

Regional Greenhouse Gas Initiative –SF₆ Carbon Offsets

EPA's 2009 Workshop on SF₆ Emission Reduction
Strategies Climate Change Policy Panel

February 4, 2009



M.J. BRADLEY & ASSOCIATES LLC

A Climate Change Capital Group Company

M. J. Bradley & Associates (“MJB&A”) Overview

Climate Change

- Expertise in working with companies to help them understand and respond to the political, scientific, technical, and business implications of climate change policy.
- Services include: strategic advice, emissions inventory management, policy advocacy and technical analysis.

Electricity and Natural Gas

- Expertise in the electricity and natural gas sectors.
- Services include: environmental regulatory support, legislative support, corporate environmental strategy development, and multi-stakeholder collaborations.

Transportation

- Expertise in managing transportation-related environmental projects, including diesel retrofits, re-powering projects, hybridization, and electrification projects.
- Services include: implementation of proof of concept demonstrations, large-scale retrofit deployments, and emission testing programs.

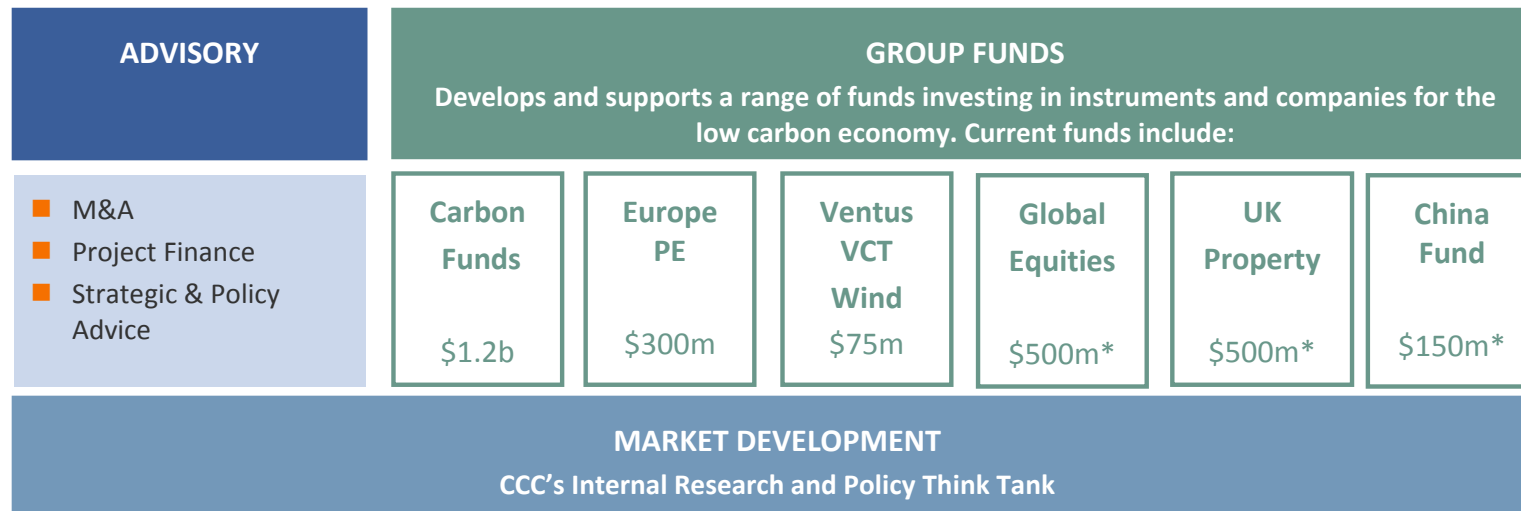
Expertise and Relationships

- Expertise in law, economics, engineering, business and policy.
- Long term relationships with industry, regulators, non profits and environmental advocates.

Climate Change Capital Group

Climate Change Capital (“CCC”) is a leading alternative asset manager specializing in the investment opportunities created by a low carbon economy. CCC advises and invests in companies who recognise that combating global warming is both a necessity and an economic opportunity.

CCC is the leader in the provision of financial and market-related policy advisory services and financing for clean power, clean technology, clean fuels and carbon markets. With 140 employees, CCC is headquartered in London with dedicated teams focusing on China, North America, India and Latin America.



Note that fund numbers may be approximate
 Given translation from Euro and Sterling currencies
 * Signifies the number is a target amount

Regional Greenhouse Gas Initiative (RGGI)

- First regional CO2 cap and trade program in the U.S.
- Start date of January 1, 2009
- Covers fossil-fired electric generating units 25 MW and larger
- Three-year compliance period
- Two-phase cap--stabilize emissions through 2014; reduce 10% by 2018
- Emissions offsets as a compliance option
- Regional allowance auctions.
Allowance prices in the first two auctions:
 - ▶ \$3.07/ton for 12.5 million plus
 - ▶ \$3.38/ton for 31.5 million plus



RGGI Offset Program Guidance

- Prescriptive standards for specific project categories, to ensure that offsets are real, additional, verifiable, enforceable, and permanent.
- Benchmark/performance standard approach allows project developers to understand program requirements up-front.
- The project specific categories were integrated into the RGGI Model Rule and were subsequently adopted as part of each of the RGGI state's RGGI regulations.
- There are a number of areas in the specific project categories that are not as detailed as they need to be and require additional guidance.
- The RGGI states are working with:
 - ▶ ICF Consulting to develop model consistency applications and guidance documents and
 - ▶ The GHG Management Institute to develop an accreditation process for third party verifiers.
- Results of these efforts are expected shortly.

RGGI Offset Categories and Use Limitations

- Offsets may be used for up to 3.3% of reported emissions in a RGGI compliance period. The offsets limit will be enlarged to 5% if the RGGI allowance price reaches \$7/ton and 10% if the RGGI allowance price reaches \$10/ton.
- Offsets from within RGGI states are eligible to generate offsets, but offsets from outside RGGI states must be located in a state that has a MOU in place with a RGGI state. To date, there has not been a MOU developed or provided. This could be a linking vehicle for RGGI, WCI, MWA.

RGGI Eligible Offset Categories

Landfill gas (methane) capture and combustion

Sulfur hexafluoride (SF6) emission reduction in the electricity transmission and distribution sector

Afforestation (transition of land from non-forested to forested state)

End-use fossil fuel efficiency in commercial and residential sectors

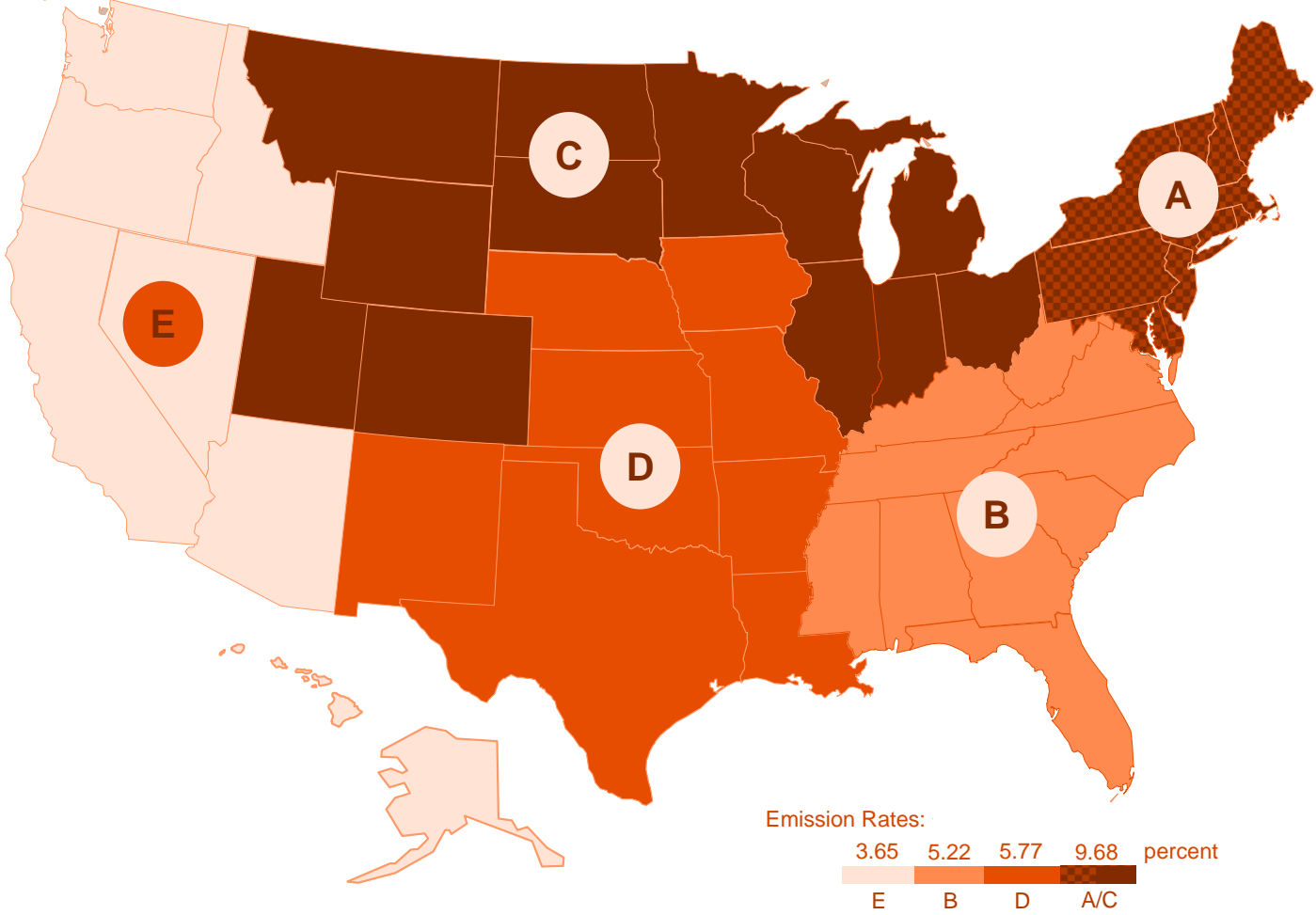
Methane capture and combustion from farming operations

RGGI - SF6 Offset Overview

- Incremental actions beyond those taken during the baseline year.
 - ▶ Such as sealing leaks or accelerated retirement of leaky equipment.
- Systematically track and account for all entity wide uses of SF6 in order to determine entity wide emissions of SF6.
 - ▶ Same approach as EPA Partnership mass balance.
- Monitoring and verification requirements.
 - ▶ Additional requirements to facilitate third party verification.
 - ▶ How are the SF6 cylinders tracked and managed and where is the SF6 gas being used?

Regional SF6 Emission Rate Performance Standard

To qualify to generate RGGI offsets a utility must have an entity wide SF6 emissions rate for the baseline year that is less than regional performance standards or qualify for the “urban utility exemption”.



Urban Utility Exemption

- At least two of the following factors must apply for any company to be granted this exemption:
 - ▶ The entity is comprised of older than average installed transmission and distribution equipment in relation to the national average age of equipment.
 - ▶ A majority of the entity's electricity load is served by equipment that is located underground, and poor accessibility of such underground equipment precludes management of SF6 emissions through regular ongoing maintenance.
 - ▶ The inability to take a substantial portion of equipment out of service, as such activity would impair system reliability.
 - ▶ Required equipment purpose or design for a substantial portion of entity transmission and distribution equipment results in inherently leak-prone equipment.

Monitoring and Verification Requirements

- Supporting material detailing the calculations and data used to determine SF6 emissions reductions.
- Identification of a facilities managed by the entity from which all SF6 gas is procured and disbursed and maintain an entity wide log of all SF6 gas procurements and disbursals.
- A specific cylinder log for each cylinder that is used to fill equipment with SF6 or reclaim SF6 from equipment.

Monitoring and Verification Requirements (continued)

Supporting Material

- Such as:
 - ▶ Utility SF6 operating, handling and inventory procedures
 - ▶ New equipment (and gas) invoices and receipts
 - ▶ SF6 vendor gas invoices and receipts
 - ▶ SF6 gas recycler invoices and receipts
 - ▶ Utility database of SF6 containing equipment
 - ▶ Utility cylinder and gas cart tracking database
 - ▶ Weigh scale calibration certifications

Facility Management and Entity Wide Logs

- Utilities manage SF6 cylinders in a variety of ways. Some utilize:
 - ▶ one centralized facility;
 - ▶ a number of maintenance yards across service territory; and
 - ▶ a combination of maintenance yards and substations.
- An entity wide log of all SF6 gas procurements and disbursements.
 - ▶ Records of total SF6 cylinder deliveries and returns
 - ▶ Records of SF6 sent for recycling
 - ▶ Inventory of SF6 cylinders and gas carts

Monitoring and Verification Requirements (continued)

Cylinder Specific Logs

- A strict reading of the RGGI language implies the following:
 - ▶ Weighing SF6 cylinder before and after equipment is topped off.
 - ▶ Recording the quantity of SF6 gas entered into the specific piece of equipment.
 - ▶ Retaining the log with the cylinder.
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Cylinder Specific Log Challenges

- Size and scope of utility substation operations.
 - Some view cylinder specific logs as impractical and costly.
 - Weighing the cylinders each time they are used presents field challenges as well as health and safety concerns.
 - Depending on location, substation type (open air /GIS), and reliability needs, cylinders are managed in different ways.
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Potential Alternatives?

- SF6 cylinder vendor reports (cylinder id, location, heel weight)
- Equipment specific gas call logging with pounds SF6 added based on equipment PSI readings
- Regular camera investigation and leak id

Contact M. J. Bradley & Associates LLC



MJB&A Head Office

M. J. Bradley & Associates LLC
47 Junction Square Drive
Concord, Massachusetts
United States

Tel: 978 369 5533

Fax: 978 369 7712

www.mjbradley.com

MJB&A New Hampshire Office

M. J. Bradley & Associates LLC
1000 Elm Street, 2nd Floor
Manchester, New Hampshire
United States

MJB&A Washington D.C. Office

M. J. Bradley & Associates LLC
1331 L Street, NW, Suite 212
Washington, DC
United States