Reducing Natural Gas System Emissions and Monetizing the Carbon Value

Annual Natural Gas STAR Implementation Workshop
Carbon Credits and Finance Panel

November 13, 2008

M.J. Bradley & Associates LLC
A Climate Change Capital Group Company

MJB&A: Overview

Climate Change Services

- MJB&A works with a wide range of clients to help them understand and respond to the political, scientific, technical, and business implications of climate change policy.
- Our climate services consist of four main areas: strategic advice, emissions inventory management, policy advocacy and technical analysis.

Electric and Gas Sector

- MJB&A has extensive experience in working with companies in the electric and natural gas sectors.
- These efforts include environmental regulatory support, legislative support, corporate environmental strategy development, and multi-stakeholder collaborations.

Transportation

- MJB&A has extensive expertise in managing transportation-related environmental projects, including diesel retrofits, re-powering projects, hybridization, and electrification projects.
- Our services cover four main areas: 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

Climate Change Capital ("CCC") is a leading Investment banking group specialising 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, Spain, North America, India and Latin America.

Through the combined talents of advisors, finance professionals, environmentalists and access to a significant capital base, CCC is perfectly placed to help its clients adapt to, and profit from, a vast new energy economy.

ADVISORY

- M&A
- Project Finance
- Strategic & Policy Advice

GROUP FUNDS

Develops and supports a range of funds investing in instruments and companies for the low carbon economy. Current funds include:

Carbon Funds	Europe PE	Ventus VCT Wind	Global Equities	UK Property	China Fund
$1.2b	$300m	$75m	$500m*	$500m*	$150m*

MARKET DEVELOPMENT

CCC's Internal Research and Policy Think Tank

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

Federal Climate Change Policy on Horizon

- Numerous cap-and-trade bills have been introduced in Congress.
  - Vary in scope and coverage, with the most aggressive bills covering all sectors of the economy and specifying significant reductions in emissions through 2050.
  - Many contentious issues remain unresolved in the on-going climate policy debate
    - cap level and timing
    - the distribution of emissions allowances,
    - sector coverage,
    - compliance flexibility,
    - cost control mechanisms, and
    - trade implications.
- In 2009, Congress is likely to be cautious in pursuing an aggressive climate change bill, resulting in “high” carbon prices, given the dramatic rise in energy prices and other economic concerns.
- How does the natural gas sector fit in a national program?

Alternative Options for Point of Regulation and Allocation

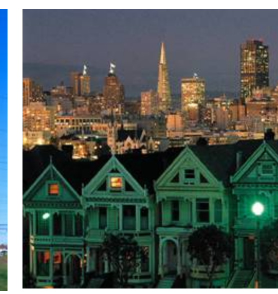
- Under a cap-and-trade program, the term “point of regulation” refers to the entities responsible for surrendering emissions permits or allowances.
- Traditionally, cap-and-trade programs place the point of regulation at the stack where the emissions are generated.
- Over the last few years, the point of regulation and allowance allocations have begun to be approached in new ways.

ream
coal mines and
uction wells

Midstream
e.g., refineries and natural gas pipelines

Downstream #1
e.g., power plants and industrial boilers

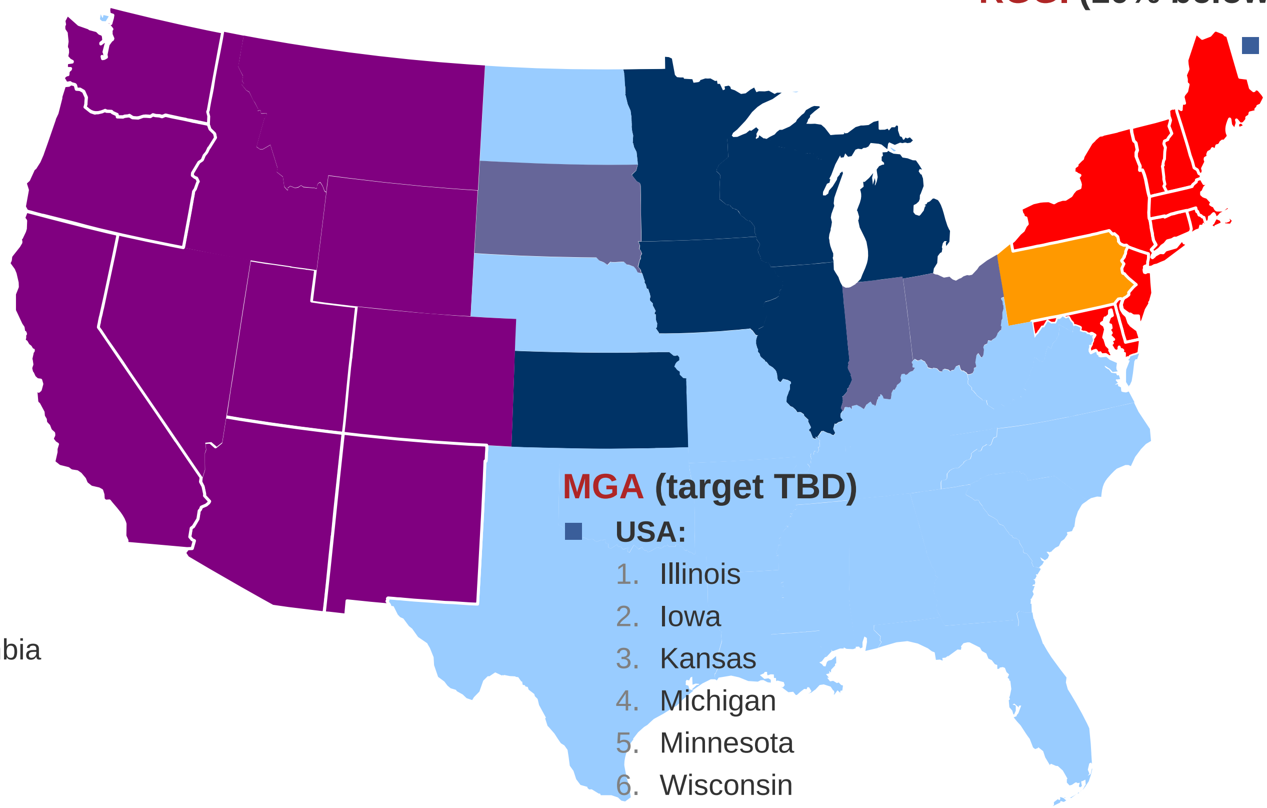
Downstream #2
e.g., electric and natural gas utilities



Downstream #3
e.g., homes and automobiles

Mapping the U.S. Regional Initiatives

More than half of US States representing 60% of GDP have greenhouse gas reduction targets. These include Regional Greenhouse Gas Initiative (RGGI), Western Climate Initiative (WCI) and the Midwestern Regional Greenhouse Gas Reduction Accord (MGA)



WCI (15% below 2005 levels by 2015)

- **USA:**
  1. Alaska*
  2. Arizona
  3. California
  4. Colorado*
  5. Idaho*
  6. Kansas*
  7. Montana
  8. Nevada*
  9. New Mexico
  10. Oregon
  11. Utah
  12. Washington
  13. Wyoming*
- **Canada:**
  1. British Columbia
  2. Manitoba
  3. Ontario
  4. Quebec
  5. Saskatchewan*

* Observers

MGA (target TBD)

- **USA:**
  1. Illinois
  2. Iowa
  3. Kansas
  4. Michigan
  5. Minnesota
  6. Wisconsin
  7. Indiana*
  8. Ohio*
  9. South Dakota*
- **Canada:**
  1. Manitoba

* Observers

RGGI (10% below 2009 levels by

- **USA:**
  1. Connecticut
  2. Delaware
  3. Maine
  4. New Hampshir
  5. New Jersey
  6. New York
  7. Vermont
  8. Massachusetts
  9. Rhode Island
  10. Maryland
  11. Pennsylvania*

* Observer

RGGI and Natural Gas T&D

RGGI Eligible Offset Category

- Set benchmarks or performance standards for current emission mitigation practices and/or fugitive emission levels.

- RGGI states did not include natural gas T&D as an eligible offset category because:
  - “significant challenges, due to the inherent nature of the operation and maintenance of the natural gas T&D system, to developing baseline, additionality, and M&V criteria.”
  - RGGI states contended that utilities commonly perform a range of BAU activities (I&M).

- Rate Recovery of Natural Gas Losses.
  - Most distribution utilities currently recover the estimated financial value of their annual gas losses through rates.
  - This provides an incentive for utilities to use best practices and minimize their natural gas system losses.

Why Reduce Emissions Now in Advance of Regulatory Certainty?

- Given the federal climate policy uncertainty, there are several strategic reasons to act now:

  - Reduce potential corporate exposure to climate policy costs

  - Illustrate pro active actions to shareholders, regulators, environmental advocates and customers

  - Emission reductions will likely result in cost savings over time

  - Emission reductions will have trading optionally if projects are implemented with rigorous M&V and publicly registered.

  - Potential for:
    - Early action allowances
    - Reduce emissions liability resulting in lower allowance costs
    - Carbon offsets

CCC and MJB&A Turnkey Project Solutions

- Provide a turnkey solution to reduce GHG emissions in the natural gas sector:
  - Finance upfront costs of emission reduction opportunity assessments such as leak detection surveys
  - Invest in projects to help pay for costs, thus reducing the risk to the project sponsor
  - Develop monitoring and reporting methodology
  - Serve as a liaison with regulators and other oversight bodies to guide you through the methodology approval process
  - Assist in all other aspects of project certification
  - Purchase the emission reductions
  - Sell emission reductions to buyers

CCC’s Work in the Natural Gas Sector

- CCC is active in the oil and gas sector (implementing a project in Tbilisi, Georgia and pursuing projects in Egypt, Pakistan, Ukraine, and the U.S.)
- CCC authored the CDM Methodology, AM0023, leak reduction in gas pipelines.
- Working with companies to advocate that the natural gas sector be included as an eligible offset category in RGGI and the California Climate Action Registry.
- Looking to expand into the U.S. market because we believe that these kinds of offsets are likely to have eventual acceptance in compliance regimes.
- But there are still risks, such as regulation of the oil and gas sector and applicability of different offset categories (currently, none accept AM0023-type projects).

Case Study: KTG gas distribution network, Tbilisi

CCC is working with KazTransGas-Tbilisi in Georgia to reduce leaks in the above ground infrastructure of the Tbilisi gas distribution network - specifically gas leaks at gate station and pressure regulator stations, valves and fittings. The project is expected to yield 800,000 CERS by the end of 2012 and over 2 million CERs over the next 10 years.

- Due to CCC's expertise in writing the methodology (AM0023) for this project type as well as our strong relationships with the suppliers of the required equipment and materials, CCC has been able to move extremely fast in implementing the project, and within 3 months have:
  - provided the KTG technical team with training,
  - surveyed over 30 percent of the network,
  - purchased the necessary leak measurement equipment
  - conducted an independent third party survey and
  - completed the validation site visit

- In addition to saving valuable hydrocarbons by reducing gas losses (and thus financial losses), this project will help improve the company's standing in terms of corporate sustainability and environmental management.
- CCC is providing upfront funding for the required project capex.

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