

# Generators, Consumers and Carbon Allowances: Issues for PUCs

NECPUC

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# What is cap-and-trade?

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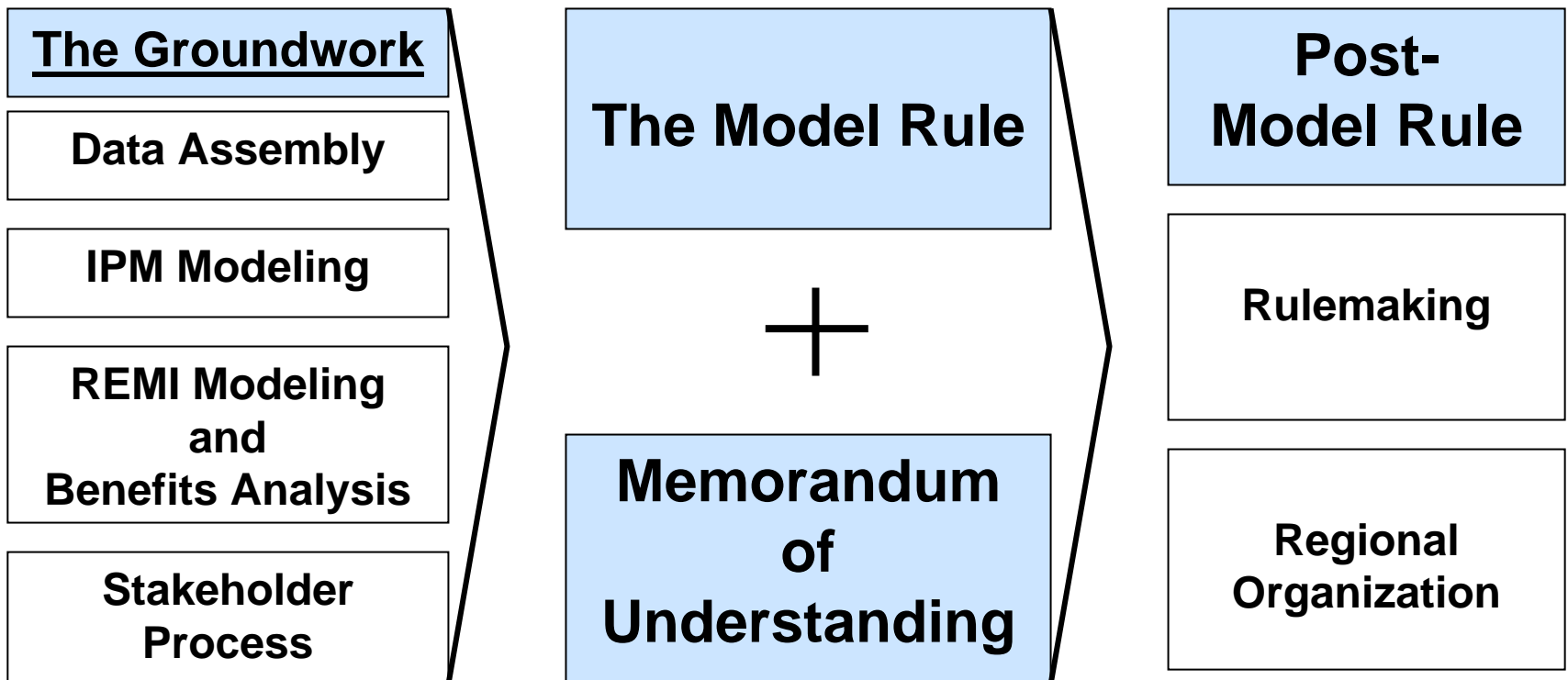
- Set a fixed limit on OVERALL emissions, not each single source, declining over time.
- Create a new kind of currency (tradable allowances) for quantities of emissions.
  - ❖ “Carbon credits are just another form of money”
- Require emitters (or consumers) to retire allowances to match “their” emissions in each time period.
- Sell or give out allowances
- Permit trades in an allowance market
- Examples: US acid rain and NOx programs

# The Northeast Regional Greenhouse Gas Initiative (RGGI)



- Begun 2003, 7 states now actively engaged
- December 2005: MOU signed by 7 states (MA and RI out for now)
- 2 other states (PA, MD) are observing
- Model Rule expected soon
- State-by-state adoption 2006-2007
- Launch 2009

# Key Program Components



# The Model Rule “Bricks”

## The Model Rule

(w/Technical Support Document)

Applicability: 25 MW+

Regional Emissions Cap

State Allowance Budgets

New Source Allowance “Pool”

Opt-In Provision

Compliance Period

Banking

Early Action Credits

Offset Provisions

Penalties & Enforcement

Monitoring & Reporting



# Cap and trade issues for energy regulators

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- Who will pay, and who benefits?
- How to lower RGGI's cost to electricity consumers?
- How will dispatch be affected?
- Effects on reliability?
- How to mobilize low-carbon resources: efficiency, renewables, green markets?
- Will “leakage” undermine the program?
- Looking ahead: Will RGGI create a template that is good for our region if adopted nationally?
- **Key point:** Energy regulators can play an important role in RGGI design and implementation.

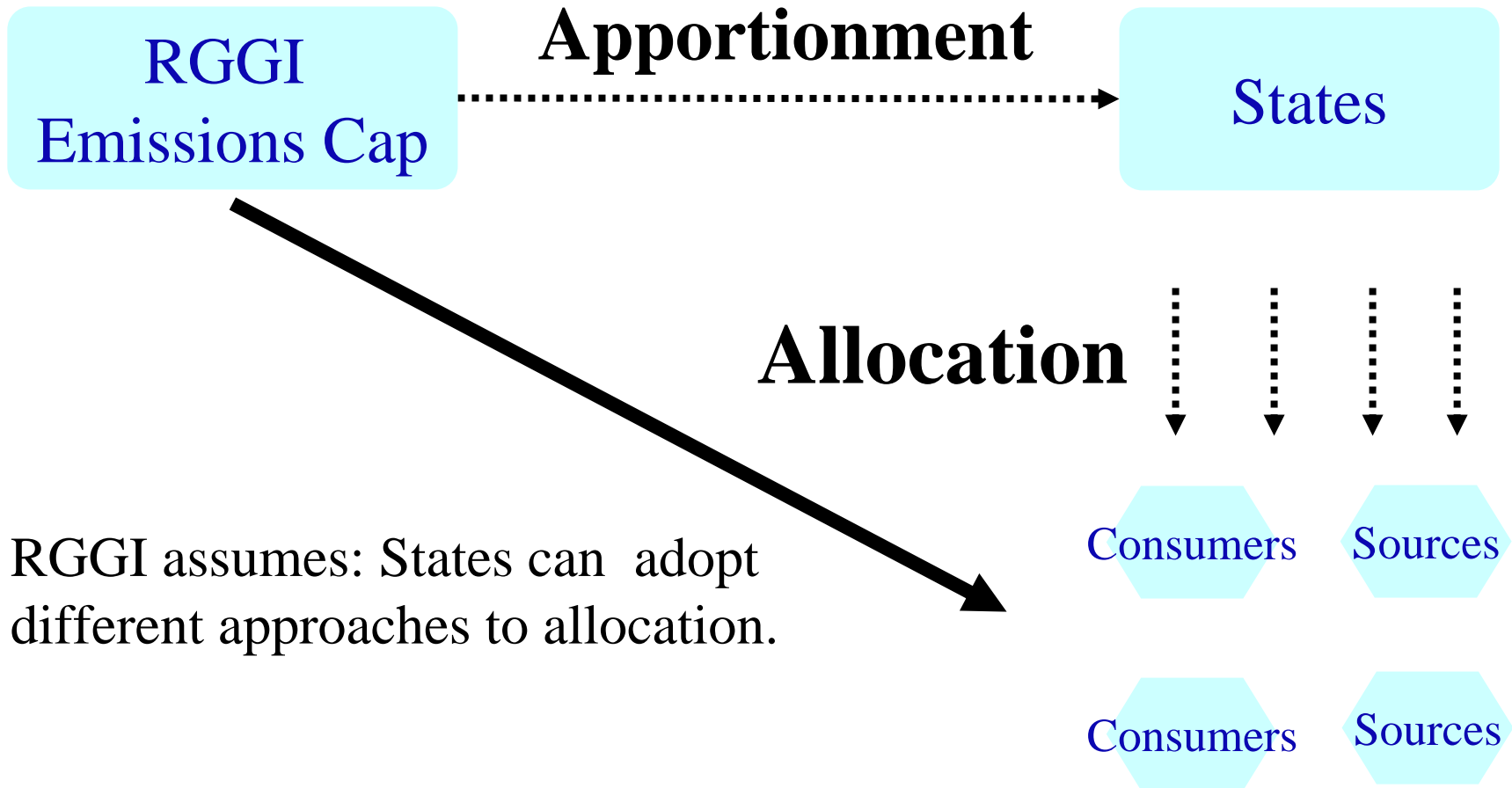


# Topics for today

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- Balancing the interests of generators and consumers – unique expertise of NECPUC members
- How **allocation** affects program costs to power consumers
  - ❖ RGGI innovation: the Consumer Allocation
- Importance of **energy efficiency**
- Will RGGI kill the **voluntary green market**?
- How can PUCs **reduce program leakage**?

# Initial Distribution of Allowances



RGGI assumes: States can adopt different approaches to allocation.





# Wrong assumptions

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- 1. Generators lose money under carbon cap and trade, so give them allowances for free
- 2. Just manage pollution, price increases and demand elasticity will deliver the efficiency
- 3. Historic smokestack cap and trade (Acid Rain model) can be applied directly to multi-state carbon cap



# Key issue in each state: **allocation decision**

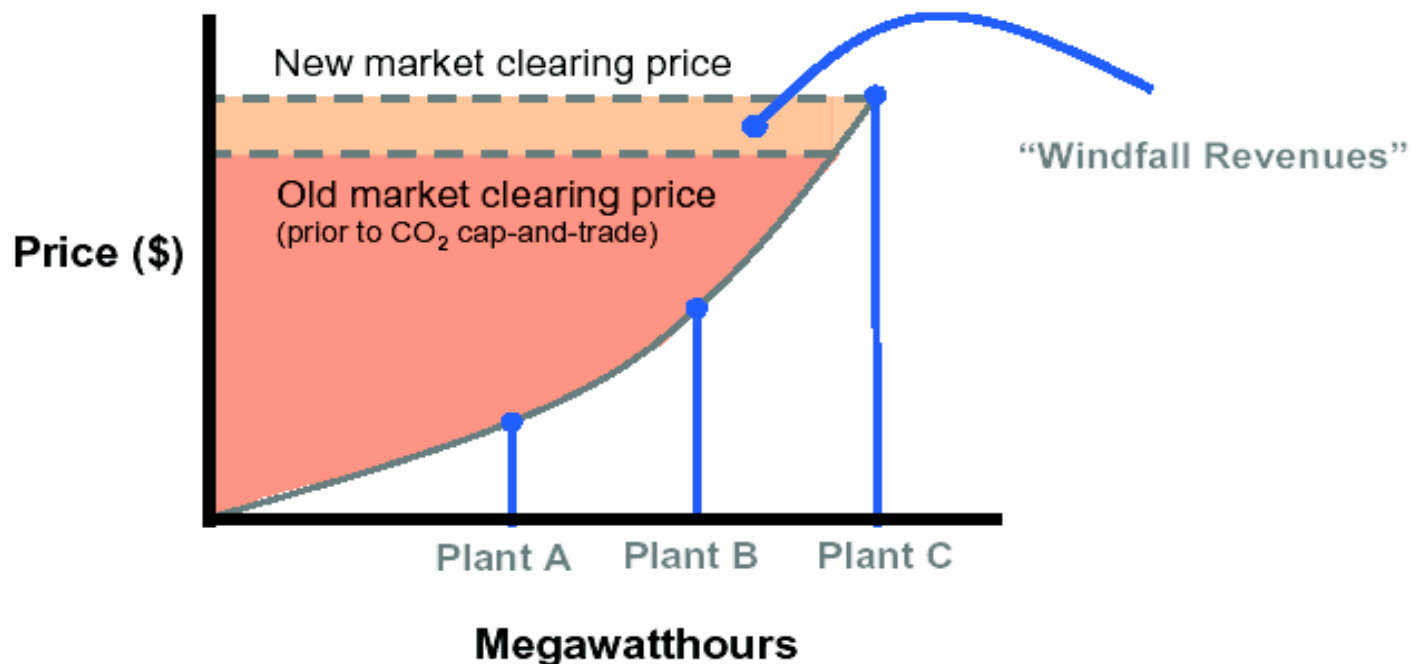
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- (A) Between generators and consumers, and  
(B) Among generators
- Who pays for carbon reduction? Absent an auction:
  - ❖ Consumers pay increased power costs (CBA ~80%)
  - ❖ Some generators pay some compliance costs (Goulder, Stanford ~13%)
- Who benefits?
  - ❖ Increased clearing prices benefit all generation
- Key question: Will **consumer payments** exceed generator **compliance costs**?


# Generator allocation and the generator windfall problem

## Theoretical representation of “windfall revenues”

A fossil unit on the margin increases the market clearing price (i.e., the price paid to all generating units dispatched) to reflect the cost of CO<sub>2</sub> compliance



# 1. Rebalancing generator gains and consumer impacts: a large consumer allocation



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- Allocate 50% or more of initial credits to consumer representatives (eg, distribution utilities)
- Generators need to purchase allowances, recycling the windfall revenue BACK to consumers
- Can be a private allowance market, not a government auction
- PUCs supervise use of the \$\$, focus on investments that lower carbon (EE & RE)
- Result: lower program cost, greater efficiency



# RFF study on RGGI allocations

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“Who wins and loses from the policy varies across the different approaches to allocation. Producers in the RGGI region gain substantially under a historic approach and in the aggregate they are better off than in the absence of the program.”

“Producers outside the region tend to benefit considerably due to the higher electricity price in the RGGI region...”

“Consumers both inside and outside the region are adversely affected under all approaches to allocation [but less under some approaches than under others.]”

Source: *Allocation of CO<sub>2</sub> Emission Allowances in the Regional Greenhouse Gas Cap-and-Trade Program*

Dallas Burtraw, Karen Palmer and Danny Kahn

Version: December 24, 2004 • DRAFT Report



# How much do generators need?

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"Most of the costs of a limit on carbon emissions – perhaps 80 percent or more – would be passed on to consumers through higher prices... Generally, free allocations are seen as a way to compensate producers rather than consumers or workers. Producers would have to receive only a modest portion of the allowances to offset their costs from a cap on carbon emissions, because they would be expected to pass a large share of those costs on to consumers. Thus, a decision to give all of the allowances to selected firms (such as fossil-fuel suppliers or electricity generators) would more than compensate them for their costs and could provide them with substantial profits."

*Source: "Issues in the Design of a Cap-and-Trade Program for Carbon Emissions,"  
Congressional Budget Office, Nov. 25, 2003*



# Consumer allowance option

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- Key point #1: GHG program should not make consumer pay MORE than the generators' cost of compliance
- Key point #2: The most cost-effective means to reduce GHGs require *investments by consumers*, not generators
- One proposal: Give allowances (50% or more) to consumers (LSEs, discos, CEAB, etc.) rather than to generators.
- Returns the Gen windfall; use revenue for efficiency, green power, and/or rate reductions



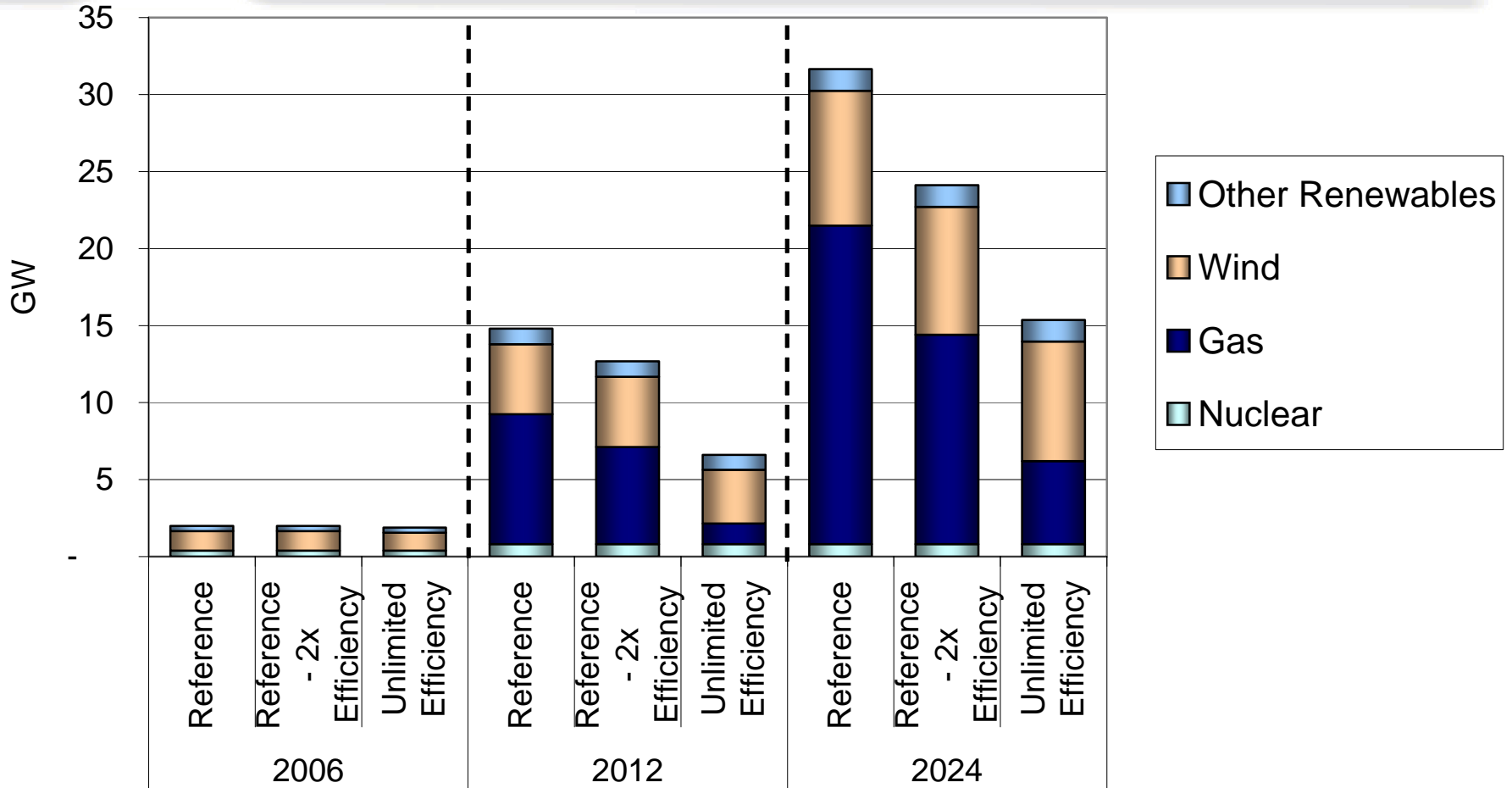
## 2. Role of End-Use Efficiency

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- Generators don't do efficiency; LSEs have relationships with customers
- RGGI reality: Efficiency is the cheapest way to lower carbon emissions, lower power costs
- Economic theory: just raise the price of power
- DSM reality: **Programs** are needed to surmount market barriers to efficiency
- \$ spent through programs will deliver 5x the efficiency savings of \$ spent in higher prices
- Key point: Build efficiency support into program architecture.



# RGGI Cumulative Capacity Additions





## 3. Dealing with leakage

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- Leakage: additional emissions outside the capped system (therefore not counted)
- Effects:
  - ❖ Erosion of program goal
  - ❖ Competitive advantage to “foreign” sources
  - ❖ Unofficial safety valve on price impacts
- How much leakage? 10%, 37%, or more?
  - ❖ RGGI MOU – monitor, study and act later



# Controlling leakage

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- One proposal: tag and track imports as sources
  - ❖ Treat importing utilities as “virtual smokestacks”
- How to **count** imports? Choices:
  - (1) Assign plant-specific emissions to each purchase
  - (2) To avoid “greenwashing” -- assign the average system emissions rate of the exporting system
- Can we track and tag imports? Yes
  - ❖ National experience with RPS and disclosure rules
  - ❖ Follow the money – if generators can get paid for running, then their emissions can be tagged and tracked.
- Key point: PUC jurisdiction over retail sales for carbon content, as for renewables content



## 4. Solving the Green Markets problem

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- Green markets an important, growing segment (~1 million MWH in RGGI)
- Carbon cap negates any “carbon claim” by green producers and sellers
- Solution:
  - ❖ System administrators subtract and retire the appropriate tons “off the top” of the annual pool to credit voluntary green sales.



# Topic for another day: Flexibility mechanisms

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- **Banking** – saving allowances you don't need now, for future use
- **Borrowing** – emitting too much now, promising to pay back later
- **Offsets** – causing reductions outside the capped system
  - ❖ E.g., Controlling landfill methane
  - ❖ Trees in China?
  - ❖ Problem: “anyway tons” and “hot air” reductions



# For more information...

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*“Another Option for Power Sector Carbon Cap and Trade Systems – Allocating to Load”*

*“Addressing Leakage in a Cap-and-Trade System: Treating Imports as a Source”*

*“Why Carbon Allocation Matters – Issues for Energy Regulators”*

Richard Cowart, Regulatory Assistance Project – Memos prepared for the Regional Greenhouse Gas Initiative (RGGI)  
--Posted at [www.raonline.org](http://www.raonline.org)

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