
Carbon Abatement Program: Emissions 'Leakage' Mitigation

New Jersey Board of Public Utilities
April 30, 2008



Introduction

- PSEG supports the RGGI as a means to move the federal government to adopt a national GHG reduction policy.
- PSEG recognizes that leakage will be an issue in the interim period between RGGI implementation and a national program.
- PSEG is committed to creating a workable leakage mitigation method in collaboration with other stakeholders
- PSEG proposes the “Carbon Abatement Program” as a platform to work with other stakeholders to address leakage.
- CAPS was created within the framework of technical, legal and regulatory feasibility
- CAPS is intended to achieve responsible environmental goals and sound public policy objectives

Leakage Mitigation Alternatives Explored

Several mechanisms and/or policies have been identified by the RGGI Emissions Leakage Multi-State Staff Working Group to address leakage but the proposed mechanisms have inherent challenges:

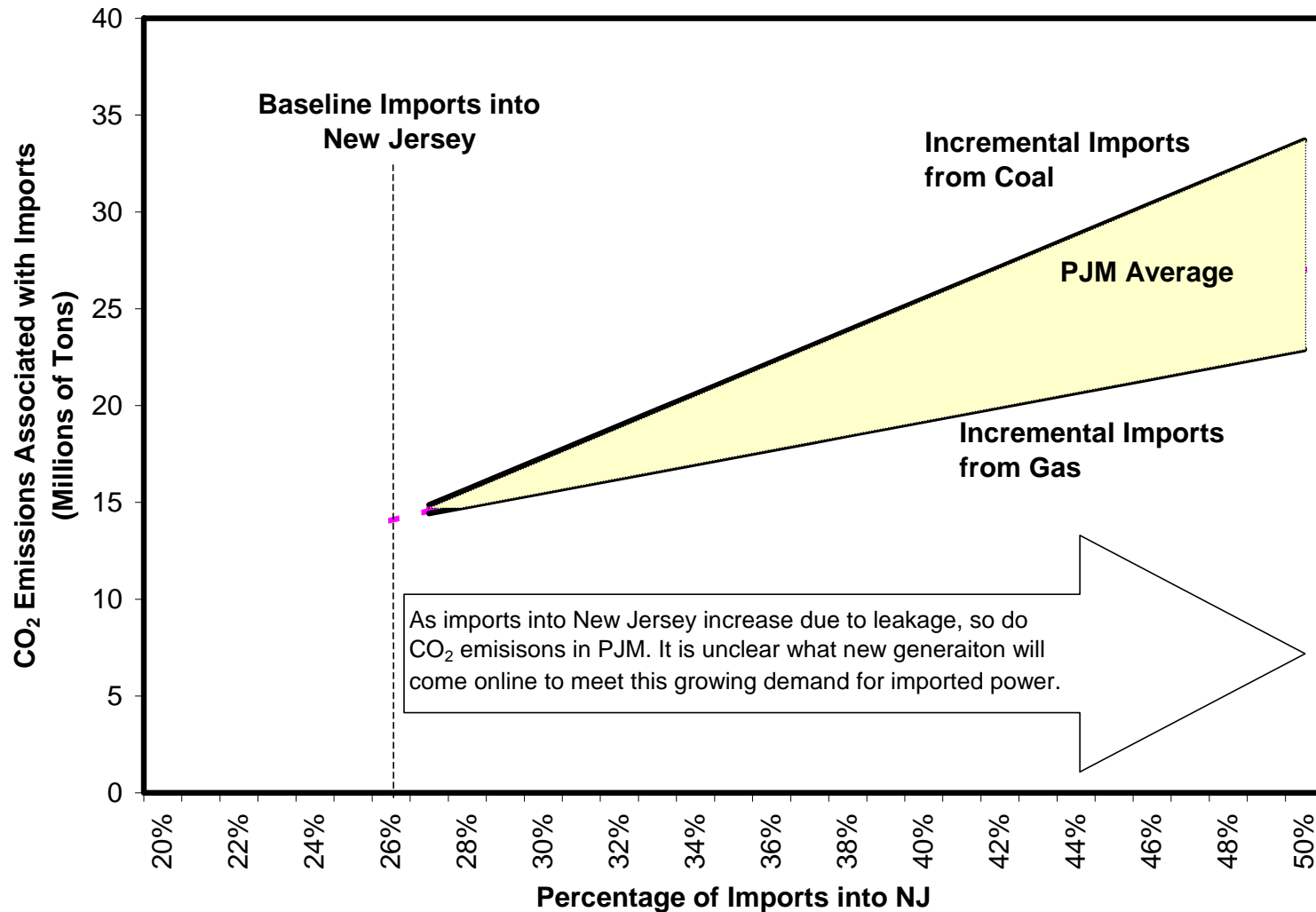
- *Limit Imports*
 - Unconstitutional
 - Imports necessary for NJ
- *Emissions Portfolio Standard (EPS)*
 - Bilateral contracts not widely used in PJM
 - “Attribute dumping”
- *Carbon Procurement Emissions Rate*
 - Bilateral contracts not widely used in PJM
- *Load Based Emissions Cap*
 - RGGI operates as a generator based cap
 - Similar issues as with Carbon Procurement Emissions Rate and EPS
- *Reduce Demand => Energy Efficiency Portfolio Standard (EEPS)*
 - Does not address composition of energy used to serve NJ load
 - A NJ only EE program may not be enough to impact RGGI CO₂ prices
- *Carbon Procurement Adder*
 - No impact on unit dispatch
 - Essentially a tax passed on to consumers

CAPS Basics

- CAPS is similar in design to the Renewable Portfolio Standard compliance system
- The Board would identify an adequate target for imported power and corresponding leakage
- LSE's would be the point of regulation
- A targeted amount of energy sales would require carbon abatement
- Carbon abatement would be verified by the purchase of a carbon abatement certificate (CAC)
- Carbon abatement certificates are issued by the Board to a generator upon the retirement of a RGGI allowance
- RGGI regulated units would generate a CACs ratio of 2:1 for a MWh of NG generation and 1:1 for a MWh of coal-fired generation
- Rule of Thumb: 1 MWh of coal = 1 ton of CO₂: 1MWh of NG = .5 ton of CO₂

CAP Basics

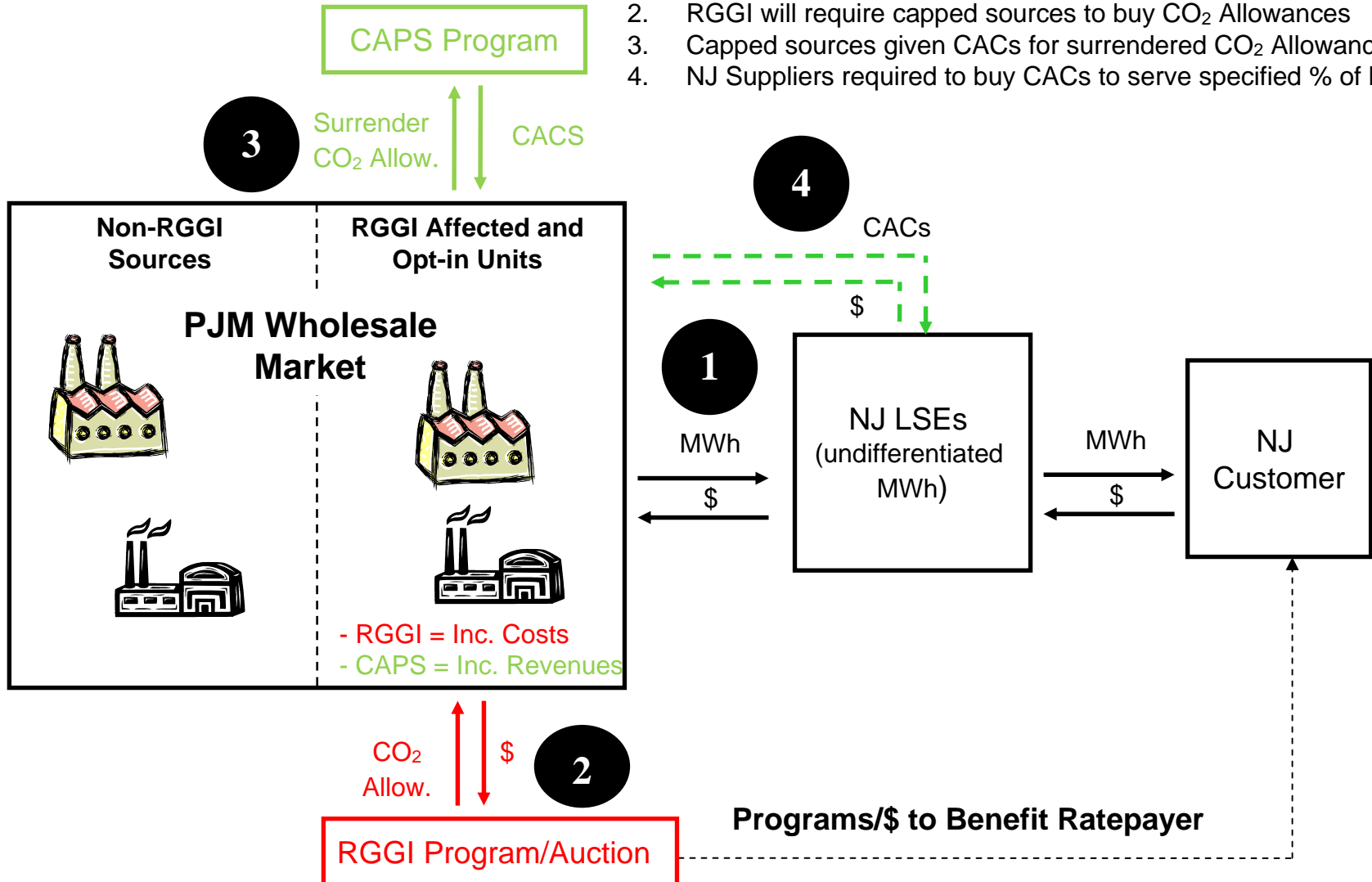
CAP standard (LSE Purchase Percentage Requirement) can be adjusted to achieve desired level of leakage mitigation



CAPS Example

- Example: A LSE requires 100 CACs for 100 MWh sold
- Assume a RGGI allowance is \$5
- A RGGI regulated (or opt-in) NG unit would buy 1 RGGI allowance to operate and the allowance sale would generate 2 CACs
- NG unit producing 100 MWh would produce 50 tons of CO₂ or about half the CO₂ produced by a coal unit
- If the CACs sell for \$2.50 (the equilibrium price):
 - The NG unit is compensated for its RGGI purchase
 - The coal unit would buy a RGGI allowance to operate and generate one CAC; once sold, the unit would recover half of its RGGI compliance cost

CAP Basics



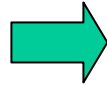
1. NJ LSEs procure MWh from PJM Wholesale Market and sell to NJ customers under BGS service (today and going forward)
2. RGGI will require capped sources to buy CO₂ Allowances
3. Capped sources given CACS for surrendered CO₂ Allowances
4. NJ Suppliers required to buy CACs to serve specified % of load

CAP Basics

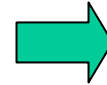
Less carbon intensive generation is favored over more carbon intensive generation.



CC Gas Unit



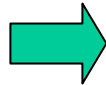
Emits about 1 ton of CO₂ to generate 2 MWhs



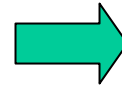
Uses 1 RGGI allowance (for the ton of CO₂ emitted) to create 2 CACs for the 2 MWh generated



Coal Unit



Emits about 1 ton of CO₂ to generate 1 MWh



Uses 1 RGGI allowance (for the ton of CO₂ emitted) to create 1 CAC for the 1 MWh generated

- Each unit will be issued CACs based on the unit's individual CO₂ emissions rate (i.e. how much CO₂ is emitted to generate a MWh of electricity)
- Less CO₂ intensive units will receive the biggest benefit – they need to use fewer RGGI allowances (a cost) to create the greatest number of CACs (a benefit)

CAP Basics

The mechanics of the CAP are straightforward

Generators in RGGI states or those that voluntarily opt in, are issued CACs when they use RGGI allowances

Cleaner units are issued a proportionately greater number of CACs for each allowance used

LSE's are required to purchase CACs to address leakage mitigation

The number of CACs that LSE's are required to purchase is based on the amount of leakage mitigation desired.

Revenue from CACs is used by generators to reduce the increased dispatch cost caused by RGGI

- The net effect is that in-state clean natural gas units are not penalized under RGGI while coal units still see an increased cost
- CAPS would hold Imports and the corresponding emissions stable

Interstate Commerce Clause

- Commerce Clause - “Congress shall have Power...[t]o regulate Commerce...among the several states. “U.S. Const. Art. 1 Sec. 8 cl. 3.
- “Dormant Commerce Clause” a state law designed to discriminate against out-of-state businesses is invalid
- “Heightened Scrutiny” test
- *Pike* Balancing test - regulates even handedly to effectuate a legitimate local public interest
 - Legitimate benefits
 - GHG reductions
 - Reductions of NOx and SO2
 - Burden of CAPS is not excessive in relation to benefits