

Realizing RGGI: Designing, Implementing and Expanding a Regional CO₂ Cap and Trade Program for the Electricity Sector

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RGGI Background and Status

- Goal to develop strategy to reduce GHG emissions in region using an emissions cap and trade approach.
- Process began in 2003 at invitation of former Governor Pataki of New York.
- MA and RI drop out in December 2005.
- Remaining 7 states announce agreement on December 20, 2005.
- Final model rule released in August 2006.
- MD passes Healthy Air Act in April 2006 that requires MD to join RGGI.
- MA and RI rejoin RGGI in January 2007.
- Program is to be implemented on a state-by-state basis.



Elements of RGGI MOU and Model Rule

- Program to start in 2009; includes all units over 25 MW.
- Stabilize emissions of CO₂ at current levels from 2009 through 2015.
- Ramp down to 10% below current levels by 2019.
- Banking of allowances is allowed.
- Limited use of emission offsets, which grows with allowance price.
- State apportionment of CO₂ emission allowances based on historic emissions and other factors.
- States responsible for allocating allowances to sources.
- Dedicate **25%** for consumer benefit or strategic energy purposes.
- VT, NY, ME and MA plan to auction 100% of emission allowances.

Outline of Presentation

- Effects of Allowance Allocation within RGGI:
 - Effects on firm value.
 - Findings on compensation
- Findings of RGGI allowance auction workshop
- Findings of MD joins RGGI study
- Concluding Thoughts

Thoughts on Allowance Allocation

Prior cap and trade programs typically allocate for free.

Economic efficiency argues for auctioning allowances.

Compensation is a potential reason for free allocation.

How many to give away for free?

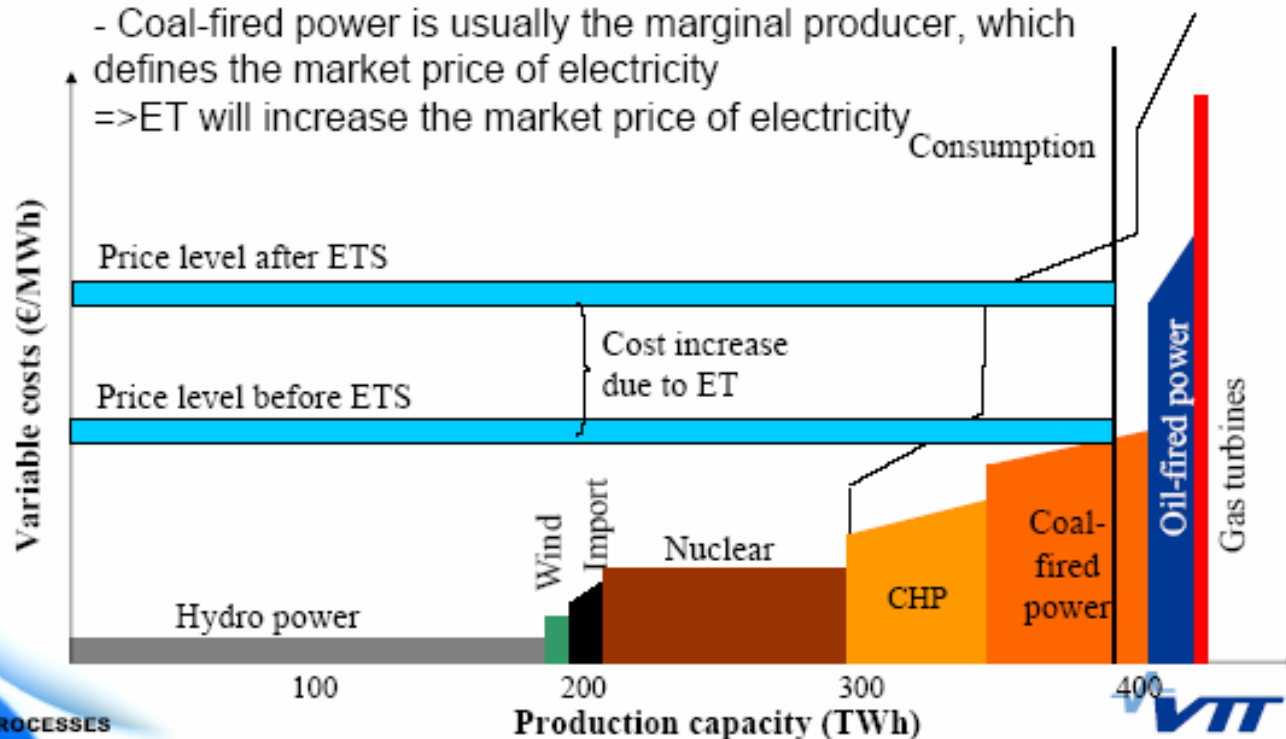
How much compensation is justified?

Regulated entities may not bear all the costs.

Modeling (and experience) have shown that firms can profit (have profited) from carbon regulation.

THE IMPACT OF EMISSIONS TRADING ON THE NORDIC ELECTRICITY PRICES

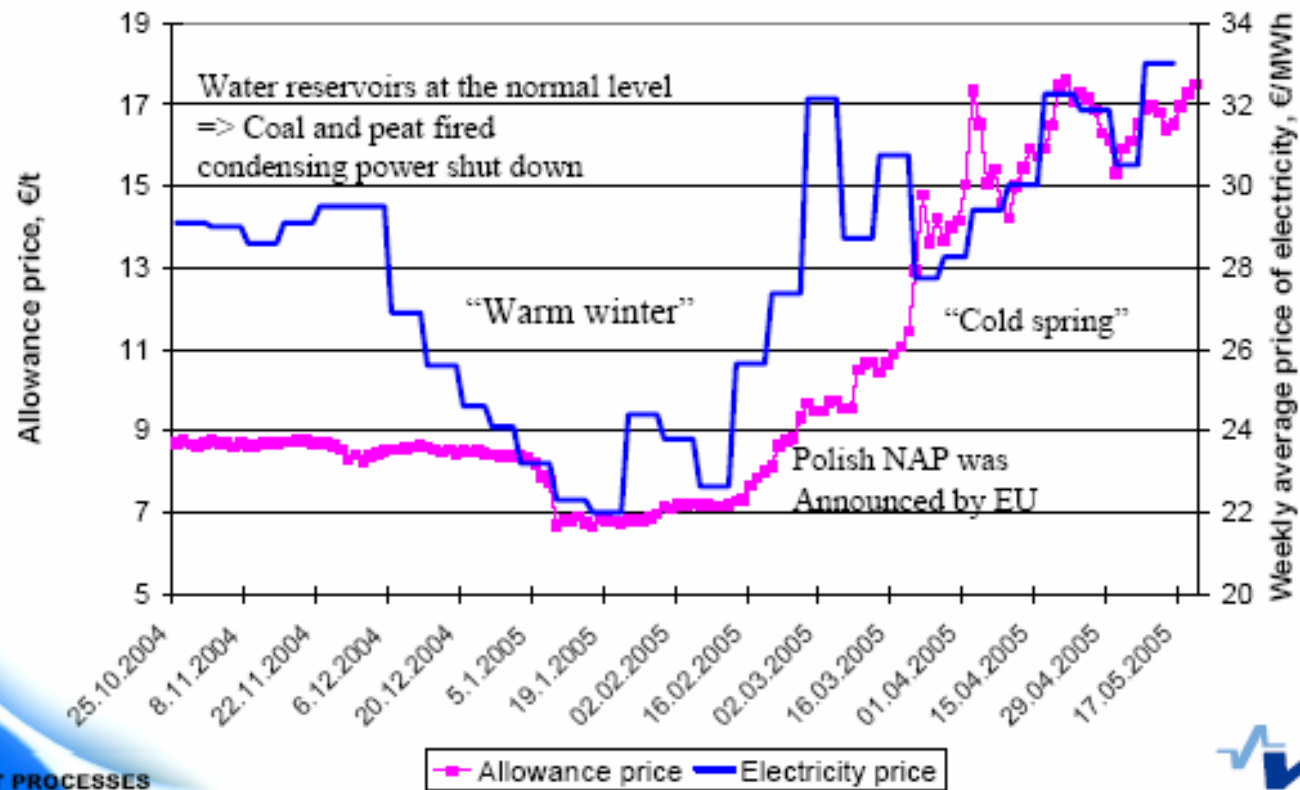
- About 70% of electricity is 'CO₂-free' (50% hydro, 20% nuclear)
- Coal-fired power is usually the marginal producer, which defines the market price of electricity
- => ET will increase the market price of electricity



Source: VTT Processes of Finland.

EU Allowance prices and weekly average system prices of Nordic electricity

(Notice: The yearly average market price in 2004 was 28,9 €/MWh)



VTT PROCESSES



Source: VTT Processes of Finland.

RFF Scenarios for Evaluating Allocation in RGGI

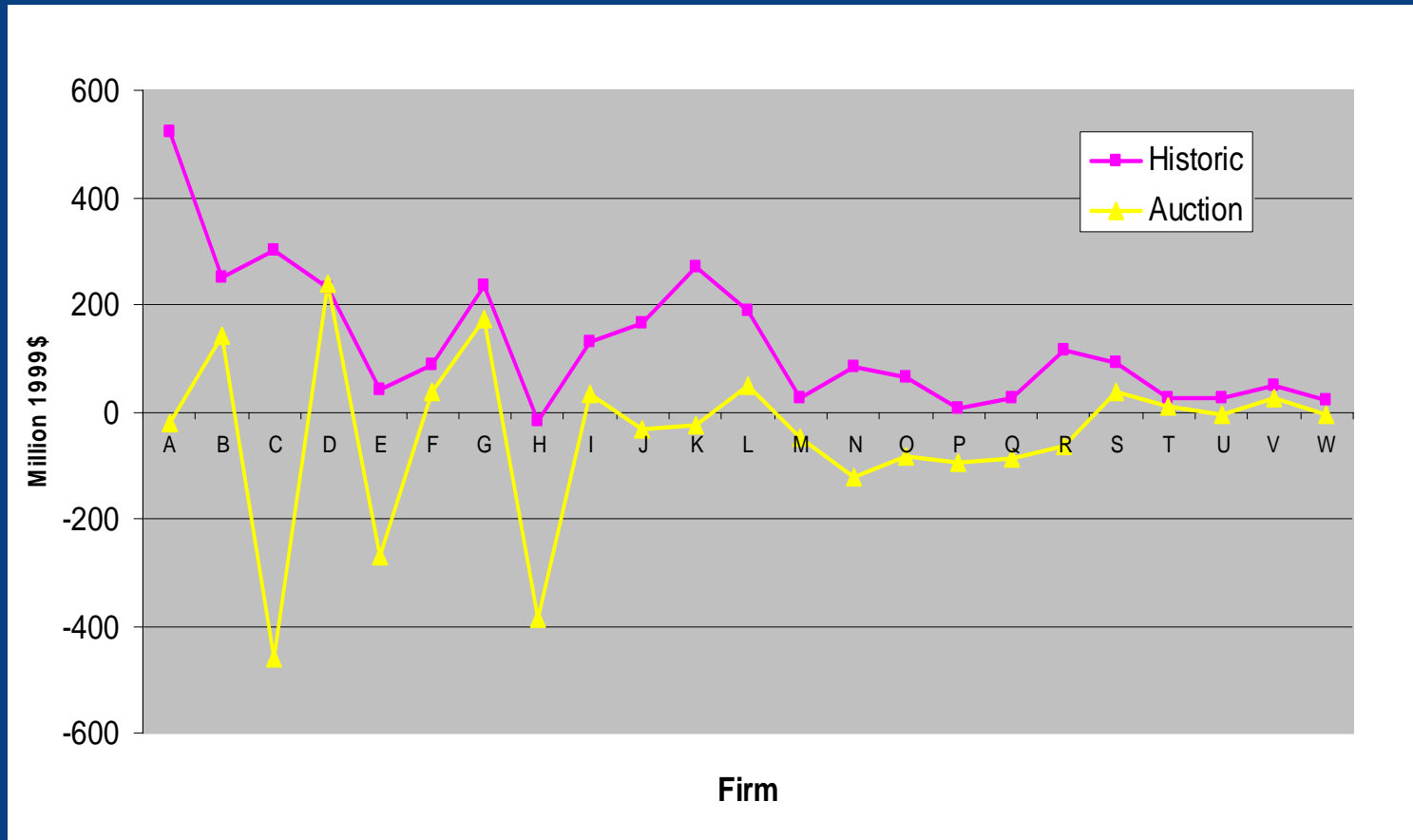
Policy: Start at 2008 baseline CO₂ emissions and phase down by 20% by 2025 in nine state region. *This policy scenario is much stricter than actual RGGI policy.*

Two bookend approaches to allocation:

Auction: 100% of CO₂ allowances auctioned to generators.

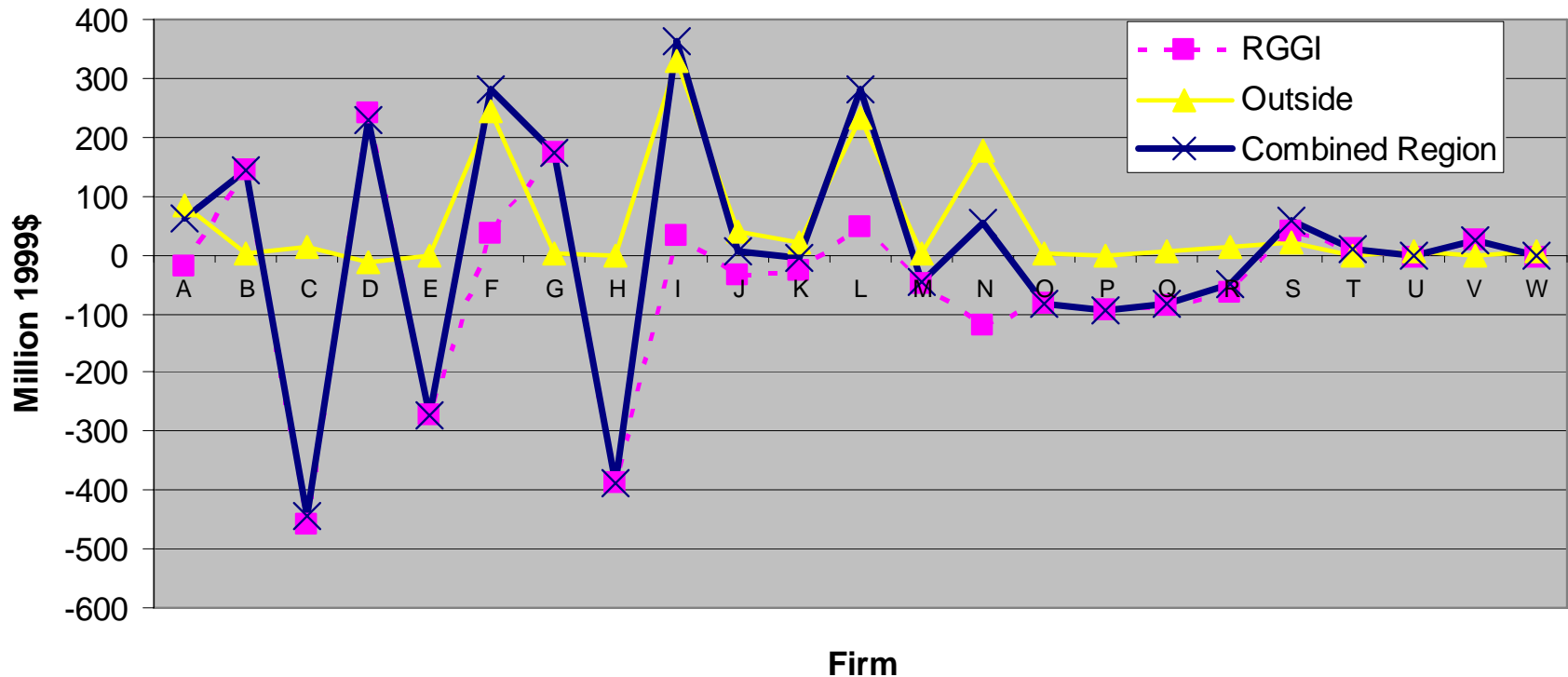
Historic Generation: Allocation to all incumbent emitters based on 1999 shares of generation.

Distribution of the Change in Firm Value **within** **Nine-State RGGI Region** for 23 Largest Firms



100% historic allocation overcompensates firms in RGGI region by \$4.67 billion.

Distribution of the Change in Firm Value for 23 Largest Firms in RGGI with Auction



Percent of Allowances Needed for Full Compensation of “Losers” in RGGI

	Compensation of Firms that Lose Value	Compensation of Industry
Larger Region (All of MAAC & ECAR included)	34%	< 0%
9-State RGGI Region Only	53%	29%

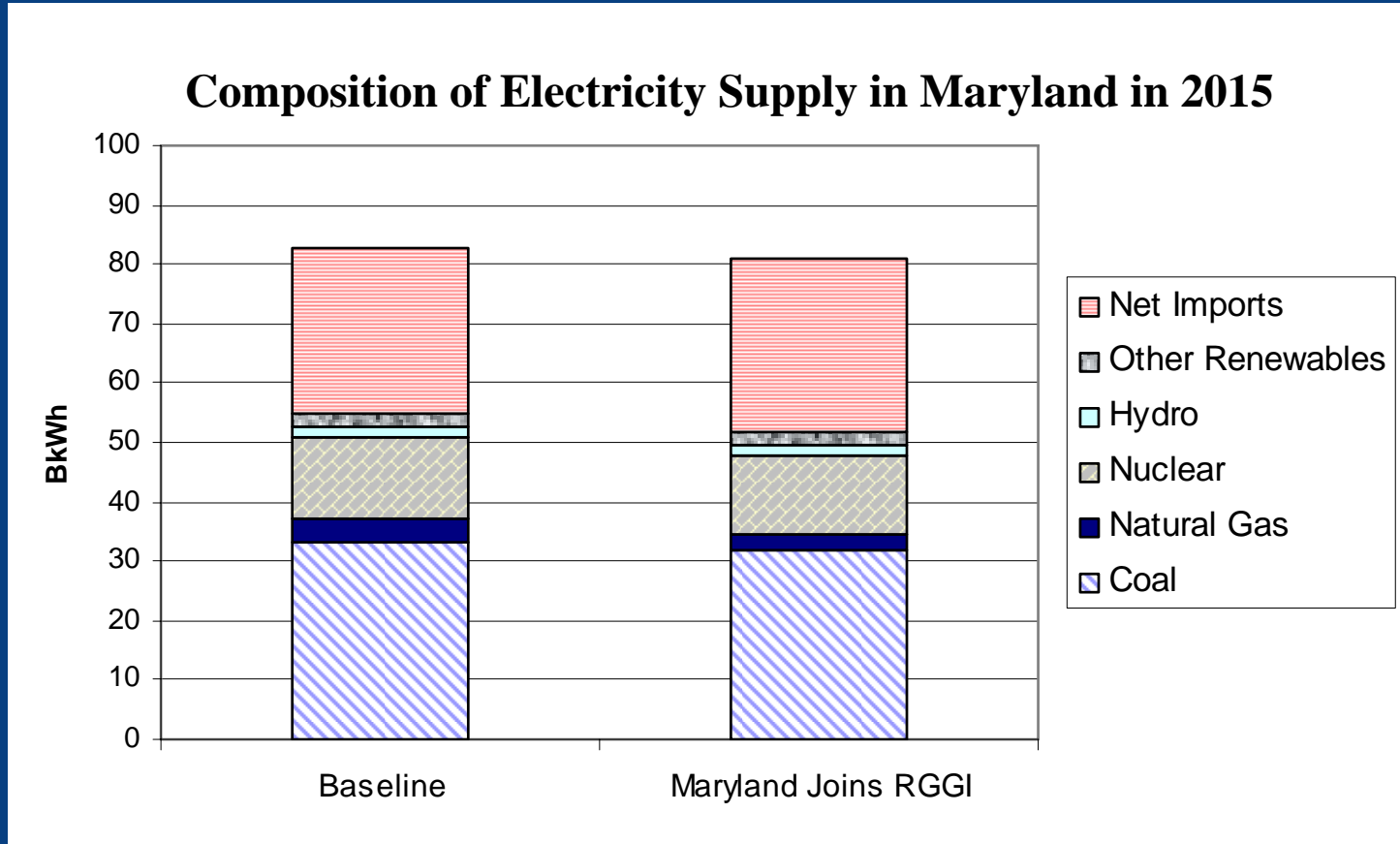
Compensation Caveats

- Is 100% compensation of producers desirable?
- Desire to compensate other parties.
- An auction provides revenues that can be used for that purpose and others.
- Several RGGI states opting for 100% auction.

Designing Allowance Auctions

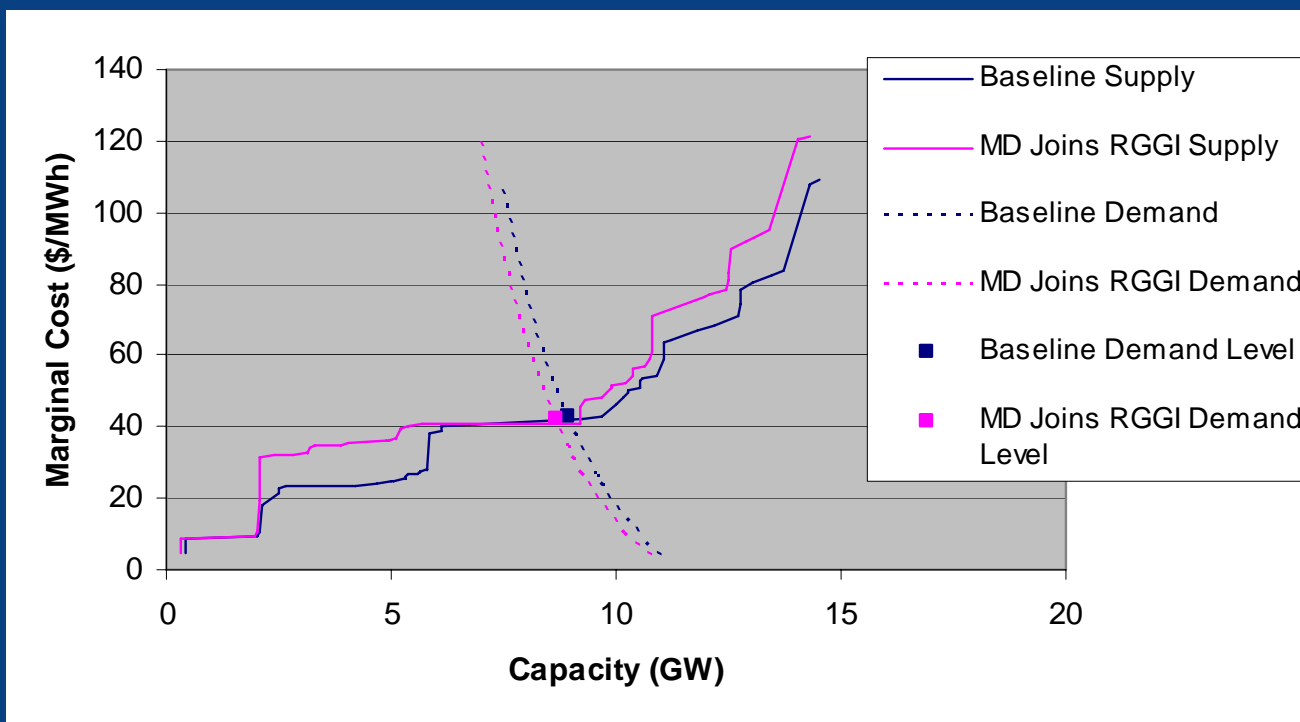
- RFF convened auction experts to talk about experiences with auctions and recommendations for RGGI
- Roadmap to implementing allowance auctions
 - Articulate auction goals and consistent auction designs.
 - Identify range of relevant auction parameters
 - frequency
 - participation rules
 - lot size, etc
 - Solicit input from stakeholders and independent experts
 - Develop short list of appropriate designs
 - Test designs with experiments to identify
 - opportunities for manipulation.
 - relationship between auction and secondary market
 - Develop proposed auction rules.

Expanding RGGI: Study of Effects of Maryland Joining RGGI



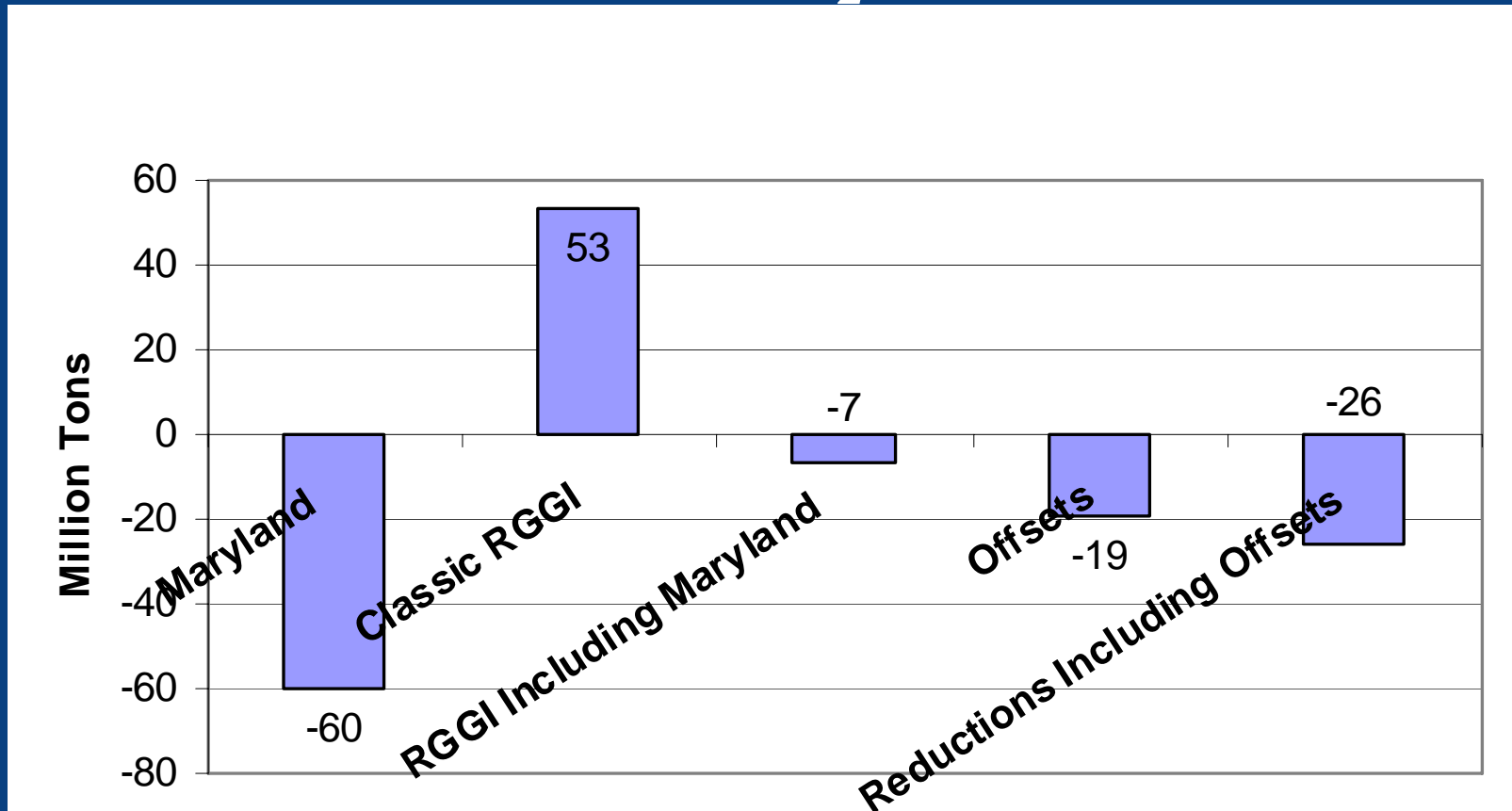
Maryland is an interesting case study because it is a primarily coal-fired state with substantial power imports.

Effect of Maryland Joins RGGI Policy on Electricity Supply and Demand in Maryland (2025 Spring/Fall Baseline Time Block)



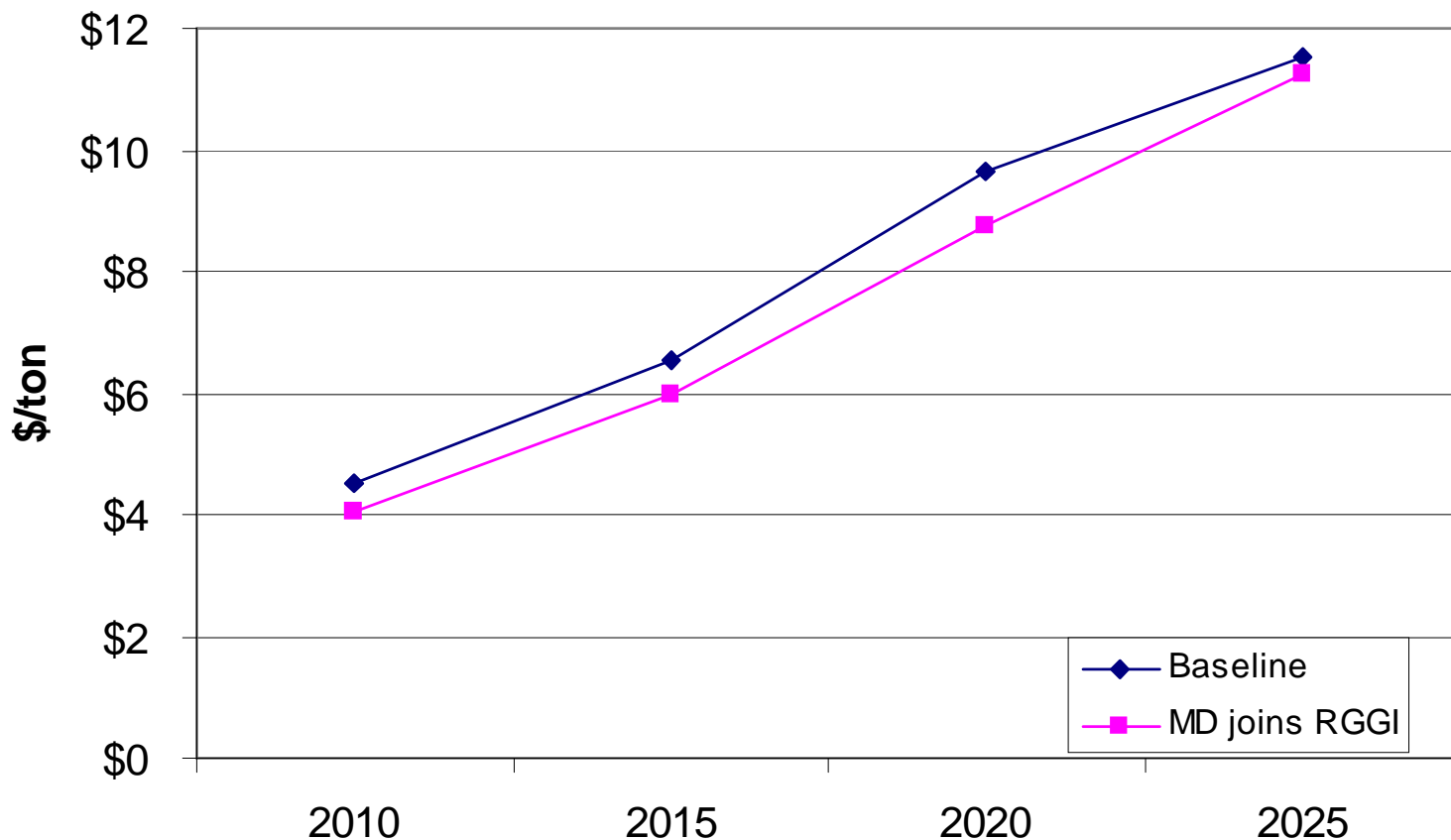
Maryland joining RGGI has virtually no effect on electricity price, due in part to demand reductions from increased efficiency investments.

Effects of Maryland Joining RGGI on Cumulative CO₂ Emissions



Total expected emission reductions (including offsets) for the expanded RGGI region are roughly 26 million tons between 2010 and 2025.

RGGI CO₂ Allowance Prices



Maryland joining RGGI reduces the price of CO₂ emissions allowances in the RGGI cap and trade program.

Concluding Thoughts: The Future of RGGI

- Will state-level implementation proceed as planned?
- Which state will be next to join RGGI?
- Will the program be expanded to include other sectors?
- Does a regional approach to climate policy have a future?

Thank you for your attention.

For more information:

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