

New York Tackles Climate Change

Promoting Renewable Energy and Capping Greenhouse Gas Emissions

Overview

Reported by [Christine Van Lenten](#) | posted October 20, 2005

Turning Up the Heat

On November 15, 2005, a panel sponsored by the Academy's [Environmental Sciences Section](#) and the [Sallan Foundation](#) will report on and explore a matter that in recent years has graduated from being interesting to being serious to being urgent: how New York State can reduce the emissions of greenhouse gases (GHG) that contribute to climate change.

The lion's share of those emissions is the CO₂ produced when fossil fuels are burned, and on this point mounting concerns about climate change converge with mounting concerns about global energy dependence on fossil fuels. Quite apart from environmental and health concerns—fossil fuel emissions other than CO₂ cause harm, too—a shift from carbon-based fuels to more diversified sources of energy would ensure greater reliability of supply and dampen volatile price swings.

Among factors aggravating these concerns:

- As China and India—which are not bound by the Kyoto Protocol—come roaring into the marketplace, their demand for energy is soaring. While some of this demand will be met by clean energy, in the near-term more fossil fuels are likely to be burned, intensifying competition for them and raising global CO₂ emissions even higher.
- The United States, with 5% of the world's population, produces over 23% of all CO₂ emissions. (Over a third of them are produced by the electric utility industry, which relies heavily on fossil fuels.) The U.S. federal government has adopted no mandatory measures to reduce or even stabilize CO₂ emissions. The atmosphere remains a legal dumping ground for carbon.

But a new federalism is stirring. In the absence of decisive federal action, states and localities are acting, and New York State is playing a leadership role.

Among New York's initiatives are two that, while not formally linked, are mutually reinforcing:

- The Regional Greenhouse Gas Initiative (RGGI), undertaken by nine Northeastern states, would employ a cap-and-trade program to regulate CO₂ emissions from power plants.
- The state's renewable portfolio standard (RPS) requires that by 2013 no less than 25% of the electricity sold in New York State come from renewable sources.

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How well will these initiatives work, and what will they cost—or save—utilities and consumers? Rich in policy, scientific, technical, legal, and economic questions, these efforts will be the November 15 panel's focus. The experts who will contribute to it are working at the forefronts of their fields:

- Panelist [Franz T. Litz](#) will sketch some significant steps New York State has taken to address climate change. He will then discuss how RGGI has evolved, its current status, and steps ahead. He brings an insider's knowledge and perspective to the subject: he serves as greenhouse gas strategy coordinator for the New York State Department of Environmental Conservation (DEC) and as DEC's principal representative to RGGI. He also chairs the group of state staff representatives conducting RGGI discussions.
- Panelist [Katherine Kennedy](#) will offer an experienced environmental advocate's view of New York's RPS. She represented the NRDC in the administrative proceedings that led to its adoption. She will

discuss the important role that investment in renewable energy will play in achieving RGGI's goals, and she will examine the scope of the RPS, how it's designed, how it's being implemented, and how it could be strengthened. Kennedy will also report on other measures that New York, the region, and the federal government should adopt to achieve greater reliance on renewable energy and reduce carbon emissions.

- Moderator **Stephen A. Hammer** will add international and local perspectives. He has just completed a PhD in urban planning at the London School of Economics, where his research focused on renewable-energy policy making in cities, with a particular emphasis on New York and London. He now teaches a course on urban energy policy at Columbia. Hammer will sketch the European Union's efforts to comply with the Kyoto Protocol and how they've translated into national and local initiatives—including the **City of London's comprehensive assessment of energy issues**. It results, too, from its mayor's initiative and, Hammer believes, can serve as a model for other cities.
- As moderator, Hammer will keep in focus the questions of why it's inherently difficult for cities to address climate change, how state initiatives may affect cities, and why it's important to ensure that state initiatives don't inadvertently constrain local strategies.

The panel promises to be informative and provocative, and its sponsors hope that, during the Q&A and discussion session following it, attendees will contribute their thinking, too.

Join us!

Christine Van Lenten is a freelance writer who has written about widely varied subjects for the Academy. [more >](#)

The Regional Greenhouse Gas Initiative

The Regional Greenhouse Gas Initiative (RGGI) was launched in April 2003, when New York's Governor George E. Pataki invited the governors of 11 Northeastern and Mid-Atlantic states to explore how to develop a mandatory, regional, carbon cap-and-trade program. Nine states chose to participate actively; two other states and two Canadian provinces formally observe.

RGGI's work has proceeded by way of working groups and an extensive stakeholder process. The intent is to issue, by the end of 2005, a model rule that states can adopt to launch the program.

An August 24, 2005, **Revised Staff Working Group Package Proposal** (PDF, 37 KB) and a **summary** (PDF, 72 KB), available on RGGI's Web site, represent the culmination of two years of intensive effort. **Working Groups** and **Documents and Data** indicate the complexity of this undertaking.

State mandates will be coupled with market forces to achieve a public good.

While the final rule may differ from what the staff proposes, the rudiments of the cap-and-trade program are likely to resemble this:

- The program will apply only to sources of CO₂ emissions within the power-generation sector: essentially, electric utilities. It could eventually be expanded.
- All nine states will together constitute one market.
- Allowances for CO₂ emissions will be allocated to utilities within that market.
- Utilities will be required to reduce their emissions over time.
- Utilities that don't use all of their allowances will be able to "trade" their surplus allowances—that is, sell them.
- Under this program, utilities that exceed their allowances and determine that buying allowances is cheaper than, for example, installing more efficient equipment or switching fuels, could buy them.

That is, RGGI relies on a combination of government mandate and market forces to achieve a public good.

Cap-and-trade programs are not new: EPA's acid rain cap-and-trade program for sulfur dioxide, begun in 1995,

is highly successful. Its NO_x budget program for reducing ozone, begun in 1999, is succeeding too. Both are viewed as models for carbon cap-and-trade programs.

As a tool for achieving compliance with the Kyoto protocol, the EU launched a GHG Emissions Trading Scheme in January 2005. And the Chicago Climate Exchange has been operating a voluntary carbon emissions market since December 2003.

But these precedents should not eclipse RGGI's historic importance: adoption of its model rule will represent the first time U.S. state governments have used the force of law to regulate CO₂ emissions by means of cap-and-trade. (A 1997 Oregon law caps CO₂ emissions from new energy facilities.)

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For the first time, states will regulate CO₂ emissions by means of cap-and-trade.
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Other states are watching—and following. California, Oregon, and Washington are now working toward adopting their own carbon cap-and-trade program, the West Coast Governors Global Warming Initiative. If those three states were a country, their global warming emissions would rank seventh in the world.

The NYS Renewable Portfolio Standard

The state's 2002 Energy Plan required the New York State Energy Research and Development Authority (NYSERDA) to study the feasibility of establishing a **renewable portfolio standard** (RPS) for the state. In his 2003 State of the State address, Governor Pataki asked the New York State Public Service Commission to implement one. The commission adopted an RPS in September 2004 and approved an implementation plan in April 2005.

The RPS requires that by 2013 no less than 25% of the electricity sold in the state by investor-owned utilities come from renewable sources. At present, approximately 18%-19% comes from renewable sources, mostly large-scale hydropower plants. (The figure fluctuates slightly as total electricity sales fluctuate.)

Electric utilities owned by municipalities, the New York Power Authority, and the Long Island Power Authority aren't subject to this requirement. They are encouraged, however, to participate voluntarily.

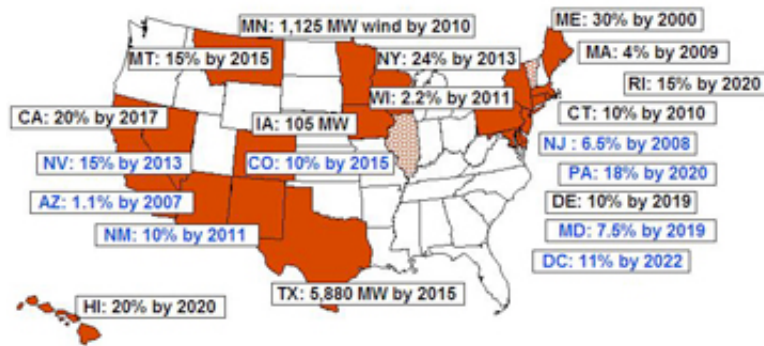
Reaching the 25% goal will require an estimated 3700 MW of new renewable power. It's estimated that emissions of nitrogen oxide will be reduced by 6.8%, sulfur dioxide by 5.9%, and carbon dioxide by 7.7% throughout the state.

But the RPS was not adopted for the sole purpose of abating global warming or achieving other environmental goals. It serves the goals of energy diversity and price stability, too. NYSERDA found that an RPS can improve energy security and help diversify the state's electricity generation mix. As the commission's chair has pointed out, diversified energy resources will help protect consumers from price spikes for oil, gas, and coal.

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The RPS also contributes to greater energy diversity and price stability.
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The RPS is intended to spur economic development in the renewables industry, including the attraction of renewable technology manufacturers and installers. It presents opportunities for the manufacturing sector, owners of commercial office buildings, and real estate development firms to develop small green power projects. Indeed, a comprehensive **article** in the May/June 2005 issue of *Distributed Energy* identifies New York State as offering among the best market opportunities in the nation for renewable energy developers.

The Public Service Commission made NYSERDA responsible for administering the RPS. The principal mechanism is central procurement: NYSERDA contracts for delivery of renewable energy to electricity wholesalers, using funds collected by utilities through surcharges on their customers' bills.



State renewable portfolio standards (*solid red*) or goals (*dotted*), September 2005. Data with a minimum requirement or increased credit for solar energy appear in blue. Pennsylvania's RPS breaks down as 8% tier I, 10% tier II (including nonrenewable sources); Massachusetts anticipates a 1% annual increase after 2009. (Source: Interstate Renewable Energy Council, North Carolina Solar Center, North Carolina State University.)

Federal and state incentives for renewable energy facilitate RPSs. Twenty other states and the District of Columbia have adopted them—up from two states in 1996. New York's RPS differs from most of them in its reliance on central procurement; other states require utilities to purchase renewable energy as part of their energy portfolio. But the intent is the same: to force change in the energy supply mix in the marketplace.

The Wider Context

While RPS and RGGI are the focus of this panel, they can't be fully understood in isolation. Among other initiatives and factors in play are these:

- Reducing demand for energy in the first place and increasing energy efficiency are the cheapest way to achieve reductions in GHG emissions. A **formal study of energy efficiency** (PDF, 211 KB) contributed to the computer modeling that informs RGGI's decision making. That study contends that energy efficiency can contribute significantly to RGGI's success.

Energy efficiency can contribute significantly to RGGI's success.
- New York State's Energy Plan, updated annually, has among its energy policy objectives (1) increasing energy diversity in all sectors of the State's economy through greater use of energy efficiency technologies and alternative energy resources, including renewable-based energy, and (2) promoting and achieving a cleaner and healthier environment.
- Governor Pataki unveiled on September 15, 2005, a nine-point Strategic Energy Action Plan intended "to help ensure that gasoline and home heating oil remain affordable and accessible. The plan also calls for increased efforts to diversify the State's energy resources, including the use of alternative fuels, and greater energy efficiency—building on the Governor's strong record in promoting renewable energy."
- New York State has been aggressively pursuing legal remedies. Among them is a law suit brought with seven other states and the City of New York in July 2004: the plaintiffs sued five utilities that together release almost a quarter of the U.S. utility industry's CO₂ emissions and about 10% of the nation's. The suit was the first ever brought by state and local governments against private companies for contributing to climate change. In September 2005 a federal judge dismissed it as an intrusion in to the policy-making realm. The decision will be appealed.
- NYSERDA administers the New York Energy \$mart Program, which uses funds from a charge paid by electricity consumers in the state to support, among other efforts, renewable energy initiatives.
- The Long Island Power Authority, a state-owned electric utility serving one million customers whose demand for electricity is growing fast, manages a 10-year, \$355 million Clean Energy Initiative to promote technologies that generate clean energy. LIPA is pursuing what could become the first offshore wind park in the United States.

- Consumers can wield their market power: customers of some utilities can select a "green power" option, like LIPA's Green Choice program, which invites customers to buy electricity generated from renewable sources. Green power costs a bit more but is attracting buyers and helping to build the renewables industry.
- New York City has adopted some [green measures](#) (PDF, 27 KB). For example, the city's Economic Development Corporation now buys renewable energy for the Brooklyn Army Terminal and Bush Terminal, the largest purchase ever of renewable energy by a NYC governmental entity. And the New York Power Authority works with the city to identify opportunities for cost-effective, energy efficiency projects at City facilities. It's committed to providing up to \$100 million per year of low-cost energy efficiency financing for its city government customers.

All this is to say that New Yorkers are marshalling their forces in *many* ways to meet the historic challenge posed by energy issues and climate change.

Reading Room

Aulisi, A., A. E. Farrell, J. Pershing & S. VanDeveer. 2005. [Greenhouse gas emissions trading in U.S. states: observations and lessons from the OTC NO_x budget program](#). World Resources Institute, Washington, DC. (PDF, 1.3 MB) [FULL TEXT](#)

This 36-page white paper draws lessons from the successful EPA NO_x emissions trading program that states can apply to efforts to establish markets for GHG emissions trading. Busy readers may want to settle for the news release.

Hammer, S. A. 2004. [Powering the Big Apple: policy and system factors affecting the deployment and use of renewable power in New York City](#). Elsevier, New York. (PDF, 146 KB) [FULL TEXT](#)
Paper prepared for the World Renewable Energy Congress.

Northeast Regional Greenhouse Gas Coalition, 2005. [Regional Greenhouse Gas Initiative: Policy Recommendations](#). (PDF, 1 MB) [FULL TEXT](#)

The Coalition members are BP America, Calpine Corporation, Consolidated Edison, Pfizer, Public Service Enterprise Group, United Technologies Corporation, and Waste Management. The report's recommendations focus on CO₂ cap levels and timing, allowance allocations, flexibility mechanisms, electricity imports and leakage, and compliance and enforcement.

Conferences

National Green Power Marketing Conference

This annual conference reviews the status of green power marketing and explores strategies to increase the development of renewable energy resources through customer choice. Organizers include the U.S. Department of Energy, the EPA, and the Center for Resource Solutions. The tenth conference will be held in Austin, Texas, October 24-26, 2005.

Global Warming Solutions 2005

Sponsored by [Clean Air-Cool Planet](#) and subtitled "What's on the Climate Horizon: Risks and Benefits for Businesses, Investors, and Financial Institutions," this conference was held in New York City, June 8-9, 2005. Among its many sponsors were the EPA, NYSERDA, NRDC, and several energy companies. Attendees included business, investment, government, and opinion leaders who gathered "to exchange the latest information on the struggle to reduce the greenhouse gas emissions that cause global warming." One of the 2005 Climate Champions Awards was given to New York State's [Governor George Pataki](#).

Green Trading Summit

Sponsored by Global Change Associates, the fourth annual summit was held in New York City, May 2-3, 2005. Its [agenda](#) (PDF, 317 KB) offers a fascinating look at the scope and intricacy of the field.

How to Achieve Sustainable Energy for NYC

An April 2005 panel at Columbia University, moderated by Steve Hammer. The Web site offers video and audio.

Web Sites

Government

Clean Energy States Alliance

NYSERDA (see below) is a member of this organization, which was created by 18 publicly managed clean energy funds in 14 states to expand the use of clean energy across the nation.

European Union GHG Emissions Trading Scheme

Launched on January 1, 2005, this initiative is a tool for achieving compliance with the Kyoto Protocol.

International Council for Local Environmental Initiatives

ICLEI is an international association that aims to improve global environmental conditions through the actions of local governments. Worldwide, more than 400 cities, towns, counties, and villages are members; in the USA, 160 local governments participate in ICLEI programs, including the Cities for Climate Protection Campaign and Communities 21. Local Agenda 21, a campaign to help municipalities identify local sustainability priorities and implement long-term action plans (21 is the 21st Century), was endorsed at the 1992 Rio Earth Summit and became part of Agenda 21. It's believed that thousands of local governments in over 100 countries have become involved.

Long Island Power Authority

A state-owned electric utility, LIPA serves one million customers whose demand for electricity is growing fast. Its 10-year, \$355 million Clean Energy Initiatives promotes technologies that generate clean energy. Its [Green Choice](#) program invites customers to buy electricity generated from renewable sources. LIPA is pursuing what could become the first [offshore wind park](#) in the United States. See, too, LIPA's [Environmental Disclosure](#) statement.

NESCAUM

The Northeast States for Coordinated Air Use Management is an association of the air quality regulatory agencies of eight northeastern states. They exchange technical information and coordinate on technical and policy issues related to air quality. In October 2003, NESCAUM launched a [Regional Greenhouse Gas Registry](#) for the Northeast that will help New England states meet climate change commitments under the New England Governors-Eastern Canadian Premiers [Climate Change Action Plan](#) (PDF, 85 KB), adopted in August 2001.

New York Power Authority

The largest state-owned power organization in the nation, the Authority owns generating facilities and transmission lines. Functioning as a nonprofit, public-benefit corporation, it receives no tax revenues or state credits; instead, it finances projects through sales of bonds. Promoting clean energy and energy efficiency are among its goals.

New York State Department of Environmental Conservation

Franz Litz serves as the department's Greenhouse Gas Strategy Coordinator. The DEC's Division of Air Resources offers links to data, reports and technical papers, regulations, and policy guidance.

New York State Public Service Commission The commission instituted New York's Retail Renewable Portfolio Standard program. Its Web site offers essential information on it. The commission's [environmental disclosure label program](#) requires electric utilities to identify fuel sources and air emissions.

New York State Energy Research and Development Authority NYSERDA is a public-benefit corporation created by the state legislature that "works to help New York State save energy, reduce energy costs, protect the environment and improve the economy." It funds research into energy supply and efficiency and energy-related environmental issues and, with the state Public Service Commission, manages the Energy Smart program, which provides energy efficiency services, conducts R&D, and supports environmental protection activities. NYSERDA developed and updates the [State Energy Plan](#). On September 15, 2005, Governor Pataki unveiled a nine-point [Strategic Energy Action Plan](#) that includes measures for diversifying energy resources and promoting energy efficiency.

New York State Attorney General's Office In July 2004, eight states and New York City sued the top five U.S. global warming polluters, who account for a quarter of the U.S. utility industry's CO₂ emissions. The suit was the first ever brought by state and local governments against private companies for contributing to climate change.

In September 2005 a federal judge dismissed it as an intrusion in to the policy-making realm. The decision will be appealed.

Regional Greenhouse Gas Initiative

RGGI is a cooperative effort by nine Northeastern and Mid-Atlantic states to develop a regional strategy for controlling CO₂ emissions through a multistate cap-and-trade program. Its August 24, 2005, [Revised Staff Working Group Package Proposal](#) (PDF, 37 KB) and its [summary](#) (PDF, 72 KB) are the culmination of two years of intensive effort to develop a [model rule](#) that states can adopt to launch the program. Its range of working groups and [Documents and Data](#) suggest the complexity of this undertaking.

U.N. Framework Convention on Climate Change

The UN FCCC provides full text of the [Kyoto Protocol](#) and discussion of its implementation.

West Coast Governors Global Warming Initiative

Following RGGI's lead, in November 2004 the governors of Washington, Oregon, and California approved detailed recommendations for reducing global warming and directed that efforts to develop mitigation strategies be broadened. If those three states were a country, their global warming emissions would rank seventh in the world.

United Kingdom and the City of London

A ratifier of the Kyoto Protocol, the U.K. is working to reduce its CO₂ emissions, and the City of London is aggressively addressing climate change. Other parties are contributing, too.

- **British Council—Climate and the City: London**
London aims to serve 100,000 homes with renewable energy by 2010 and is pursuing other initiatives, too. The Council's global campaign, [ZeroCarbonCity](#), examines "the role of cities in the climate change debate."
- **London Climate Change Partnership**
This group commissioned a study to examine the potential impacts of climate change on London over the next 80 years and to start determining how to adapt.
- **U.K. Carbon Trust**
This independent company, funded by the government, helps the U.K. move to a low-carbon economy by helping business and the public sector reduce carbon emissions and capture the commercial opportunities of low-carbon technologies.

U.S. Department of Energy

The department's Office of Energy Efficiency and Renewable Energy offers extensive information on energy efficiency and renewable energy and on federal and state efforts to promote them—including its [Green Power Network](#). Consumer information on how to buy [clean electricity](#) is offered, too.

U.S. Mayors Climate Protection Agreement

On March 30, 2005, the mayor of Seattle and nine other U.S. mayors invited over 400 mayors across the country to join in a climate change agreement to reduce GHG emissions. In June the agreement was unanimously adopted by the U.S. Conference of Mayors. New York City's Mayor Bloomberg has signed it.

Business

Chicago Climate Exchange (CCX®)

This self-regulated exchange administers the world's first and North America's only voluntary, legally binding, rules-based GHG emissions reduction and trading system. Corporations, municipalities, and other institutions in the United States, Canada, and Mexico participate; projects include Brazil. CCX member have made a voluntary, legally binding commitment to reduce their GHG emissions by 4% below the average of their 1998-2001 baseline by 2006, the last year of the pilot program.

Evolution Markets This brokerage-services company structures transactions for emission credits in SO₂, NO_x, natural gas, and weather derivatives markets. Its Web site offers useful tutorials on many topics. Current market data are available to subscribers.

FPL Group

Specializing in renewable and clean energy sources, FPL operates the two largest solar fields in the world and 24 hydroelectric facilities in Maine. It is the largest owner-operator of wind energy in the United States, supplying more than 40% of total U.S. wind capacity. One of its projects is the offshore wind park being developed by the Long Island Power Authority. (See above.) In January 2005, FPL was named one of the "Global 100 Most Sustainable Companies" by Innovest. (See below.)

Innovest

Innovest Strategic Value Advisors is an investment research and advisory firm that analyzes corporate performance on environmental, social, and strategic governance issues, with a focus on competitiveness, profitability, and share price performance. Its review of clean finance and energy technology concludes that "few environmental issues pose as real, significant, and far-reaching a financial threat to institutional investors as climate change." In January 2005, at the World Economic Forum in Davos, Innovest released a list of the "Global 100 Most Sustainable Companies."

Nongovernmental organizations

Carbonfund

"We buy carbon and retire it," says this nonprofit, which makes it "easy and affordable for individuals and businesses to reduce their climate footprints." By making a donation to the fund, you can retire carbon, too.

Environmental Defense

This advocacy organization brings together experts in science, law, and economics to tackle complex environmental issues and develop solutions. It spearheads efforts to promote a sustainable energy future. Climate change is a major focus.

Interstate Renewable Energy Council

IREC is funded by the U.S. Department of Energy and managed by the North Carolina Solar Center. Its mission is to accelerate the use of renewable energy sources and technologies. Members include state and local government agencies, national laboratories, solar and renewable organizations and companies, and individuals. IREC's [Database of State Incentives for Renewable Energy](#) (DSIRE) is a comprehensive source of information on state, local, utility, and selected federal incentives that promote renewable energy. It includes information on [New York State](#).

Natural Resources Defense Council This leading environmental organization offers comprehensive and timely information on [global warming](#) and [clean air and energy](#), and climate change, including developments at the federal and state levels.

New York Climate Change Information Resources

This Web site, maintained by the Center for International Earth Science Information Network (CIESIN) of the Earth Institute at Columbia University, is tailored to the New York City metro region.

New York Climate Rescue

Focused on New York City, this advocacy organization maintains a free listserv on a wide range of matters related to climate change.

Pew Center on Global Climate Change

The Center provides a forum for research and analysis on climate change and for development of policies and solutions. Its Web site is a rich source of information on the scientific and policy dimensions of [global warming](#), as well as actions underway at the federal and state levels and within the business community.

Renewable Energy Policy Network for the 21st Century

REN21, a global policy network, provides a forum for international leadership on renewable energy and works to bolster policy development and decision making at all levels toward rapid expansion of renewable energies in developing and industrial countries.

Sallan Foundation

A cosponsor of the panel that is the subject of this preBriefing, the foundation works to improve the urban environment by advancing useful knowledge for greener, high performance cities.

The Climate Group

Encompassing politics, trade, and finance, this international organization gathers and shares information about how GHG emissions are being reduced.

Union of Concerned Scientists

This organization offers comprehensive information on renewable energy and the larger subject of global warming. Its "renewable energy basics" is a good starting point.

World Resources Institute

This organization's broad agenda includes climate change, energy, and transportation.

Publications

Books

Fusaro, P. C., & M. Yuen. 2005. **Green Trading Markets: Developing the Second Wave**. Elsevier, New York. [Amazon](#) | [Barnes & Noble](#) | [Chapter 1 \(PDF, 441 KB\)](#)

Fusaro, P. C. 2004. **GreenTrading: Commercial Opportunities for the Environment**. GreenTrading Summit, New York. [Amazon](#)

Articles and Reports

Ascher, K., & G. C. Quiniones, Eds. 2004. **New York City energy policy: an electricity resource roadmap**. New York City Energy Policy Task Force. (PDF, 1 MB) [FULL TEXT](#).
To help ensure a reliable source of electricity, the task force made 28 recommendations in four principal areas: energy supply, distributed resources, energy delivery, and initiatives of New York City agencies. A [status report](#) is also available (PDF, 27 KB).

Bryson, J. 2004. **What you need to know about emissions markets**. Ninth National Green Power Marketing Conference (Oct 5). (PDF, 148 KB) [FULL TEXT](#)

Fusaro, P. C. 2005. **What is green trading?** *Refocus* (Mar/Apr). (PDF, 580 KB) [FULL TEXT](#)
A summary view.

Marzilli, J. 2005. **Laboratories of progress**. *American Prospect* (Sep 18). [FULL TEXT](#)
A look at what states are doing to address climate change.

Prindle, W. R. 2005. **Modeling energy efficiency's role in a carbon cap-and-trade system**. American Council for an Energy-Efficient Economy, New York. (PDF, 211 KB) [FULL TEXT](#)
This paper, presented at the 2005 Energy Program Evaluation Conference, reports on the modeling exercises on energy efficiency that contributed to RGGI's decision making. It concludes that energy efficiency measures can significantly boost RGGI's success, and it proposes three options for "encouraging energy efficiency investment in the context of the model rule."

U.S. DOE Office of Energy. 2004. **Guide to purchasing green power: renewable electricity, tradable renewable certificates and on-site renewable generation**. Efficiency and Renewable Energy, FEMA; EPA Green Power Partnership; World Resources Institute; Center for Resource Solutions; Green-e Renewable Energy Certification Program. (PDF, 890 KB) [FULL TEXT](#)
This 80-page guide provides an overview of green power markets and describes how to buy green power. It's written for businesses, government agencies, universities, and other organizations.

Willing, C. G., Jr. 2005. **Renewable Portfolio Standard Programs**. *Distributed Energy* (May/Jun). [FULL TEXT](#)
A comprehensive examination of the subject, it identifies New York State as offering among the best market opportunities in the nation for developers of renewable energy.

From the Academy

Ecological economics: ascribing value to what matters most, featuring Robert Costanza. 2005. New York Academy of Sciences [eBriefing](#), sponsored by the [Environmental Sciences Section](#).

The slow-motion tsunami: how climate change could change the world, featuring Rajendra Pachauri et al. 2005. New York Academy of Sciences [eBriefing](#), sponsored by the [Environmental Sciences Section](#).


Eco-investing: harnessing capital markets to advance environmental goals, featuring William G. Russell et al. 2004. New York Academy of Sciences [eBriefing](#), sponsored by the [Environmental Sciences Section](#).

Why worry? The threat of abrupt climate change, featuring Gavin A. Schmidt & Ronald L. Miller. 2005. New

York Academy of Sciences **eBriefing**, sponsored by the [Atmospheric Sciences and Geology Section](#).

Life, not a movie: how climate change could affect New Yorkers, featuring Joyce E. Rosenthal & Kim Knowlton. 2004. New York Academy of Sciences **eBriefing**, sponsored by the [Environmental Sciences Section](#).

Who needs Kyoto to slow global warming? CO₂ emitters face rising risks, featuring Peter Lehner & Kevin Healy. 2004. New York Academy of Sciences **eBriefing**, sponsored by the [Environmental Sciences Section](#).

Alfsen-Norodom, C., B. D. Lane & M. Corry, Eds. 2004. **Urban Biosphere and Society: Partnership of Cities. Annals of the New York Academy of Sciences**, Vol. 1023.
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Panelists

Katherine Kennedy, Esq.
Natural Resources Defense Council
[email](#) | [web site](#)

Katherine Kennedy is a senior attorney in the Natural Resources Defense Council's Air and Energy program. She works to promote energy efficiency and renewable technologies in New York and the Northeast through advocacy, legislative action, and litigation.



Kennedy represented NRDC in the administrative proceedings that led to the adoption of New York's Renewable Portfolio Standard. She has also worked in NRDC's urban program on land use and water pollution issues in New York City and in NRDC's citizen enforcement program, bringing citizen lawsuits under federal environmental statutes.

She has taught as an adjunct professor at Fordham University School of Law and is a graduate of Harvard Law School and Harvard College.

Franz T. Litz, Esq.
New York State Department of Environmental Conservation
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Franz Litz is the greenhouse gas strategy coordinator for the New York State Department of Environmental Conservation. In that role, he serves as DEC's principal representative to the Regional Greenhouse Gas Initiative. He also chairs the group of state staff representatives conducting RGGI discussions.

Before assuming this role, Litz was a senior attorney representing DEC in various proceedings related to energy generating facilities, particularly with respect to air regulatory and environmental impact review issues.

Prior to entering public service in New York, Litz practiced environmental law with Brown Rudnick, a large Boston law firm, where he represented private corporate clients on a wide range of environmental permitting and enforcement matters. He is a graduate of Boston College Law School, where he served as executive editor of the Boston College *Environmental Affairs Law Review*.

Stephen A. Hammer, PhD (Moderator)
Center for Energy, Marine Transportation, and Public Policy
Columbia University
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Stephen Hammer is adjunct assistant professor at Columbia University's School of International and Public Affairs, where he teaches a course on urban energy policy. In 2005 he completed work on a PhD in urban planning at the London School of Economics, where his research focused on renewable energy policy making in cities, with a particular emphasis on New York City and London. He has lectured widely on environmental and energy issues, and his articles and opinion pieces have been published in the New York Times and other publications.



Hammer is also president of Mesacosa, LLC, an energy and environmental policy research and business development firm. His 18 years of experience in the environmental field includes providing research, regulatory, technical, and project management support to several start-up firms, President George H. W. Bush's Commission on Environmental Quality, the EPA, the U.S. National Park Service, the City of New York,

Environmental Defense, Staples, Inc., and hundreds of small and medium-sized businesses in the United States and the Caribbean. In addition to his PhD, Hammer holds a Masters in Public Policy from Harvard University's John F. Kennedy School of Government. He served as adjunct lecturer at the Milano Graduate School of Urban and Public Affairs, at the New School University in New York City.

Christine Van Lenten is a freelance writer who has written about widely varied subjects for the Academy. She has also written about public policy issues and technical and scientific subjects—many of them in the environmental field—for federal and state agencies, nonprofit organizations, and private sector firms.

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