

Climate Change Compliance Considerations for an Integrated Pulp & Paper Facility Utilizing Combined Heat & Power: A Case Study

**By Anthony W. Buxton, Esq., Todd J. Griset, Esq. and Steven A Hudson,
Government Relations Advisor, Preti Flaherty Beliveau & Pachios, LLP and
Glenn S. Poole, Energy Director, Verso Paper**

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Abstract

The New England states, Delaware, New York, New Jersey and Maryland have adopted one of the nation's first climate change regulatory schemes, which took effect January 1, 2009. While the new Regional Greenhouse Gas Initiative (RGGI) only affects fossil-fueled power generators, its definitions are broad enough to include some manufacturing locations with on-site generation. This paper addresses practical compliance considerations for pulp and paper mill operations when faced with a climate change regulatory scheme, utilizing a case study of an integrated pulp and paper mill which found itself subject to RGGI. Early involvement in the development of state implementing legislation and regulations ensured that public policies supporting combined heat and power, biomass utilization, behind-the-meter generation, and maintenance of manufacturing were woven into the final RGGI law and regulations. Proactive and innovative approaches to compliance ensured that the facility would be able to comply with RGGI while minimizing effects on the facility's operations and costs. These considerations will be highlighted against the backdrop of pending climate change activities at the federal level.

I. Overview of the Regional Greenhouse Gas Initiative

Climate change is increasingly recognized as a threat to domestic and global economies. Despite some criticism, there is broad agreement among climate scientists that global temperatures have increased over the past century, and are projected to continue to increase. Climate change has also increased its profile with regard to public opinion, both domestically and internationally; climate change is now an issue of which the public is increasingly aware – and concerned.¹ While the causes of climate change

¹ See, e.g., *International Public Opinion, Perception, and Understanding of Global Climate Change*, Anthony Leiserowitz, United Nations Development Programme Human Development Report 2007/2008.

continue to be investigated, a majority of researchers have concluded that anthropogenic emissions of greenhouse gases contribute to the climatic shifts observed and predicted. As popular awareness of this phenomenon has increased, governments ranging from individual municipalities to the United Nations have attempted to address climate change through a variety of regulatory and diplomatic structures, most of which aim to reduce anthropogenic greenhouse gas emissions.

To date, the broadest international agreement on reducing greenhouse gas emissions is the Kyoto Protocol, an amendment to the United Nations Framework Convention on Climate Change negotiated in 1997. While more than 160 countries have ratified the Protocol, covering over 55 percent of global greenhouse gas emissions, the United States remains the largest emitter of greenhouse gases that has refused to ratify the treaty.² The United States House of Representatives recently enacted cap and trade legislation. Senate action on a similar proposal is anticipated by Fall of 2009, with final legislation enacted before December, 2009.

In light of the lack of any previous federal mandate to reduce greenhouse gas emissions, a coalition of Northeastern and Mid-Atlantic states voluntarily elected to pursue a regional program designed to reduce greenhouse gas emissions from activities in those states. The Regional Greenhouse Gas Initiative (RGGI) participants agreed to implement a cap and trade system for CO₂ (and CO₂-equivalent) emissions from power plants – including those at pulp and paper facilities – in the member states. Procedurally, stakeholders from the participating states developed a uniform set of model statutory and

² International negotiations are now gathering pace in advance of a key meeting in Copenhagen in December 2009, which could result in an agreement to which the United States will be a party.

regulatory language³, which was then modified locally to fit each state's needs; individualized implementations of RGGI were adopted in each state.

Regulated entities include all fossil fuel-fired electric generating plants with nameplate capacity of 25 MW or greater in the ten state RGGI region⁴. Under the RGGI scheme, emission allowances are auctioned for each state; proceeds are to be used to promote energy conservation and renewable energy. Regulated electric power generators are required to hold allowances covering their emissions of CO₂. These allowances may be purchased at auction, or, alternatively, bought and sold through a market-based emissions trading system. Additionally, the RGGI regime allows regulated entities to employ a limited amount of offsets (greenhouse gas emissions reduction or sequestration projects at sources beyond the electricity sector) to help meet their compliance obligations. Each year, participating states' CO₂ emissions budgets decrease gradually, ultimately reaching a cap established at a level 10% lower than the initial emissions budget.

Participant states have now auctioned more than 110 million allowances and raised a total of \$366.5 million since the first RGGI auction in September 2008.

³ The RGGI "Model Rule" and supporting documentation are available at www.rggi.org.

⁴ Maine, New Hampshire, Vermont, Connecticut, New York, New Jersey, Delaware, Massachusetts, Maryland, and Rhode Island..

<u>Auction</u>	<u>Allowances Sold</u>	<u>Price Per Allowance</u>	<u>Total Proceeds</u>
September 25, 2008	12,565,387	\$3.07	\$38.6 million
December 17, 2008	31,505,898	\$3.38	\$106.5 million
March 18, 2009	31,513,765 (2009)	\$3.51	\$110.6 million
	2,175,513 (2012)	\$3.05	\$6.6 million
June 17, 2009	30,887,620 (2009)	\$3.23	\$99.8 million
	2,172,540 (2012)	\$2.06	\$4.5 million

This money is marked for distribution by individual state authorities to fund projects and programs to provide benefits back to energy consumers. By reinvesting auction revenue in the region, the RGGI program is designed to help businesses and homeowners to control their energy costs by improving electricity end-use efficiency. Reduced electricity demand not only lowers consumers' energy bills, but also provides net economic benefits to ratepayers through bill savings and less need for investment in transmission and distribution. The RGGI auctions also raise funds for state energy efficiency and renewable/clean energy programs, which promote development of clean energy technologies across the region. While the RGGI program projects that consumer benefits realized through the strategic reinvestment of CO2 allowance auction proceeds should largely offset the direct effect of RGGI on retail electricity prices, this remains to be seen, although successful applicants for grants from the RGGI funds can receive valuable capital to implement efficiency and clean energy improvements at their facilities. RGGI proponents predicted a net consumer benefit; critics noted the misallocation of benefit to those receiving efficiency funds.

Although the obligation to secure carbon allowances falls generally upon electricity generators, typically generators are able to pass these costs along to electricity consumers. Under the New England energy market administered by ISO New England, all generators are paid a uniform clearing price for their energy⁵. In New England, for ninety percent of all hours, this clearing price is established by the large natural gas-fired generators that dominate the New England marketplace. Because RGGI treats gas-fired generators as owners of CO₂ budget units, they are therefore required to purchase carbon allowances; because they are price-setters in the New England market, not price-takers, the New England energy clearing price rises as the generators add in their RGGI compliance costs. The net effect is that all ratepayers face an increase in their energy costs from the RGGI program. Interestingly, with carbon credits priced at \$3/ton, the price increase in New England will be approximately 3 mills/kWh. For a 500 kWh/month homeowner, the cost is \$18/year; for a 100 MWh/yr industrial consumer, the cost is \$300,000/yr. Maine's RGGI statute also imposes a "cap" on harm to electricity consumers; if carbon credits are auctioned for more than \$5/ton, all amounts collected above that amount are rebated to consumers.

II. Regulatory Issues Affecting Pulp and Paper Facilities under the Model Rule

The Model Rule developed by the multi-state RGGI stakeholders provides the basic, default approach to the RGGI program. Although each state has modified its implementation of RGGI to match its own needs, an understanding of the Model Rule as

⁵ The PJM market, which covers all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia, operates in a similar manner.

initially developed highlights the importance of participation by pulp and paper facilities at the state level.

In its simplicity, the Model Rule treats nearly all regulated generators evenly. Whether the generator is a 500 MW gas-fired merchant plant or a 25 MW behind-the-meter cogeneration unit, the same set of compliance and recordkeeping requirements apply under the Model Rule. Although the technical and environmental attributes of the generation typically found at pulp and paper mills are different from those at grid-scale merchant generation plants, the Model Rule paints both types of generation with one broad brush.

Whether a unit is treated as “fossil fuel-fired” is a threshold question with respect to whether the unit will be regulated under the RGGI regime. The Model Rule establishes a very strict definition for “fossil fuel-fired”:

(1) With regard to a unit that commenced operation prior to January 1, 2005, the combustion of fossil fuel, alone or in combination with any other fuel, where the fossil fuel combusted comprises, or is projected to comprise, more than 50 percent of the annual heat input on a Btu basis during any year.

(2) With regard to a unit that commences operation on or after January 1, 2005, the combustion of fossil fuel, alone or in combination with any other fuel, where the fossil fuel combusted comprises, or is projected to comprise, more than 5 percent of the annual heat input on a Btu basis during any year.⁶

Under the Model Rule, any unit newer than December 31, 2004 will be considered to be a fossil fuel fired unit if more than 5% of its total annual heat input is from fossil fuels. This treatment is significantly more strict than the 50% threshold applicable under the Model Rule to older units. (For example, a qualifying biomass small power production

⁶ Model Rule at XX-1.2(aq).

facility under PURPA could use up to 25% fossil fuels to start and stabilize burns, but would be treated as a CO₂ budget unit under the RGGI Model Rule.) Because the generation units at pulp and paper facilities are often older than 2005 vintage, this provision of the Model Rule posed a problem for pulp and paper facilities, and was disharmonious with the other policy incentives offered to such manufacturers.

In recognition of the fact that some generators operate under essentially permanent contracts to sell their output, the Model Rule arguably shifts the carbon allowance obligation to the purchasers of power under such contracts. This shift occurs through the concept of a “life-of-the-unit contractual arrangement”, defined in the Model Rule as a contract to purchase a specified amount of percentage of a unit’s output for a long period of time – generally 25 years, or the life of the unit.⁷ Under the Model Rule, the purchaser of power from a CO₂ budget unit under a life-of-the-unit contractual arrangement in which the purchaser controls the dispatch of the unit is treated as “an owner” of the unit. While this provision appears intended to make life easier for regulated generators, in practice this provision is problematically vague. Although such a purchaser may be “an” owner, the plain language of the Model Rule also establishes that the owner of the unit is also “an” owner – creating significant uncertainty as to the allocation of responsibility for holding allowances between the owner of the unit and the purchaser of the power.

The Model Rule also proved challenging to pulp and paper facilities which typically include more than one type of generation, and which are typically operated at least partially behind-the-meter. Suppose a pulp and paper mill operates a biomass boiler to generate steam and electricity (not a CO₂ budget unit), as well as a natural gas-fired

⁷ Model Rule at XX-1.2(au).

generator (a CO₂ budget unit). The electric output of these two different units is mixed; some of the mill's electrical generation is used behind-the-meter for internal operations, while the remainder is transmitted to the grid for sale at wholesale. Under the Model Rule, absent a detailed engineering explanation of how the electricity exported was generated by the exempt unit, the mill owner would be obligated to purchase allowances sufficient to cover the mill's net exports. In response to economic and social policies, modern pulp and paper mills often use waste biomass as a fuel source. Because the Model Rule lacks a presumption that electricity exported comes first from exempt units, the Model Rule posed an obstacle to the implementation of this policy in favor of using biomass to generate electricity, even though biomass is universally classified as renewable.

III. Modifying the Model Rule for Maine

Because the RGGI regime is designed to apply to greenhouse gas emissions from electricity generation activities – and not specifically pulp and paper facilities – a coalition of manufacturers and non-governmental organizations urged the Maine Legislature and the Maine Department of Environmental Protection (MDEP) to craft regulatory definitions carefully and to create key exemptions for industrial behaviors that already provide significant environmental benefits. In Maine, these provisions include special treatment for combined heat and power units and integrated manufacturing facilities.

Maine's implementation of RGGI defines a combined heat and power unit as

a device that simultaneously generates electricity and thermal power and operates at a high level of output

efficiency by utilizing the waste heat created as a by-product of electricity generation for domestic, commercial or industrial heating or cooling purposes, and whose useful thermal output equals at least 10% of the fossil fuel energy input of the unit.⁸

By contrast, the Model Rule contains no definition of combined heat and power, nor does it treat such units any differently from any other generator.

For example, under Maine's implementation of RGGI, a cogeneration unit may qualify as a combined heat and power unit, provided that its useful thermal output equals at least 10% of the fossil fuel energy input. This threshold may be satisfied by either ensuring adequate thermal efficiency, or by using fuel sources other than fossil fuels for the bulk of the energy input.

Similarly, Maine considers an existing unit to be "fossil fuel fired" when fossil fuel constitutes or is projected to constitute more than 50% of the annual heat input – without regard to the in-service date of the unit. Here, careful monitoring and recordkeeping of the fuel balance on an annual basis to ensure that fossil fuels do not constitute 50% or more of the total fuel input can ensure that a given boiler is not treated as a CO₂ budget unit, thereby limiting compliance requirements to basic recordkeeping sufficient to demonstrate qualification for the exemption.

Specific to Maine's implementation of RGGI is a set of exemptions from regulation for integrated manufacturing facilities – a statutory concept tailored specifically for integrated pulp and paper mills. This concept was pioneered by the Industrial Energy Consumer Group, a Maine trade association of energy-intensive manufacturers active on energy and climate change issues in Maine and New England. Maine defines integrated manufacturing facilities, as facilities with existing air emissions

⁸ 38 M.R.S.A. § 580-A(9).

licenses, which produce electricity from at least one combined heat and power unit and which routinely produce products for sale (e.g. paper and pulp), due to the valuable public purposes such facilities advance. First, the compliance obligation for a CO₂ budget unit at an integrated manufacturing facility is limited to the emissions associated with electricity resulting from the combustion of fossil fuels and then transmitted over the facilities of a transmission and distribution utility. Thus any emissions associated with behind-the-meter electricity consumption are exempt from RGGI regulation, as are emissions from sources other than CO₂ budget units. This distinction is critical to the protection of highly energy efficient integrated manufacturing facilities.

Additionally, Maine enacted a statutory presumption that absent any contractual arrangement to the contrary, any regulated electricity from sources other than carbon dioxide budget units is deemed to be transmitted first. The practical effect of this provision is that where a pulp and paper facility includes several generation sources – for example, a regulated natural gas-fired turbine and an exempt biomass boiler – the facility’s electricity output to the transmission grid is deemed to come first from the exempt unit. Although electrons are generally indistinguishable from each other, and thus it can be difficult to prove from an engineering standpoint that the electricity transmitted out from the facility came from the exempt unit, the nature of generation behind the meter is easily distinguishable, so this statutory presumption provides pulp and paper facilities with a valid opportunity to reduce their compliance obligation within the RGGI framework.

The third component of Maine’s treatment of integrated manufacturing facilities, such as pulp and paper mills, is that where the mill has a long-term electricity contract

(defined as for a term of three years or longer) to sell the output from a CO₂ budget unit, the compliance obligation to purchase carbon allowances falls upon the shoulders of the purchaser of electricity. This approach is consistent with the likely fact that the purchaser will be the marketer of the power in the ISO-NE system.

Additionally, the Maine Department of Environmental Protection has issued regulations – largely tracking the model rules developed by the regional RGGI stakeholders – which provide for key exemptions helpful to pulp and paper facilities. For example, any unit which would otherwise be regulated but which supplies 10% or less of its gross annual electrical generation for transmission over the facilities of a transmission and distribution utility is broadly exempt from compliance obligations, including the obligation to secure carbon allowances to cover its emissions. Such behind-the-meter units are required to perform basic monitoring, recordkeeping and reporting requirements sufficient to demonstrate their exemption. As with the creation of the statutory exemptions of integrated manufacturing facilities, negotiation of the implementation rules required the full focus of mill energy, engineering, environmental and legal personnel.

III. Case Study: Verso Paper's Bucksport Mill

Although the RGGI regime is designed to target electricity generation facilities, by its terms it applies to all fossil fuel-fired electric generating plants with nameplate capacity of 25 MW or greater in the ten state RGGI region. The approximately 225 facilities encompassed by this threshold include at least one pulp and paper mill: Verso Paper Corporation's Bucksport (Maine) mill. Verso owns two mills in Maine; both have units that are impacted by the RGGI program. This case study looks at one – Bucksport.

An understanding of Verso's corporate philosophies on sustainability and climate change, combined with the technical details of Verso's Bucksport facility's energy consumption and emissions patterns, provides insight into how a regulated facility can operate within the constraints imposed by a climate change compliance regime.

Verso is North America's second-largest producer of coated groundwood papers, which are used primarily for catalogs, annual reports and magazines. Verso also produces supercalendered paper, which is used primarily for retail advertising inserts, and some uncoated specialty papers. Verso takes a proactive approach to sustainability, and publicly professes its belief that its ever increasing sustainability efforts will make a valuable contribution to meeting the climate-change challenge. Verso accelerates business practices that promote a balance among its environmental, social and economic responsibilities. Verso's corporate philosophy includes a commitment to continuous performance improvement across every aspect of its business, yielding results that help it protect and conserve the environment, nurture the well-being of its people and communities, and promote long-term economic success. Verso's philosophy and practices enhanced its credibility with legislators and regulators on RGGI issues.

With respect to climate change, Verso promotes an active response to global warming. Verso's 2008 Sustainability Report, "A Climate of Change", states boldly: "There is very strong evidence that our climate is changing as a result of human activity, specifically the burning of fossil fuels – oil, coal and natural gas – that release carbon dioxide (CO₂) and other greenhouse gases into the atmosphere." Verso is committed to reducing its greenhouse gas emissions. Aligned with its sustainability goal for continuous performance improvement, Verso's climate change mitigation strategy has

resulted in a 28% reduction in greenhouse gas emissions per ton of production since 1998. Verso's climate change mitigation strategy includes eight focus areas:

- Increasing the energy efficiency of its operations to reduce emissions of greenhouse gases, including CO₂, methane (CH₄) and nitrous oxide (N₂O).
- Optimizing the use of carbon-neutral biofuels to manufacture its products.
- Encouraging responsible forestry practices globally to assure the world's forests remain healthy and continue their important climate change mitigation role – absorbing and storing CO₂.
- Minimizing its use of purchased electricity from power plants that burn fossil fuels where economically feasible.
- Developing products with a smaller carbon footprint, including lighter weight papers that require less energy to produce and ship.
- Communicating its expectations of key suppliers' efforts to reduce their greenhouse gas emissions.
- Improving transportation efficiency of raw materials and chemicals to its mills to reduce transportation-related greenhouse gas emissions.
- Promoting the recovery of paper, especially magazines and catalogs, for recycling, in order to divert waste paper from landfills and prevent methane emissions that result when paper biodegrades.

Verso's Maine mills began participating in RGGI in 2008, and a number of its employees were pro-actively involved in shaping the program to help assure the critical balance among environmental, social and economic concerns. This included work with

the Maine Department of Environmental Protection and Public Utilities Commission, as well as participation on a gubernatorial RGGI trust fund task force.

Established in 1930, the Bucksport Mill employs 795 people operating four paper machines. Bucksport is capable of producing over 1400 tons per day of light weight coated groundwood papers for offset and rotogravure printing. The plant's steam system is fed by both a biomass boiler (primarily bark) and a heat recovery steam generator which is powered by exhaust heat from a co-located natural gas turbine. Bucksport also uses boilers for steam production for both process and electricity generation purposes. These boilers can use natural gas, oil, coal, biomass and tire-derived fuel. The Bucksport operates mill is connected to the grid of local utility Central Maine Power, but produces most of its energy on site with a gas turbine, known as G4. The mill also uses steam from the Bucksport Energy Cogeneration Plant to dry its paper.

A key aspect of Verso's Maine operations is the cost of energy. Maine in particular, and New England in general, face high electricity costs for a variety of reasons including heavy dependence on natural gas, environmental regulations and ISO New England's transmission socialization policies. Because Verso competes against other similar pulp and paper producers, lowering the cost of energy per unit of production is essential. Likewise, because Verso owns facilities in other regions of the country where energy prices are lower, Verso's Maine mills work hard to keep competitive with their sister facilities.

Bucksport's gas turbine is treated as a CO₂ budget unit for RGGI purposes because more than 50% of its annual heat input comes from the combustion of fossil fuels and it serves a generator with a nameplate capacity equal to or greater than 25

megawatts (MW) electrical output. G4 also supplies more than 10% of its gross electrical generation for transmission over the facilities of a transmission and distribution utility on an annual basis, so it is not currently eligible for this exemption opportunity. Bucksport's G4 is, however, considered a combined heat and power unit located at an integrated manufacturing facility. Bucksport's G-4 is one of the nation's most efficient combined cycle gas turbines due to its highly efficient uses of cogenerated steam and electricity. This and similar units at integrated manufacturing facilities are two and three times more efficient than many traditional stand-alone utility or merchant fossil fuel plants, and therefore have a proportionately smaller carbon impact per BTU of output. This classification entitles Verso to benefit from the three integrated manufacturing facility special treatments. First, only that portion of G4's output that is transmitted to the grid requires Verso to obtain carbon allowances. Combined with the presumption that any net exports to the grid come first from exempt units (e.g. a biomass boiler), this treatment ensures that Verso's compliance obligation is consistent with its environmental impacts. Third, because Verso has a long-term contract for the sale of a significant portion of its electricity generation, the purchaser of this power is responsible for obtaining sufficient carbon allowances to cover these sales. Collectively, these three special treatments significantly reduce the amount of carbon allowances Verso is required to purchase. Given the nationally high cost of electricity in New England, Maine's treatment of integrated manufacturing facilities offers Verso an opportunity to improve its cost competitiveness and to fulfill its desire to balance its environmental footprint.

In addition, Bucksport operates two boilers which do not fall under the RGGI regime's CO₂ emissions budget. Each boiler is exempt from Maine's implementation of

RGGI, although each qualifies for a different exemption. Boiler #5 is exempt because it is used almost entirely for behind-the-meter electricity production; no more than 10% of its gross electrical generation is supplied for transmission over the facilities of a transmission and distribution utility on an annual basis. Boiler #8 is exempt because no more than 50% of its annual heat input comes from the combustion of fossil fuels. Under Maine's implementation of RGGI, both of these boilers are exempt from the program other than maintaining records demonstrating that they continue to meet the relevant exemption criteria.

As the owner of at least one CO₂ budget unit that is a combined heat and power unit located at an integrated manufacturing facility, Verso must submit a projection of the coming year's behind-the-meter CO₂ emissions from all such units, including all information and methods relied upon to determine the projection. This projection is subject to review and approval by the Maine Department of Environmental Protection.

Any remaining exports into the ISO New England market from Verso's carbon budget units do fall under the RGGI regulatory regime, thereby obligating Verso to obtain carbon allowances sufficient to cover these exports. Through cooperative discussions with the Maine Department of Environmental Protection, Verso developed a procedure for monitoring, calculating, and reporting the data required to demonstrate Verso's compliance obligations. On a quarterly basis, Verso must report the CO₂ emissions data and heat input data for each CO₂ budget unit. Development of this data is performed by Verso's environmental and energy teams. Verso must measure its heat inputs to each budget unit, typically measured in Btu, as well as the amount of useful steam and electricity generated. Because RGGI requires emissions allowances to be

purchased only for the portion of the emissions attributable to electricity generated from fossil fuels and transmitted to the power grid, Verso's compliance team must track the megawatt-hour outputs of each interconnected generating unit, as well as metering the net electricity output to the grid. From this net electricity output, Verso may deduct megawatt-hours generated or legally deemed to have been generated from non-fossil-fueled sources. It is on the basis of this reduced quantity that Verso must purchase carbon allowances.

To provide a contrasting example, a different integrated pulp and paper facility in Maine with approximately 125 MW of RGGI-regulated generation faces an annual compliance obligation to secure approximately 110,000 allowances. This amount is calculated based on the portion of electricity generated that is derived from a fossil fuel heat source and ultimately transmitted over the grid; it represents a fraction of the total electricity generated at the facility, most of which is used behind the meter. In light of recent market prices for allowances, this obligation amounts to approximately \$355,000 per year.

This cost may be considered to be offset in part by any money received by a regulated entity – or electricity consumer – from the proceeds of the RGGI auctions. In Maine, the proceeds are held in a newly-created Energy and Carbon Savings Trust. Although recent legislative changes in Maine have modified the organic structure of the Trust and its relationship to other state energy authorities, the Energy and Carbon Savings Trust holds the auction proceeds in trust for the purpose of benefiting consumers. By statute, not less than 85% of the trust fund must be allocated to investments in programs that reduce electricity consumption, although up to 15% may be spent on fossil fuel

conservation measures. In either case, the Trust prioritizes its allocation funding to conservation programs with the highest benefit-to-cost ratio. This ratio is calculated as the reduction of electricity consumption (or greenhouse gas emissions from fossil fuel combustion) per dollar of trust fund invested.

To date, Maine has raised \$11.6 million from the RGGI auctions. Other than a portion of this money which was spent on emergency weatherization programs in the past winter, Maine has not yet made grants from its energy and carbon savings trust fund. With the trust's rules taking effect on June 28, 2009, it is anticipated that the trust will soon make disbursements to fund projects meeting the above criteria.

IV. Looking Forward: Other Potential Climate Change Compliance Regimes

This year is certain to bring historic changes to the climate change regulatory landscape, particularly through federal legislation. Both the House and Senate have developed comprehensive climate change legislation, including a federal cap-and-trade carbon emissions regimes. President Obama has called for an economy-wide cap-and-trade program to reduce greenhouse gas emissions 80 percent by 2050. As the Congress develops legislation to implement that goal, two issues previously addressed on the regional level through the RGGI regime will dominate the debate: how to distribute emission allowances (presumably, as the President has suggested, including a national auction for at least some of the allowances), and what will be done with the proceeds from such auctions. As was demonstrated in the RGGI regime, these issues directly affect who will bear the costs of greenhouse gas reductions, rather than how the reductions will be achieved. Just as with RGGI, federal legislation must also address the

issues of who is regulated – including the establishment of minimum megawatt or emissions thresholds, ensuring proper treatment for behind-the-meter generation, and exemptions for units substantially using fuels other than fossil fuels.

The Maine RGGI experience showed clearly that industry must fully understand the operation of the proposed regulatory regime, its economic effect on or through the pricing of electricity in state or regional markets and the lack of understanding by even the best legislators and regulators of the operation and value of behind the meter generation and integrated manufacturing facilities. Industry must be willing to master both the facts and the ability to explain them in persuasive ways. Based on Verso's experience in Maine, legislators and regulators who understand the practical operations of modern pulp and paper facilities, as well as the environmental benefits of practices such as cogeneration, behind-the-meter generation, and use of "waste" biomass such as bark and black liquor, should be urged to protect these sensible operations from unintended consequences of federal climate change legislation. Operators of pulp and paper facilities should urge that federal legislation, like the RGGI regime, be targeted at reducing unnecessary greenhouse gas emissions in the most cost-effective manner possible.

Pulp and paper facilities with greenhouse-gas emitting generators are certain to be affected substantially by federal cap and trade legislation. The lessons learned from the RGGI process, as demonstrated by Verso Paper's Bucksport mill, provide valuable insight into how an integrated pulp and paper facility can navigate climate change compliance in a positive manner.

Contact Information:

Anthony W. Buxton
Todd J. Griset

Steven A. Hudson
Preti Flaherty Beliveau & Pachios LLP
45 Memorial Circle
P.O. Box 1058
Augusta, ME 04332-1058
207/623-3500
207/623-2914 fax
shudson@preti.com