RGGI Unplugged: Accounting for All CO₂ Emissions from the Electric Power Consumed in the RGGI Region

Climate Change: Impacts, Policy, and Regulation
AWMA – Herndon, VA

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Outline

• Benefits of tracking CO2 emissions associated with electricity consumption in the RGGI region

• Background—the cap-and-trade programs
  ○ RGGI
  ○ California’s AB-32

• Available Tracking Systems

• How to Use them to Track CO2

• Recommended Reading
Benefits of tracking CO2 emissions associated with electricity consumption in the RGGI region

• Better understanding of energy sources and thus the CO2 emissions associated with all electricity consumption—How Much Leakage?

• An ISO-wide tracking system = ability to track throughout the ISO and a means of expanding RGGI:
  o e.g., Washington DC, Chicago

• Clean Air Act Section 111d Compliance?

• A model for other renewables-only tracking systems
Can All Emissions Associated with Electricity Consumed in RGGI be Recognized?

- **RGGI** – 9 NE states
  - *Supply-side* program—fossil gen. ≥25MW

- **AB-32** – CA
  - *Supply-side*—fossil gen. (among other sectors).
  - *Plus* a mechanism to capture emissions associated with the rest of electricity consumed in CA— the *first jurisdictional deliverer* (FJD) mechanism

- Like CA consumers, RGGI electricity consumers **consume more** electricity than **generators** in RGGI states **supply**.
The Leakage/Imports Challenge

• Approximations of net energy imports into RGGI Region:
  – New York – 16%
  – New England – 10%
  – Maryland – 40%
  – Delaware – 52%

In 2013, RGGI States Agree to identify and evaluate potential tracking tools for emissions associated with electricity imported into the RGGI region, leading to a workable, practicable, and legal mechanism to address such emissions.
Q: Can RGGI States adopt a system that will allow an LSE to determine the CO2 content in the MWhs of electricity it purchases to serve load?

A: Yes
The Tracking Systems

- Generation Information System (GIS) New England
- Generation Attribute Tracking System (GATS) PJM
- New York Generation Attribute Tracking System (NYGATS)
Understanding GIS, GATS and NYGATs

Energy tracking systems originally designed during electric industry restructuring times (mid-90s) to track renewable energy (RECS) and support energy disclosure

– How do these systems work?
– Are there changes that need to occur in these systems to accommodate RGGI’s needs?
– Are they sufficiently similar to coordinate?
The Bank Account Analogy

You write me a check

– The $ goes from your account into mine

– There is a timing factor, but the $ does not exist in both accounts at the same time

– At the end of the day that fungible dollar is moved and the movement is tracked
Q: Is a REC (what we will more broadly call an “attribute certificate”) just like a dollar in a bank account?

A: Not exactly.
Why Not Exactly?

The System “Accounts for” two related instruments, the:

• Attribute Certificate and

• MWh energy
What Do We Mean by “Accounts For”
What is Counted? – ENERGY

The Attribute Certificate

Before
One MWh Wind Generation

After
One MWh Wind Generation

One MWh Energy
What is Counted? – GEN. ATTRIBUTES

The Attribute Certificate

Before
One MWh Wind Generation

After
One MWh Wind Generation

One MWh Energy
The Attribute Certificate – GATS Example

- Plant name
- ORIS PL (Plant code for DOE EIA reporting purposes)
- Emissions unit ID(s)
- Month and year of generation
- Certificate serial numbers
- Type of certificate
- Fuel type mix, and fuel type attributes
- Program eligibility (e.g., New Jersey Renewable Portfolio Standard)
- CEM reporting
- Peer unit name and address (if not reporting actual generator emissions)
- Normalized emissions rate (pounds per MWh), by pollutant
- Vintage (month and year of commercial operation)
- Repowering/derate date
- Capacity addition/subtraction
- FERC hydroelectric license (if applicable)
- Asset identification, including owner, status, capacity
- Location of generating unit
- NERC Region, county, state
- Import characteristics (if applicable)
- NERC tag (if applicable), date imported, compatible tracking system name, account holder
The Attribute Certificate – GATS Example

- Plant name
- ORIS PL (Plant code for DOE EIA reporting purposes)
- Emissions unit ID(s)
- Month and year of generation
- Certificate serial numbers
- Type of certificate
- **Fuel type mix, and fuel type attributes**
- Program eligibility (e.g., New Jersey Renewable Portfolio Standard)
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- FERC hydroelectric license (if applicable)
- Asset identification, including owner, status, capacity
- **Location of generating unit**
- NERC Region, county, state
- Import characteristics (if applicable)
- NERC tag (if applicable), date imported, compatible tracking system name, account holder
The Attribute Certificate – GATS Example

• Plant name
• Month and year of generation
• Certificate serial numbers
• Fuel type mix, and fuel type attributes
• CEM reporting (i.e., Continuous Emissions Monitoring, i.e., EPA oversight)
• Emissions rate (pounds per MWh), by pollutant
• Location of generating unit
What Do We Mean by “Accounts For”

A Renewable Certificate Example
Snapshot of Tracking System: Generator Accounts

- Generator #1: GAS
- Generator #2: WIND
- Generator #3: OIL
- Generator #3: NUCLEAR
Snapshot of Tracking System: Generator Accounts

- Generator #1: GAS
  - GATS Account
  - Attribute certificates
- Generator #2: WIND
  - GATS Account
  - Attribute certificates
- Generator #3: OIL
  - GATS Account
  - Attribute certificates
- Generator #3: NUCLEAR
  - GATS Account
  - Attribute certificates

Energy solutions for a changing world
Snapshot of Tracking System: LSE Accounts & REC transfers
Residual System Mix: Aggregate Attributes of all Certificates not held by LSEs

RESIDUAL SYSTEM MIX
aggregate attributes of all certificates not held by LSE’s at the end of the trading period

generator #1
GAS

generator #2
WIND

generator #3
OIL

generator #4
NUCLEAR

generator #1
GATS account
untraded gas
certificates

generator #2
GATS account
wind certificates
all traded

generator #3
GATS account
untraded oil
certificates

generator #4
GATS account
untraded nuclear
certificates
LSE Accounts—End-of-Year True-up with RSM Certificates
Instead of Residual Mix, Why Not Adjusted Residual Mix?

• Today the system nets out traded RECs and load-serving entity (LSE) portfolios are allocated the weighted average of all remaining untraded generation attributes.

• Why not make further “adjustments” to the residual mix to reflect CO2 content?
What Further Adjustments?

• Tracking systems could adjust for resources that RGGI would not want to account for a second time, including, e.g.,
  o Already-covered generators (e.g., Maryland fossil units 25 MW and larger)
  o Units excluded from the existing program (fossil units smaller than 25 MW, non-fossil units)
  o Other?
The Adjusted Residual Mix

• Include account for:
  o the generation resources serving load in the RGGI region, and
  o the related CO2 emissions from those “resources” (purchases from individual units or system purchases)
Broader Applications

- **RGGI program expansion:**
  - PJM includes Washington DC, Chicago, IL, West VA and VA, most of PA

- **Clean Air Act Section 111d compliance:**
  - State Equivalency Plans could include participation in a cap-and-trade program
  - GATS would provide the platform for other PJM jurisdictions to participate in RGGI
Broader Applications

• Use of these systems in the RGGI states as proposed here, i.e., their use in the New England ISO, New York ISO and PJM could serve as a model for other similar tracking systems.

• While GIS, GATS and NYGATS are “all energy” tracking systems, other REC tracking systems around the country—systems with the same architecture—only track renewable energy
Renewable and All-Generation tracking systems
Not a Small Caveat—Good Data

- GATS, GIS (and presumably NYGATS) have the capacity to use EPA-produced CEMS (Part 75) data.
- To varying degrees they do use it.
- State Air Regulators must to be assured that it is being properly incorporated into the system in order to rely upon these systems.
- State Air regulators should be afforded access to these systems to ensure that they produce credible information.
For More Information


- **Regulating Electricity Imports into RGGI: Toward a Legal, Workable Solution**, Shelley Welton, Michael Gerrard, and Jason Munster, Center for Climate Change Law Columbia Law School, (August 2013)
  [https://web.law.columbia.edu/sites/default/files/microsites/climate-change/files/Publications/Fellows/RGGI%20paper_Final%20Aug%202013.pdf#page=1&zoom=auto,0.792](https://web.law.columbia.edu/sites/default/files/microsites/climate-change/files/Publications/Fellows/RGGI%20paper_Final%20Aug%202013.pdf#page=1&zoom=auto,0.792)
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- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

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David Farnsworth, Senior Associate – Prior to joining RAP, David Farnsworth served as a hearing officer and staff attorney with the Vermont Public Service Board from 1995 to 2008. He was co-chair of the National Association of Regulatory Utility Commissioners' (NARUC) staff subcommittee to the Committee on Energy Resources and the Environment from 2004 to 2005; acted as vice-chair of the NARUC staff subcommittee to the Committee on Natural Gas from 2000 to 2002; and served as a staff member of the NARUC Task Force on Climate Policy. From 2003 to 2008, Mr. Farnsworth was a member of the Regional Greenhouse Gas Initiative (RGGI) Staff Working Group. Mr. Farnsworth received his JD and Master of Studies in Environmental Law from Vermont Law School. He received his BA from Colby College.