Keeping A Lid On It:
Emissions and Price Interactions Between RGGI and the Clean Power Plan

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Resources for the Future
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Opportunities and Challenges of Trading with States Beyond the RGGI Region.
Duke Nicholas Institute, Georgetown Climate Center, Resources for the Future, and the Collaborative for RGGI Progress

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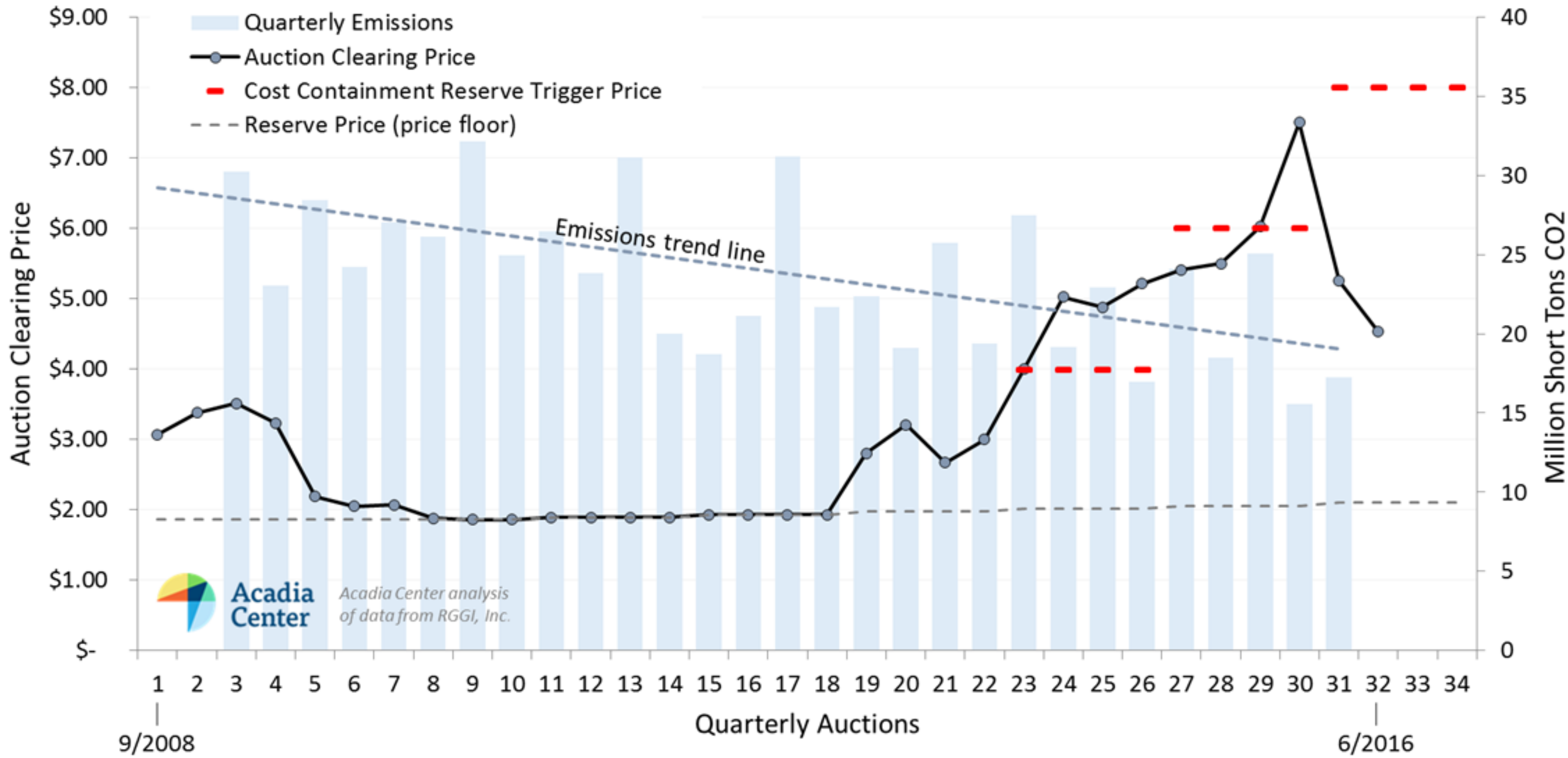
Setting the Stage from the April 29 Discussion:
Why Cost Containment?

- Prices in a market-based program are uncertain. In RGGI:
  - One finds volatility of natural gas prices and electricity demand.
  - Uncertain operation of existing nuclear fleet.
  - Program investments in energy efficiency help reduce emissions.
  - Federal and state programs provide incentives for development of renewables.
- Possibility for a slack cap going forward is real.
- Intuition and economic research indicate that investors and consumers benefit from avoiding sudden extreme outcomes.

- In RGGI both low *and* high side provisions have been triggered. The minimum price (reserve price in the auction) has been especially important.

Experience with Allowance Prices



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RGGI Faces Minor Challenges in Complying With the CPP

1. RGGI covers a larger set of units (small existing units and new units) than is required under the Clean Power Plan.
2. Offsets are not allowed for CPP compliance.
3. Total emissions including the cost containment reserve (CCR) cannot exceed the CPP emissions budget for CPP affected sources in the RGGI states.
   - Total possible emissions (RGGI cap + CCR) < the CPP budget

- These issues can be solved with modest changes in RGGI's design, or by using a *state measures approach* that allows for a unique design subject to EPA approval and has backstop measures to ensure the emissions standard is met.

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RGGI Trading with Other States

- Trading provides a way to identify the least cost emissions reduction and harvest the greatest reductions for the cost.
- Larger markets are more resilient to changing conditions.
- Aligning programs across states helps resolve *leakage*.
- RGGI leadership is meaningful if it results in other states adopting climate policies.
- Might a larger trading region lessen the need for cost management in RGGI?

In this discussion I will assume RGGI:

- uses a mass-based approach covering existing plus new sources,
- can limit trade to states that also cover existing plus new sources
- and/or can limit trade according to other criteria such as aligned price floors or cost containment reserves.

A Successful Trading Scenario…

Sales *from* RGGI states *to* other states could:

- Lower emissions in the RGGI states
- Likely increase the price for RGGI allowances….
- The increase in revenues to RGGI would accrue to generators or other allowance holders, or to the states in the auction, bringing revenue into the region.

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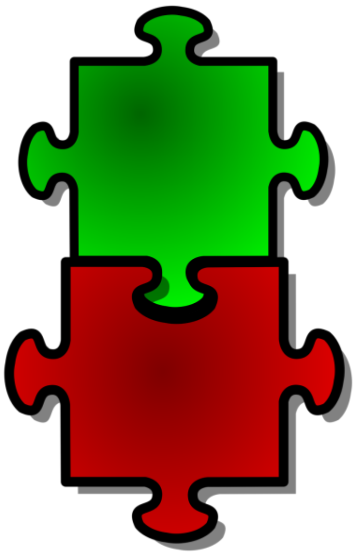
A Good Outcome for RGGI Might Be Sales to Other States from Under the RGGI Cap

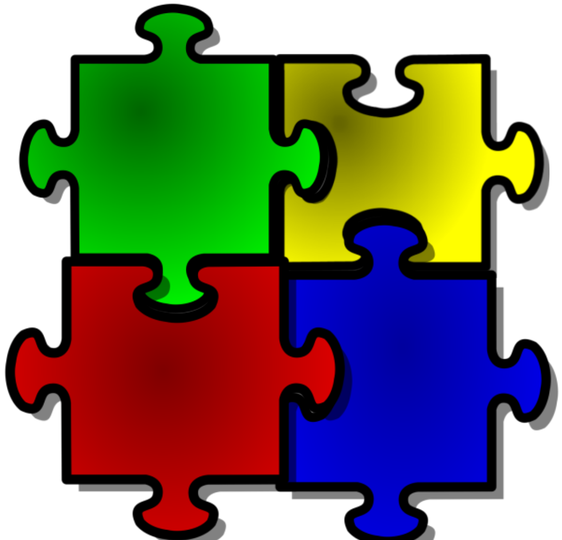
Other States
Price = $14



CPP Cap = 80

< CPP allowances flow from RGGI to other states <

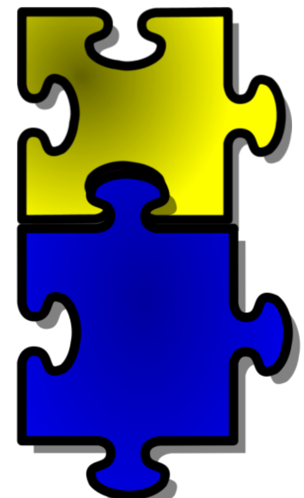
Combined Market Price =$12?



Other States Emissions Rise => 90?

RGGI States Emissions Fall => 70?

RGGI States
Price = $10



CPP & RGGI Cap Both = 80

Total emissions are unchanged. RGGI emissions fall. Auction revenue increases.

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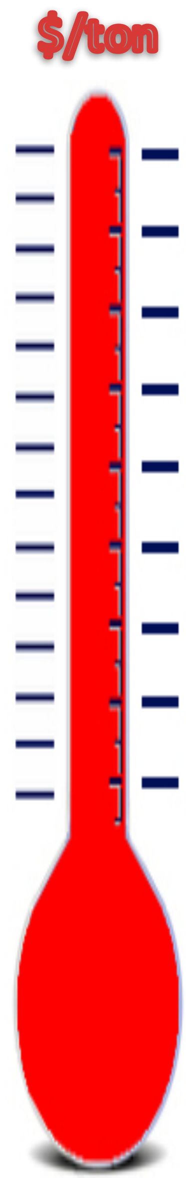
But the RGGI CPP Budget is Likely to Be *Greater* than the RGGI Program Cap => *"Headroom"*

Other States

RGGI



RGGI Cap
Allowance Price

Other States'
CPP Allowance Price
(Marginal Cost)

RGGI's CPP
Marginal Cost

Headroom: RGGI efforts have driven emissions below CPP levels.

Trading May Introduce Important Challenges to RGGI's Own Program Goals

After approval of a compliance plan with identified market partners, RGGI might not be able to impose restrictions on the flow of CPP allowances with its trading partners.

This could introduce:

- A dilemma of <u>extra emissions</u>
  (what to do with the RGGI headroom?),
- An <u>emissions cap dilemma,</u>
  (emissions in the region could exceed the RGGI cap), and…
- A <u>price floor dilemma</u>
  (allowances from other states may be cheaper than the RGGI price floor).

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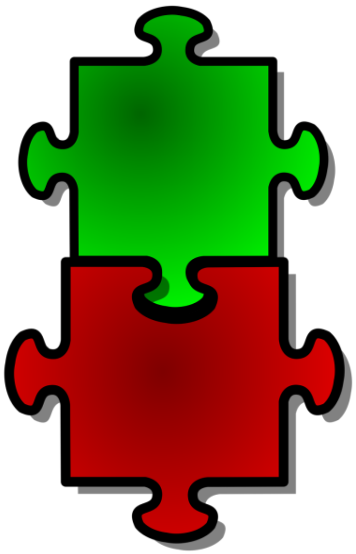
CPP Headroom Could Introduce Extra Emissions

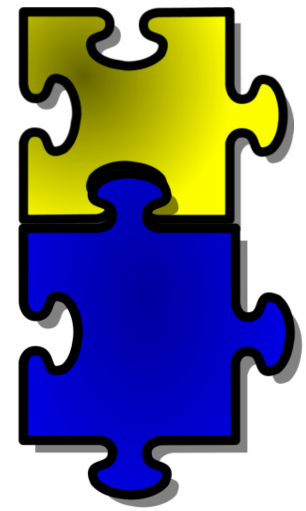
Other States



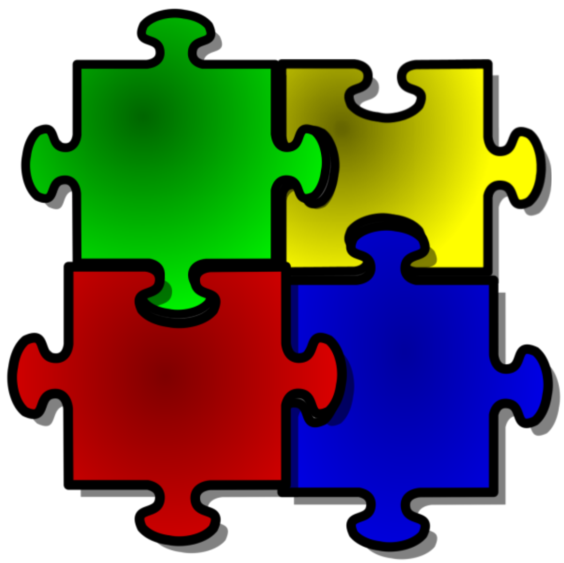
CPP Cap = 80

< "Surplus" CPP allowances flow from RGGI to other states <

RGGI States



CPP Cap = 90
RGGI Cap = 80



Other States
Emissions **Rise**
=> 90?

Selling RGGI headroom under the CPP could erode RGGI achievements

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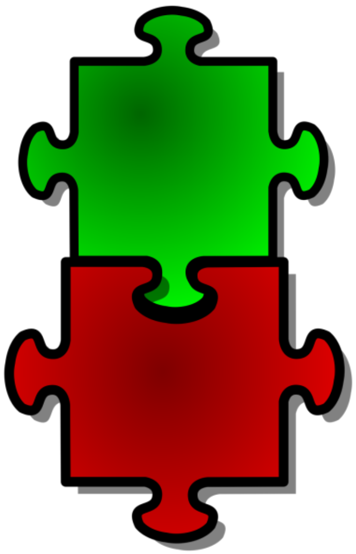
RGGI Purchases Could Create an Emissions Cap Dilemma

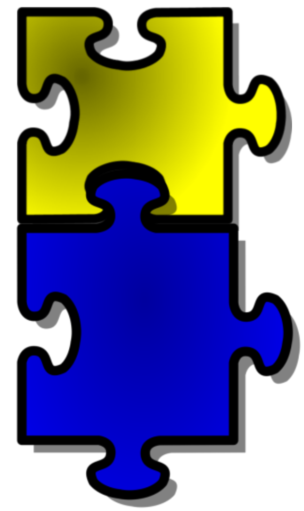
Other States
Price = $2



Emissions = 80

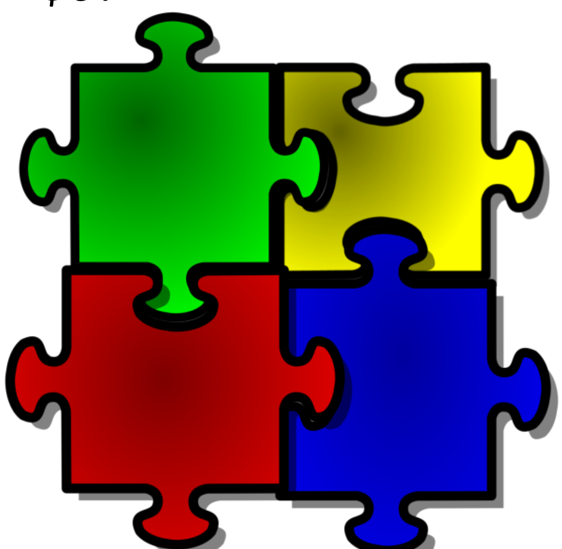
> CPP allowances flow from other states into RGGI >

RGGI States
Price = $10



Emissions = 80

Combined Market Price
=$6?



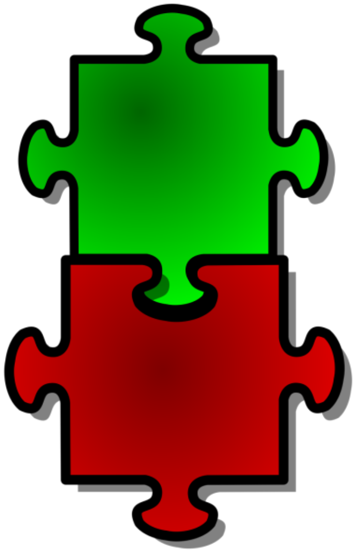
Other States
Emissions Fall
=> 70?

RGGI States
Emissions **Rise**
=> 90?

RGGI emissions could exceed RGGI's cap

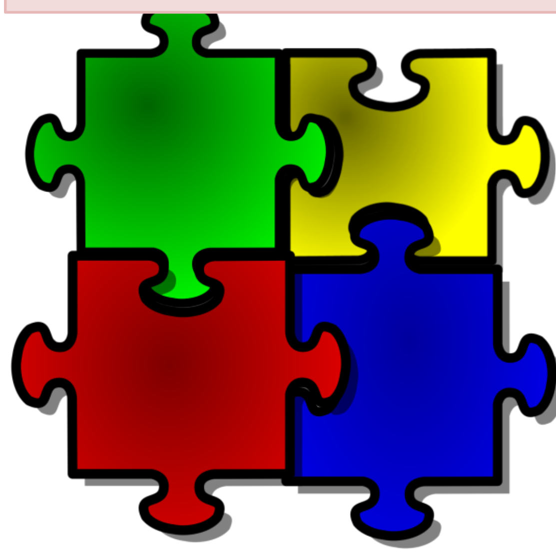
RGGI's Price Floor May Not Be Enforceable

Other States
Price = $2

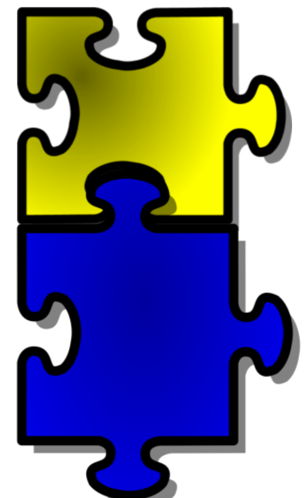


> CPP allowances flow from other states into RGGI >

Combined Market Price
=$6?



RGGI States
Price = $10



RGGI Price
Floor = $8

Some or all RGGI allowances would not sell if the price is at/below the floor:

- Emissions increase in the region, also yielding more SO_2
- RGGI loses auction revenue
- RGGI loses incentives for EE, RE investment in the region.

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Summary of Observations

1. If RGGI sales to other states come from under the RGGI cap they could decrease emissions in RGGI, increase the allowance price in RGGI and increase revenues.
2. RGGI sales of headroom under the CPP would constitute 100% leakage and may erode RGGI accomplishments.
3. RGGI purchases from other states would increase emissions in RGGI and also depress the allowance price in RGGI yielding less auction revenue.
4. If the price of CPP credits from other states is below RGGI's price floor, revenues could disappear, even as emissions increase.

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Further Considerations and Strategies

1. An expanded influence for RGGI leadership?
2. A different approach to CPP compliance?

1. RGGI Leadership in National Policy

- RGGI could potentially make its “headroom” under the CPP available to influence program design in other states:
  - RFF modeling indicates that ***CPP allowance prices*** **will be less** in RGGI than in states that have not begun to reduce their emissions (and probably less than the RGGI cap price).
  - Making CPP headroom available would constitute additional emissions that would not occur if RGGI retired the these allowances.
  - However, RGGI might make its CPP headroom available to incent other states to adopt an appropriate program design (e.g. cover new sources).
  - If other states cover new sources, total national emissions could be reduced.

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2. Preserving RGGI's Design within the CPP

RGGI could continue to limit emissions in the region by using ***two*** compliance instruments.

(This is simpler to do than it seems :-)

i. The RGGI program could continue intact. Regulated entities would use RGGI allowances to comply with the program.

ii. A tradable CPP credit would be issued **for free** and accompany the sale or issuance of every RGGI allowance.

Firms would have to comply with the RGGI program as they do now and would comply separately, at no cost, with the CPP. (Firms already comply with multiple environmental programs).

With Separate RGGI Allowances and CPP Allowances…

- Emissions in RGGI could not exceed the RGGI cap.
- Emissions in RGGI could be less than the RGGI cap if firms sold their CPP credits to other states.
  - Auction prices in RGGI could not fall below RGGI's price floor.
  - Auction prices in RGGI might increase reflecting the value of the gratis CPP credit on the interstate market.
  - If auction prices increased there could be additional auction revenue in RGGI paid for by other states.

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Conclusion

- RGGI has the ability to choose its trading partners under the CPP.
- But once compliance is linked with other state partners, RGGI might not be able to control allowance flows.
- CPP marginal compliance cost in other states is likely to be less than RGGI allowance prices/price floor, meaning RGGI firms would like to import allowances from other states.
    - Emissions could exceed RGGI targets, allowance prices could fall and auction revenues could dry up.
- RGGI likely has "headroom" under the CPP. RGGI could decide to *spend* this to encourage other states to cooperate.
- Or, RGGI could issue two compliance instruments to protect RGGI program goals while engaging in CPP trading with other states.
- Other possibilities?

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