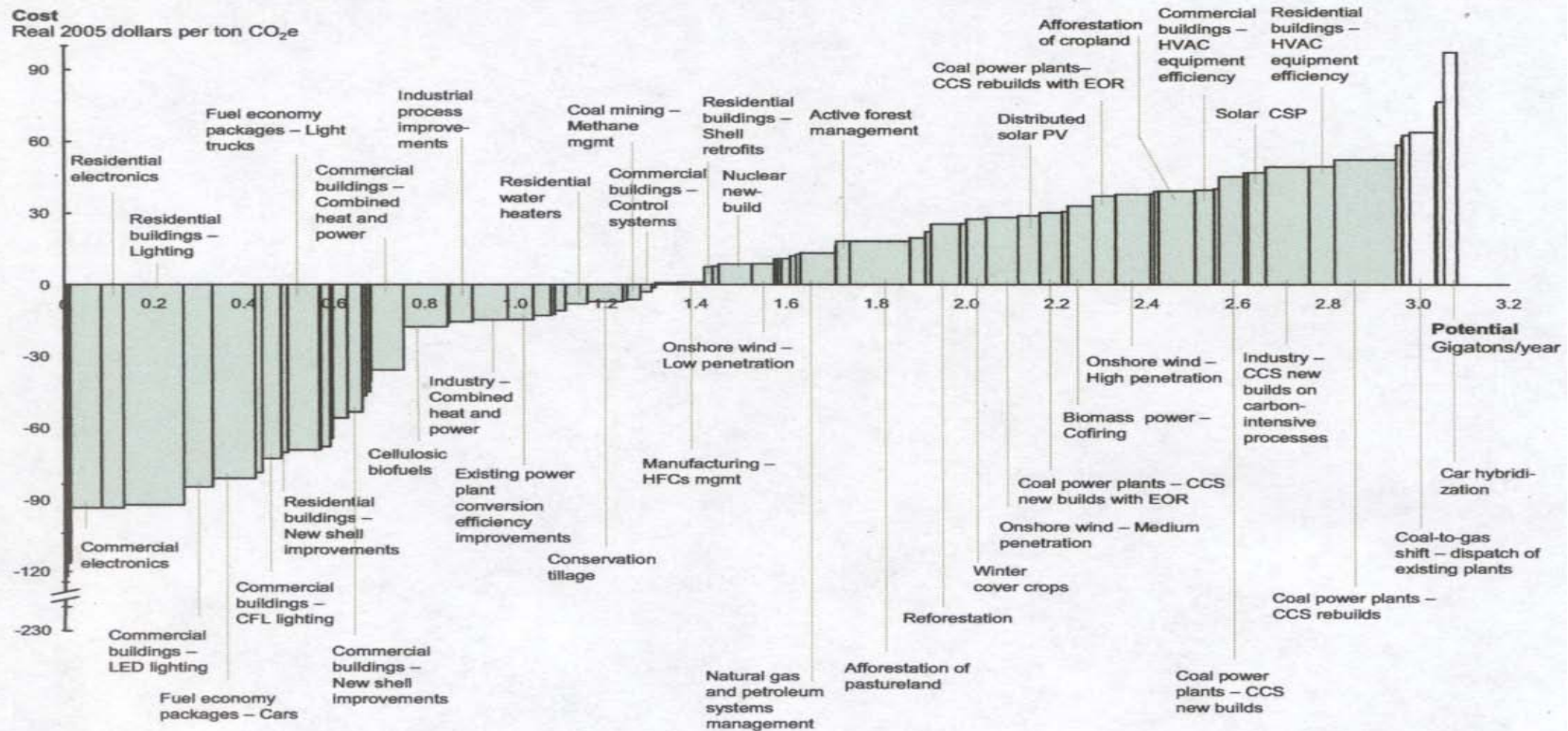
A Key Question

- What actions and policies are the least cost per ton of reduced carbon emissions?
 - ❖ Some want policy to promote high energy prices to reduce usage, and thus, emissions
 - ◆ But if you are willing to have higher prices, be sure you maximize the reductions you get for that cost, for that hit to the economy
 - ❖ Some actions (energy efficiency) have negative cost -- they are economic anyway

An “Abatement” Diagram from McKinsey Report

Exhibit B

U.S. MID-RANGE ABATEMENT CURVE – 2030



Source: McKinsey analysis

Policies should promote lower cost actions

Focus on Cap:



Allocation of Allowance and Allowance Requirement

- An allowance to emit a ton
 - ❖ A verification system assures that ‘a ton is a ton’
- Total is capped, probably declines over time
- Who starts out with the allowance (allocation or auction)?
 - ❖ With state specific apportionment (as in RGGI)?
- Who ends up with it (incidence)?
- Trading
 - ❖ Do you want a lot of trading (good for traders) or a little?



‘Allocation’ and ‘Incidence’ Methods

- To the generators
- To consumers or their proxy, the distribution utility or the government
- Allocation can be split, and can transition to protect “losers”
- Apply to generation
 - ❖ Allowances equal to emissions
- Apply to load serving entity or utility (like a renewable portfolio standard)
 - ❖ Allowances equal emissions of sources in portfolio



Where will money go?

➤ Possibilities

- ❖ New no-carbon/low-carbon energy resources
 - ◆ Limit to energy efficiency, renewables, CHP
- ❖ All no-carbon/low-carbon energy resources
 - ◆ Including windfalls for existing resources
- ❖ All generation, due to increased market prices
- ❖ Rate reductions (no support for clean resources)
- ❖ Traders, proportional to volume
- ❖ General government

➤ Policy will decide – make the decision on purpose



Allowance Markets: Three Designs

- Generator allocation and incidence: excess allowances traded, low carbon sources get windfall, market price rises
- Consumer allocation, generator incidence: all allowances traded, sale/auction revenue can be used for public benefit clean energy investment, market price rises (several RGGI states)
- Consumer allocation and incidence: excess allowances traded, low carbon sources help utility live within its carbon budget, minimum market price rise



Electric Markets and Carbon Allowances

- Primer: Spot market energy receives “clearing price” (not bid price)
 - ❖ This effect eventually affects bi-lateral power contracts too
- If carbon allowance cost raises clearing price, all generation benefits
- For regional carbon systems, policymakers should ask about the effect on market clearing price



Potential Weakness of regional cap and trade programs

➤ Leakage

- ❖ Generation from outside the region, cheaper, not subject to cap, is bought by utilities in the region, substituting for generation that might be higher cost and cleaner
- ❖ This is fixable
 - ◆ Performance standard applied to consumer, like an RPS, is best suited to solve this problem
 - ◆ A national program prevents domestic leakage, international imports still an issue absent global



Winners and Losers

- Low/No Carbon resources will be more valuable than before
- High Carbon resources will be less valuable
- Energy Efficiency is the most effective resource -- will the system promote EE?
- Changing the dispatch order of power supply is hard
 - ❖ Coal is cheap to run once you have built the plant



Recommendation for Policymakers

- What industry wants most: certainty
 - ❖ Give it to them, even if it hurts
 - ❖ Phase in to cushion the shock and to allow investment to align with policy
- Pay attention to allocation, incidence
 - ❖ Get the most reductions for the least cost
 - ❖ Make sure systems actually promote the best solutions (energy efficiency)



Recommendations for Policymakers

- Resolve inter-agency responsibilities
- Support state efforts that may be more ambitious than a national carbon reduction program
- <http://www.raonline.org/Feature.asp?select=50&Submit1=Submit>
- <http://www.mckinsey.com/clientservice/ccsi/greenhousegas.asp>