



## STATE CLEAN ENERGY – ENVIRONMENT TECHNICAL FORUM

Output-based Regulations & Allocation Methods

March 9, 2006 Call Summary

**Participants:** 40 participants from 23 states and several national organizations (see the participants list).

**Background Document:** Encouraging Combined Heat and Power with Output-Based Emission Standards (download at: <http://keystone.org/html/documents.html>)

**EPA Clean Energy-Environment Guide to Action** now available on EPA's website <http://www.epa.gov/cleanenergy/stateandlocal/>

### Key Issues Discussed

- Benefits of output-based regulations (OBR) and allocation
- Data needs for implementing OBR and allocation
- CAIR model rule for output-based allocation
- STAPPA-ALAPCO model rule for OB allocation
- Set-aside provisions for CHP and renewable generators
- EPA Technical assistance available to states

### Summary of Presentations

**A. Overview of Output-based allocation and the STAPPA-ALAPCO Model Rule — Joel Bluestein, EEA, Inc.** (download presentation at <http://keystone.org/html/documents.html>)

- **What is OBR?** Regulation of emissions that is based on output (e.g. lbs of emissions per MWH of electricity and useful heat) rather than heat input (lbs of emissions per BTU of fuel consumed)
- **Why make the switch?**
  - OBR recognizes efficiency: by putting the focus on the amount of emissions based on what is produced (e.g., electricity generated) versus the amount of emissions per the amount of fuel used – regardless of amount of useful product that is produced.
  - Makes it easier to include renewables and recognize the efficiency of CHP by capturing the electricity and steam output
  - Includes efficiency in the structure of the regulation which is an important pollution prevention mechanism. When you increase efficiency you reduce the amount of fuels used (for the same amount of separate heat and electricity generated) for multiple pollutants.
- **How is OBR applied?**
  - Through **conventional emissions standards** such as NSPS, RACT and small DG emission standards.

- Through **allowance allocation under a cap and trade system** as allowed for NO<sub>x</sub> stationary sources under the Clean Air Interstate Rule (CAIR) and Ozone Transport Rule (OTR);
    - Set a cap of allowed emissions and distribute emission allowances to cover the allowable emissions for each source. Each source can buy and sell allowances for greater flexibility. Three common approaches for distribution of allowances were outlined.
  - Not in widespread use, but OBR have been adopted by a number of states and US EPA for a number of applications.
  - **CAIR model rule** allows states to make decisions about NO<sub>x</sub> allocation method and provides guidelines for output-based approach for new units (units coming on line after Jan. 2001) and CHP units. It does not include renewables.
- **STAPPA-ALAPCO OBR Model Rule** ([www.4cleanair.org/Bluestein-cairallocation-final.pdf](http://www.4cleanair.org/Bluestein-cairallocation-final.pdf))
    - Published in Aug. 2005
    - Provides rule language for output based allocation for all generators
    - Presents revised CHP treatment which is more consistent with the way it has been done by some states
    - Suggests 2 ways to include EE/RE – set-aside pool of allowances or included in the primary allocation pool. Second way is more straight-forward and less burdensome for EE/RE.
    - Suggests removing fuel weighting included in CAIR guidance
    - Provides rationale for more frequent timing of reallocation, recalibration of baseline, and larger new source set-aside.
    - Provides specific regulatory language that states can adopt.
  - **Challenges:**
    - Is it difficult to measure output rather than fuel input? No, there are well-established ways to monitor both electricity and steam. See discussion regarding availability of generation data from utilities below.
    - Methods are available to convert from input to output-based approaches; but with more experience we'll have first hand data on which to base future regulations. EPA will be providing additional data to support states in the conversion process.
    - Transactions costs to sell unneeded allowances can be high, but can be addressed in the design of a good trading program.
- B. Connecticut's Output-based DG Emission Standards: Chris James, Director, Air Quality Division, CT Department of Environmental Protection**
- **Policy Drivers:**
    - CT is in state-wide non-attainment for ozone and non-attainment for fine particulates in southwest CT. CT is also one of the most electrically congested areas in US due to severe transmission constraints. Therefore, clean distributed generation (DG) could play an important role in reducing congestion as long as safeguards are in place to meet air quality goals.

- Recognizes that small DG does not compete with larger generating units; therefore emission standards are technology forcing.
  - Looks at peak electricity demand days as both an air quality and an energy issue. State is looking at how to handle emissions of emergency generators that operate on peak demand days to reduce load.
- **Legislative & Regulatory changes:**
    - **CT Energy Independence legislation:** implemented public benefit fund and renewable portfolio requirement, which includes CHP and energy efficiency. <http://www.cga.ct.gov/2005/ACT/PA/2005PA-00001-R00HB-07501SS1-PA.htm>
    - **Section 42 of New Source Review Rule** put in place streamlined permitting procedures for DG with emissions below 15 tons per year.
      - Adopted recommended output-based emission approach developed by the multi-stakeholder DG Emissions Collaborative (<http://www.raponline.org/Feature.asp?select=8>) Established emission standards based on Best Available Control Technology (BACT) for DG & CHP. (<http://www.dep.state.ct.us/air2/regs/mainregs.htm>)
      - Covers 4 pollutants: (CO<sub>2</sub>, NO<sub>x</sub>, fine particulates and CO) with operating provisions which specify that the cleaner the source the more they can operate.
      - Phased-in implementation: increasingly stringent standards beginning in 2005, 2008 and 2012
      - Worked closely with CA Air Resources Board to mirror their small DG regulations, and linked directly to CARB's small engine certification program. Minimizes administrative burden for engine manufacturers
      - CHP: Section 42 provides credit for emissions of CHP associated with heat portion and otherwise flared fuels (e.g. landfill methane gas)
- **Results:** About 12 projects have taken advantage of streamlined permitting opportunity
- C. Connecticut's Output-based Allocation of NO<sub>x</sub> Emissions: Chris Nelson, (download presentation at <http://keystone.org/html/documents.html> )*
- **Current NO<sub>x</sub> budget program** uses partial output-based approach, CHP units and new electric generating units (EGUs) (after 1990) receive allowances based on heat input.
  - **CAIR proposed NO<sub>x</sub> Allocation** – DEP evaluated full output based allocation to all EGUs. Mr. Nelson provided a spreadsheet showing the range of allocation options and their impact compared to the current allocation. He observed:
    - Baseline EGUs get a lot of allowances under current system compared to their actual NO<sub>x</sub> ozone season emissions. (Option 1)
    - Under the current system, existing (Baseline) EGUs receive 2.74 lbs/MWH; new EGUs receive .09 lbs/MWH.
    - Under an “ALL” output-based Allocation: (Option 4); Baseline and new EGUs receive .82 lbs/MWH.

- Change from current to a full output-based system results in a 10 fold increase in allowances for new units.
- Alternative allocation options suggested by generators which explored middle ground (Options 2 & 3) combining input-based allocation with some output-based allocation. Both are more favorable to baseline units.
- **Results:** DEP has not made a final decision, but performing the analysis has been very helpful in understanding better the actual impact of moving from input to output based allocation methods.

***D. Indiana's Output-based CAIR allocation, Roger Letterman, IN Department of Environmental Management (Download presentation at <http://keystone.org/html/documents.html> )***

- **Current NOX SIP Call** for OTC states: Indiana allowed greater allocation of NOX allowances for new and existing CHP to recognize greater efficiency; Used output-based approach for allocation of EE/RE set-aside.
- **CAIR proposed NOx allocation:**
  - Relied on EPA's model rule on output-based method for new EGUs.
  - Adopted some of STAPPA's recommendations also, such as fuel neutrality.
  - Revised heat rate conversion method to 8900 BTUs per MWH to reflect higher efficiency target.
  - EE/RE set-aside for NOx ozone allowances was retained from SIP program. Proposing to include an EE/RE set-aside in the annual NOx program.
  - State is also looking into the possibility of selling unallocated allowances and using revenue to compensate smaller projects that don't meet 1 ton threshold required to participate.
- **Results:**
  - Received adverse comments on fuel neutrality approach, but stakeholders didn't seem concerned about revised heat rate conversion method for new units.
  - Have struggled to get EE/RE set-aside subscriptions despite positive reaction during rulemaking; Indicates the need to do more marketing.
  - DEM is working with other state agencies so they can help sell the program.
  - Found that other government agencies may be resistant to new idea despite leadership elsewhere.
  - Existing paper mill considering installation of CHP because of allocation incentives, but found that other regulations are such that selling excess electricity to the grid is a disincentive.

### Questions & Discussion

***What averaging period do you use for DG emission standards?***

- Connecticut sets an annual limit, short-term averages linked to applicable standard which varies depending on emissions.
- New Jersey's uses average emissions of highest 2 of past 3 years based on original OTC rule in 90s.
- Peaking emissions is an issue in eastern US; for instance in NJ, 62% of NO<sub>x</sub> emissions come from peakers and smaller generators that provide 32% of the power and operate on the afternoon of the peak days.

***Where do you get output-based electricity generation data?***

- MA has been using OBR in SIP call and requires generators to give them the generation data.
- US Energy Information Administration (EIA) also collects generation data from generators. Can look it up on their site. One participant noted that EIA data is often difficult to decipher and sometimes at odds with generator-provided data. EIA data is also reported as annual generation, not based on ozone season as required by states.
- EPA Clean Air Markets Division will provide guidance on how to implement model rule including source for electric generation data for fossil units and renewable generators. They are already working with states to identify renewable generation. One participant inquired whether EPA data has been quality checked.
- New Jersey noted that in order to implement their partial output-based allocation (the less efficient the unit, the fewer allowances received), the state requested data from the companies. The fact that it took 2 weeks to clarify what they needed indicates that access to the correct data may be a challenge.
- CT collects the information from the regional power pool which is a major effort since it is not required to report automatically, but probably the most accurate and timely source of information.

***Is there a consistent protocol for collecting the data?***

- One participant remarked that values can differ between different sources of data and perhaps a standard protocol for calculating the data is needed.
- Another participant acknowledged that there is not a one-to-one correspondence between generators and emission units, and recommended collecting data at the plant level to avoid this problem.
- Massachusetts said that one lesson learned from their experience is the importance of the accuracy of data, and the need for a transparent process in collecting data.
- The location for metering output may differ from source to source, creating inconsistencies between how units are treated also.
- One of the speakers recommended looking at the regulatory language of some of the states like Massachusetts for guidance on data requirements.

***What are the likely causes and solutions for the low interest in the EE/RE/CHP allowance set-aside in Indiana?***

- Have used only 69 allowances out of 1115 available.
- Had some landfill methane gas projects, but lack of adequate marketing is primary problem. Now getting different agencies (e.g. Economic Development, Pollution prevention, & Energy offices) involved which should help.
- NJ 's set-aside is also under utilized according to a participant. Mostly landfill gas and energy services companies (62 allowances out of 420) have applied. Need greater visibility for NJ set-aside program also.
- Lack of interest may also be due to the decline in CHP units. In NJ, a participant remarked that some of the CHP units have reduced their combined output, declining to 50% average capacity factor, which may be attributable to whether they have held on to their power purchase agreements and steam contracts.

***Technical Assistance Available:***

- EPA has a number of partnerships within the division that go out to state and local government to encourage these efforts including, EPA CHP Partnership (<http://www.epa.gov/chp/>), Landfill Methane Outreach program, and AG Star program.
- **EPA CHP Partnership Webcast** planned in late April on CHP environmental/efficiency benefits, OBR, and CHP permitting and allocations. Call or email Tom Frankiewicz (202.343-9794 or [Frankiewicz.Thomas@epamail.epa.gov](mailto:Frankiewicz.Thomas@epamail.epa.gov)) with input on issues you would like to see covered.

***Massachusetts Output Based Allocation Procedures*** (from Bill Lamkin, MA Dept of Environmental Protection after the Forum call):

MA DEP has changed the procedure for how the allocation occurs.

Because we utilize an "updating" allocation methodology we must gather output data annually. Our requirement for the submittal of output data has not changed (see reporting language 310 CMR 7.28 (13) (e) below). How we handle that data has changed to be more transparent and to utilize all sources of data. (see new language at 310 CMR 7.28 (6) (d) 4 below.)

Output varies from year to year, and as such the relative proportion of the Massachusetts allowance pie that a specific facility will receive will vary year to year. It will vary as a function of that specific facility's output, but also as a function of the output of all other facilities in the program (relative output so to speak).

1. We start with the total state budget
2. We populate the set aside accounts (new source set aside and public benefit set aside)
3. The balance is allocated to the sources pro rata based upon the sum of all output from all facilities (electric and steam output).

310 CMR 7.28 (6) (d) 4. (page 288 of 413) states:

Beginning with the allocation for the 2008 control period, which occurs in the Spring of

2005, and for each control period thereafter, the Department will forward a template to be used by the budget units for submitting control period output data. After receiving output data from the budget units, the Department will calculate the allocation for the particular control period and forward a draft spreadsheet containing all of the budget units' allocations, including output data and calculations, to the budget units. There will be a 30-day comment period during which budget units may notify the Department of any errors in the output data and the calculation of the allocations contained in the spreadsheet. If the Department receives any comments and makes revisions to the spreadsheet, then it will provide a ten-day comment period on the revised spreadsheet. The Department will post the final allocation on the Department website and send it to EPA and budget units by April 1st of each year, three years before the control period for which the allowances are first useable.

310 CMR 7.28 (13) (e) (pg 294 of 413) states:

(e) By October 31 of each year, any person who owns, leases, operates or controls a new or existing budget unit shall report to the Department each facility's metered net electric and useful steam output for that year's control period. Net electric output must be reported in megawatt hours, and steam output in MMBtu. If data for steam output is not available, the person may report heat input providing useful steam output as a surrogate for steam output.

Note this due date is October 31 because we are requesting ozone season data. Annual programs under CAIR would need a date early in the following year, February 1 maybe?

Massachusetts entire NOx SIP call regulation 310 CMR 7.28 is available on the web at:

<http://www.mass.gov/dep/service/regulations/310cmr07.pdf>

PS. The RGGI Model Rule will also contain some draft language in the monitoring section regarding monitoring and reporting output data for allocation purposes. The RGGI model rule, if it proceeds on schedule, will be out within the month.

<p><b>NEXT TECHNICAL FORUM CALL:</b> April 20<sup>th</sup>, 2-3:30 EST <b>TOPIC:</b> Tax Incentives for Energy Efficiency and Renewable Energy</p>
--