

# ENE Policy Brief

House of Commons Standing Committee on  
Environment and Sustainable Development



November 24, 2009

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ENE (Environment Northeast) is a nonprofit organization at the forefront of efforts to combat global warming and promote clean energy and clean air solutions in Eastern Canada and the United States. ENE's team of attorneys, policy analysts, economists, engineers, and environmental scientists are located in Maine, Massachusetts, Rhode Island, Connecticut, and Prince Edward Island. ENE uses policy analysis and collaborative problem solving to develop credible, effective solutions to large-scale environmental challenges that threaten regional ecosystems, human health and the management of significant natural resources. ENE's approach is to work with businesses, government officials, and NGOs to craft policy solutions for pressing environmental challenges through federal, state, and provincial government.

## Our Programs

**Climate Change:** ENE researches and advocates for new laws and programs to reduce greenhouse gas emissions and position the region for a low carbon economy, such as state- and province-wide carbon policies and regional and federal cap and trade programs. ENE was one of 24 official stakeholders in the development of the Regional Greenhouse Gas Initiative (RGGI).

**Sustainable Energy:** ENE advocates policies to promote greater investment in energy efficiency and clean energy resources, and reforms to our electric and gas utility laws to remove barriers to clean energy.

**Transportation:** ENE advances solutions for reducing emissions from vehicles through policies that promote a transition to lower carbon fuels and electrification, and coordinates efforts to reduce black carbon and fine particulates from heavy duty diesel engines, especially in metropolitan areas.

**Forestry and Land Use:** ENE develops guidelines and policies for managing forests and forest products to protect ecosystems, contribute to global warming solutions, and support a sustainable economy.

## Recent Awards and Recognition

In 2009, ENE received the U.S. EPA New England Merit Award in recognition of outstanding contributions on behalf of the region's environment. ENE was recognized for its success in advancing effective and innovative energy efficiency policies in Massachusetts, Maine, Connecticut, and Rhode Island.

In 2008, ENE received the "Champion of Energy Efficiency" award from the American Council for an Energy Efficient Economy (ACEEE). The award was granted for demonstrating national leadership and accomplishment in the energy efficiency field.

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Environment Northeast is a nonprofit research and advocacy organization focusing on the Northeastern United States and Eastern Canada. Our mission is to address large-scale environmental challenges that threaten regional ecosystems, human health, or the management of significant natural resources. We use policy analysis, collaborative problem solving, and advocacy to advance the environmental and economic sustainability of the region.

# The American Clean Energy and Security Act of 2009



ENE Summary | August 2009 | Complete Document Available at:

<http://env-ne.org/resources/open/p/id/885/resource/ENE%20ACES%20Summary>

The *American Clean Energy and Security Act of 2009* (“ACES”), passed by the House of Representatives as H.R. 2454, sets forth an ambitious and comprehensive reform of U.S. climate and energy policy, and charts the course to lower emissions and a sustainable clean technology future. A substantially similar bill has been introduced in the Senate. ENE’s position on the bill and recommendations for improvement are available at: <http://www.env-ne.org/resources/open/p/id/883/>

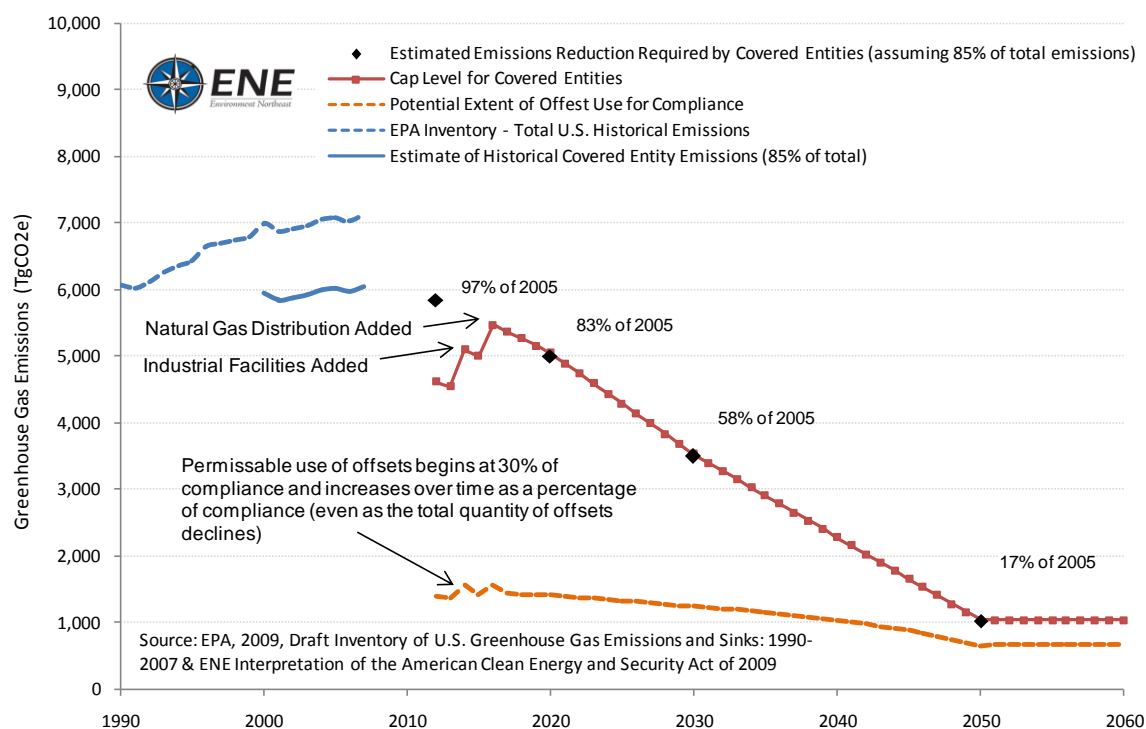
## 1. General ACES Overview

### *GHG Cap and Trade Program*

ACES establishes a market-based cap and trade program that covers approximately 85% of domestic greenhouse gas (GHG) emissions from electricity generators, the transportation sector, industrial facilities, and suppliers of liquid fuel and natural gas. Coverage in most cases is limited to large entities (responsible for >25,000 tons of carbon dioxide equivalent or CO<sub>2</sub>e). Electric generating and industrial units are covered at the point of emission, petroleum fuels are covered at the point of production or importation, and natural gas is covered at the distributor level. Smaller sources of emissions are addressed through performance standards.

The cap expands in coverage over the first five years of the program, with industrial sources and natural gas added in later years. From a 2005 baseline, emissions decline 17% by 2020, 42% by 2030, and 83% by 2050 (see Figure 1, below). The cap establishes numerical tonnage limits, which may be adjusted up or down if EPA revises the 2005 baseline or finds that covered sources are responsible for larger or smaller shares of emissions.

**Figure 1: ACES GHG Cap and Offsets in Relation to Historic Emissions**

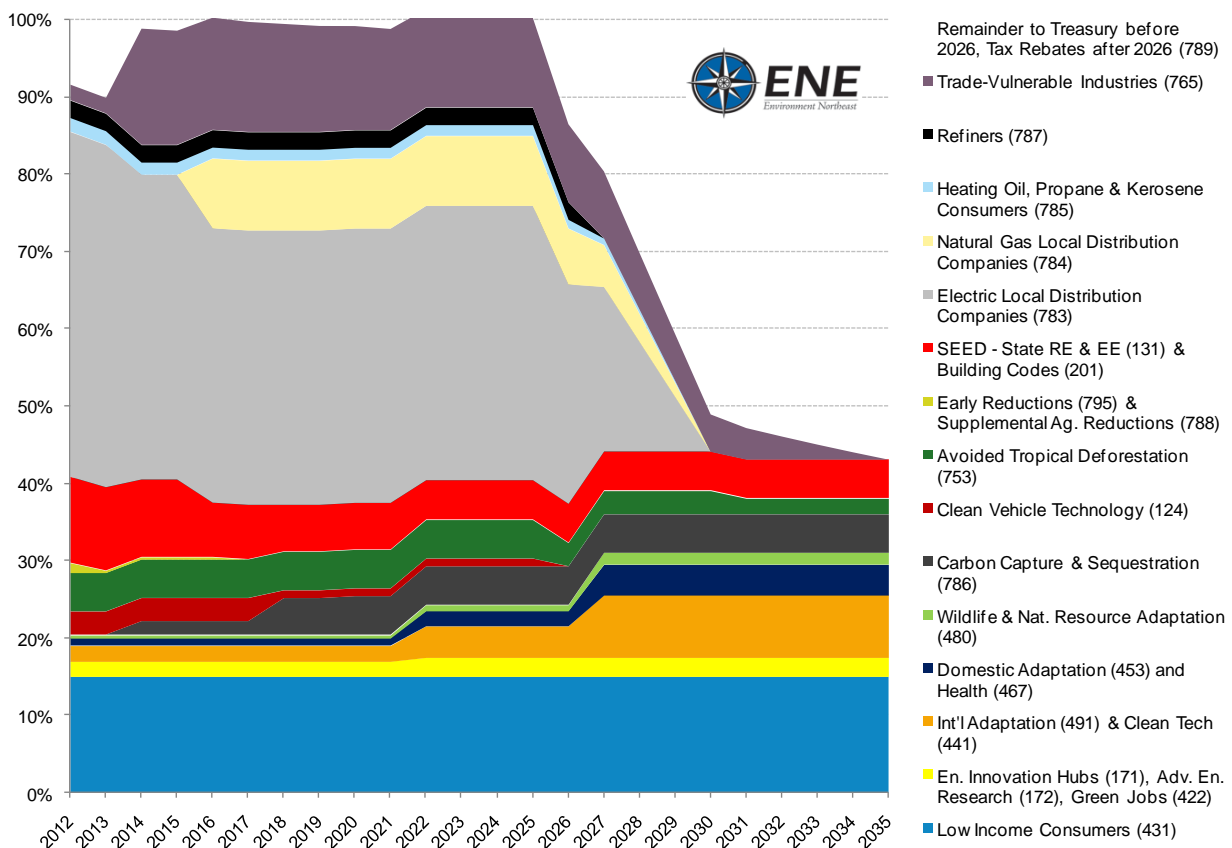


Covered entities may use offsets (emissions reductions from outside of the cap) to comply with the cap. In early years, offsets can be used for approximately 30% of an entity’s compliance obligation. One-half of all offsets may come from domestic sources and one-half may come from international sources. A federal agency will create a list of eligible offset types and maintain oversight of offset eligibility and verification.

**Allowance Allocations**

Allowances (permits to emit) are both auctioned and distributed for free, with free allocations decreasing over time (see Figure 2, below). For the duration of the program 15% of allowances are auctioned by the federal government to fund cash rebates for low-income consumers. The remainder of allowances are distributed to: emitters (large industrials, refineries, merchant coal plants, and power plants with long-term contracts); energy distributors (local distribution companies, which may or may not own power plants, depending on local electricity market rules); states; and, federal agencies. Recipients may auction allowances to raise revenue or use allowances for compliance, in the case of emitters and energy distributors. A significant portion of allowances – roughly 40% in the early years – is allocated for the benefit of electric, natural gas, oil, and propane consumers. State utility regulators will interpret “consumer benefit” and determine whether allowances will be used for compliance, for rebates, or for efficiency programs. Un-allocated allowances are auctioned, with proceeds returned to the U.S. Treasury.

**Figure 1: ACES Allowance Allocations** – Section numbers listed parenthetically; allocations unchanged from 2035-2050



ACES preempts state and regional GHG cap and trade programs, such as the Regional Greenhouse Gas Initiative (RGGI), during the six years from 2012 to 2017. Fleet-wide motor vehicle emissions standards, emissions standards for fuels, and other policies would not be preempted.

A number of elements intended to contain costs are included in the bill:

- Regulated entities may use offsets to cover approximately 30% of their emissions in early years, with allowable offset usage increasing over time as a percentage of capped emissions but decreasing on a quantity basis.
- International Emission Allowances from systems deemed eligible by the EPA may be used for domestic compliance.
- Banking of allowances is allowed without limitation, allowing buyers to retain or use for future compliance any unused allowances.
- Borrowing of allowances from a year ahead is allowed without interest. Allowances may be borrowed up to 5 years into the future to meet 15% of compliance, with an annual 8% interest rate paid at the time of usage.
- A Strategic Reserve of allowances is available for covered entities to purchase at quarterly auctions; reserve allowances prices are initially set at \$28 per ton, later adjusting to 160% of 3-year average real prices plus 5% annual increases. Revenue from the auction of strategic reserve allowances will be used to purchase offsets from avoided deforestation in the developing world. These offsets will then be discounted by 20% and converted to allowances to resupply the reserve.

ACES authorizes the allocation of allowances to energy- and emission-intensive domestic industries susceptible to competition from foreign producers that are not operating under comparable emissions constraints. These allowances are allocated based on manufacturing emissions and energy use, and will discontinue after 2020 if EPA determines that over 70% of global producers in a given sector operate under emissions constraints. If direct allowance allocations fail to protect domestic industry, an international reserve allowance program will be created to incorporate carbon costs into the price of imported products.

## Challenges with Setting a Carbon Cap Level & Trajectory

### **Regional Greenhouse Gas Initiative (RGGI) Experience**

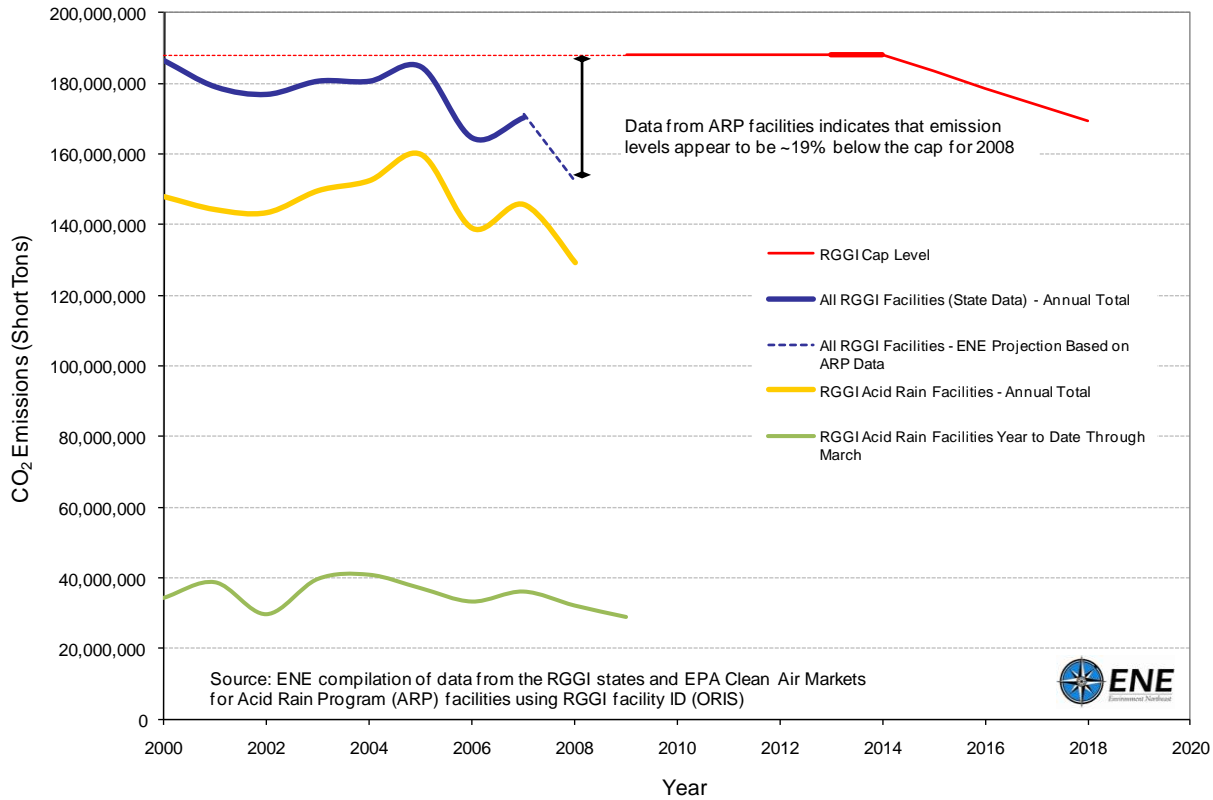
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The Regional Greenhouse Gas Initiative (RGGI, pronounced “Reggie”) is a market based cap and trade program designed to reduce carbon dioxide emissions (CO<sub>2</sub>) from electric power plants in the Northeastern and Mid-Atlantic states. RGGI has been a successful program in many key respects, demonstrating that it is possible to establish a workable cap and trade carbon market, successfully auction carbon allowances, and deploy a substantial portion of the revenues created into state energy efficiency programs that help consumers lower energy costs and act as a cost containment tool with respect to allowance prices.

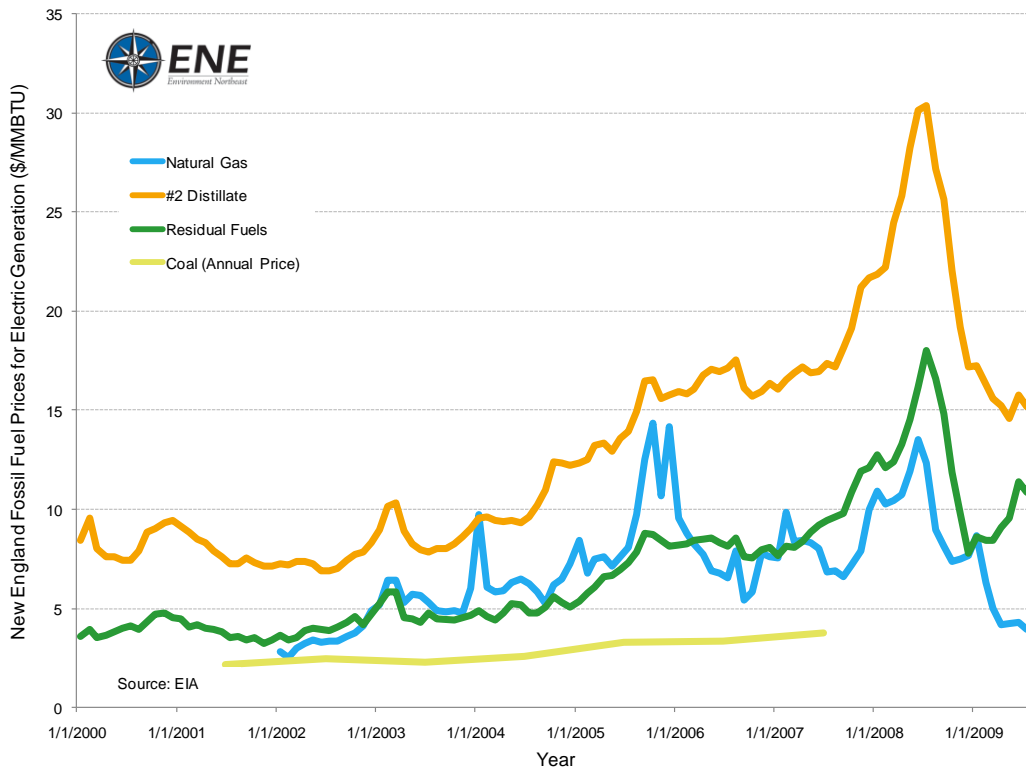
Prior to the implementation of the program, policy makers and RGGI stakeholders believed that emissions from power plants would continue to be stable or increase. However, RGGI has become a lesson in the challenges of forecasting emissions and associated costs. ENE analysis over the past few years has helped to illustrate the degree to which RGGI emissions have declined and the drivers behind those changes. The primary driver has been the significant decline in natural gas prices in relation to oil and coal prices. (See recent ENE report at: [http://www.env-ne.org/public/resources/pdf/ENE\\_4th\\_RGGI\\_Emissions\\_Report\\_20090625\\_final.pdf](http://www.env-ne.org/public/resources/pdf/ENE_4th_RGGI_Emissions_Report_20090625_final.pdf))

The following figure illustrates historical and recent emissions, and where the cap was set. Emissions are now significantly below the cap level – a good thing – and allowances are trading at very low prices. This is in stark contrast to the modeling that showed ever rising emissions at the time the program was being negotiation in 2005.

### RGGI Emissions Trends and Cap Level



### New England Electric Sector Fossil Fuel Prices



The trend we are seeing in the RGGI region is also occurring nationally, although the decline in emissions across the U.S. has more to do with declining energy consumption due to the recession.

# Economics of Energy

## Efficiency in Cap & Trade



Investments in energy efficiency reduce energy consumption and save consumers money on their bills. Additionally, reductions in electricity consumption bring down wholesale electricity prices, and lower consumption of natural gas and heating oil should similarly depress wholesale natural gas and heating oil prices. In a greenhouse gas cap and trade system, efficiency investments also reduce the amount of carbon dioxide produced by power plants, lowering allowance prices and overall program costs. The following “Economics 101” style figures illustrate these supply and demand concepts graphically, and show that investing in energy efficiency is a very effective, low cost means of reducing emissions while providing lasting benefit to consumers.

### The Need for Efficiency Programs

Efficiency programs are needed to overcome market failures that inhibit consumers from spending money on efficiency measures that require up-front investments to deliver net economic benefits. Examples of these market failures include:

**Liquidity Constraints** – inadequate access to capital to purchase efficient equipment or improve building energy performance

**Split Incentives** – the owner of a piece of equipment or building (usually the landlord) does not pay the energy bill and is thus unlikely to invest in efficiency improvements that would benefit the resident/renter

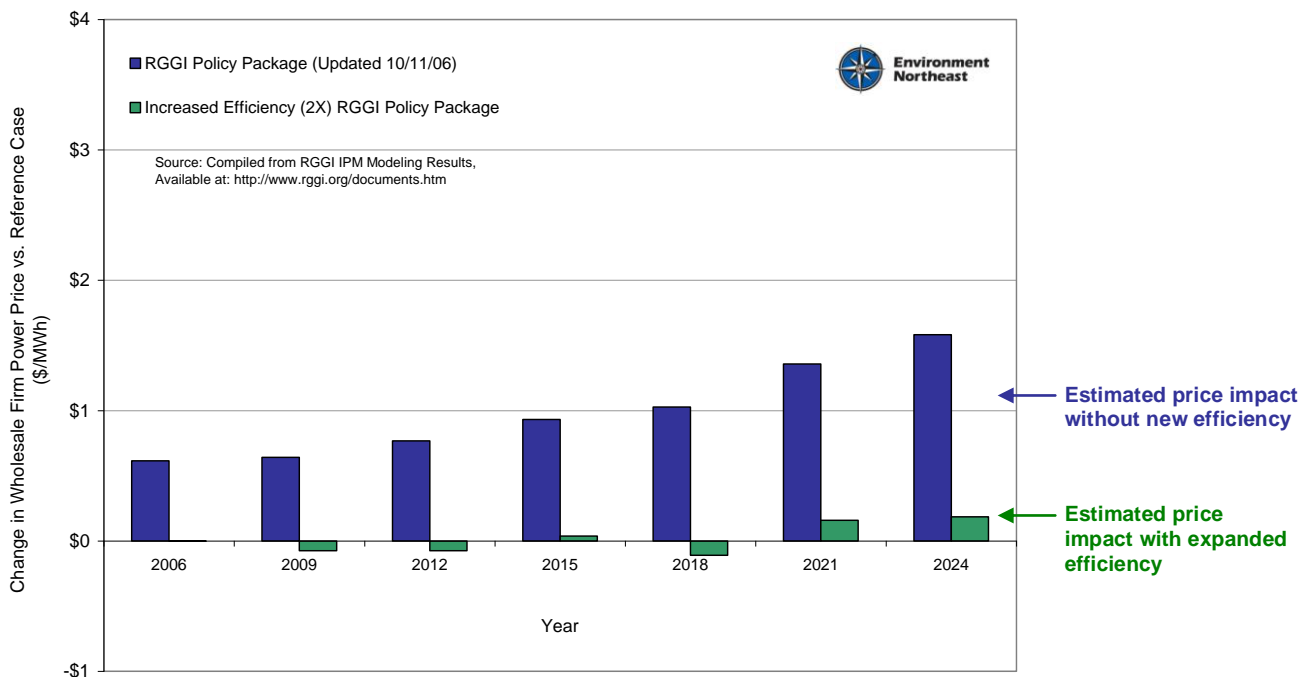
**Information Problems** – purchasers do not know the future energy costs of a product or property and are thus unlikely to invest in the more efficient option

### Efficiency Investment Benefits:

- Efficiency is the lowest cost carbon mitigation strategy.
- Reduced energy consumption lowers demand for allowances and thus brings down allowance prices and reduces the total cost of cap and trade.
- Efficiency programs deliver direct customer savings of about \$3 for every \$1 invested. Customers can invest those savings in other parts of the economy.
- Efficiency programs grow the green economy by creating new utility and energy service jobs.
- Increasing the efficiency of domestic businesses increases their competitiveness internationally.
- Efficiency programs are a business growth area for utilities which is aligned with consumer and environmental interests.

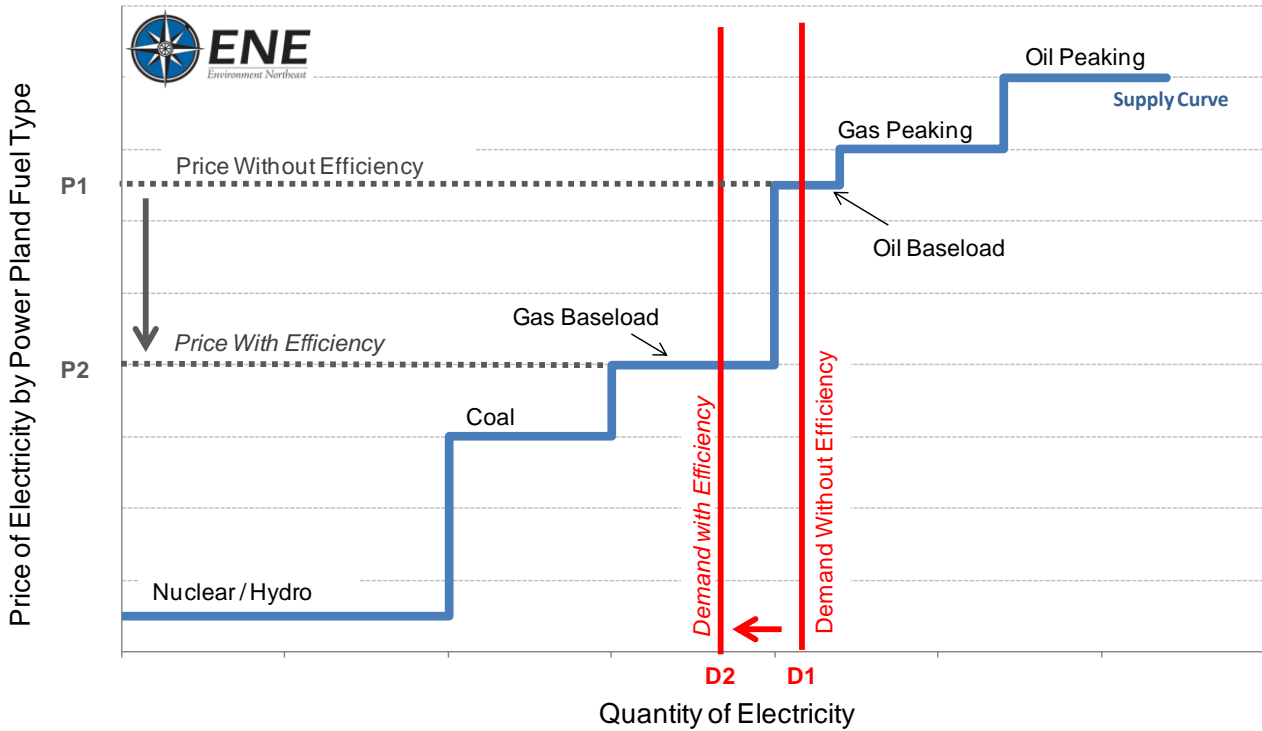
### RGGI Region Wholesale Electric Prices With and Without Expanded Efficiency Investments

The results of extensive electric sector modeling for RGGI illustrate the benefits of investing in efficiency, with lower energy consumption reducing both the demand for (and the market price of) emissions allowances and the underlying cost of electricity



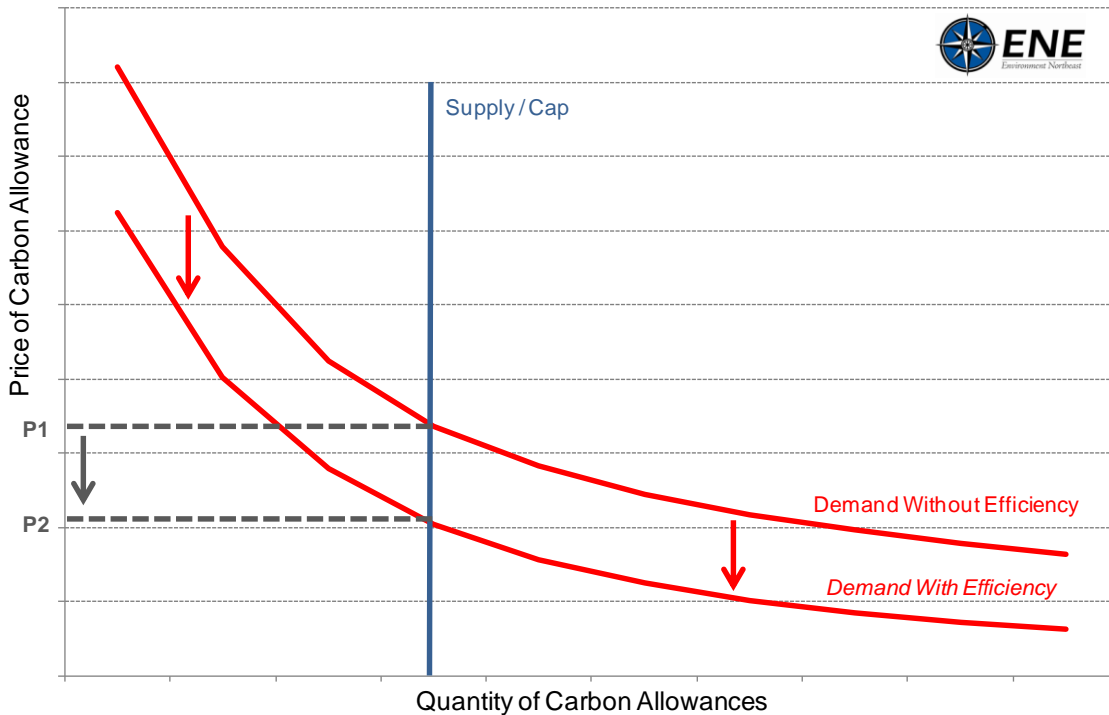
### Energy Efficiency Reduces Electricity Prices

Electricity demand is met with a variety of electric generation resources that are typically deployed based on cost. Decreasing electricity demand through efficiency can reduce the utilization of the most expensive sources of electricity and reduce prices for all consumers.



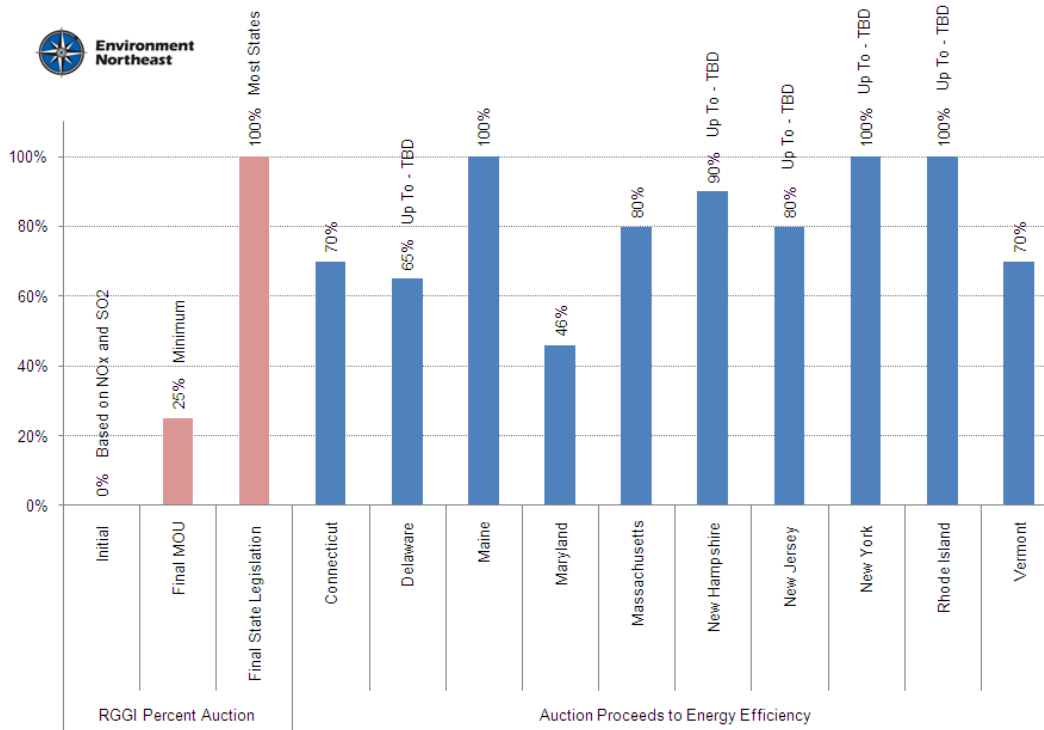
### Energy Efficiency Reduces Carbon Prices

Energy efficiency investments decrease demand for electricity. Lower electricity demand reduces emissions associated with energy production. Reduced emissions lead to lower demand for emissions allowances, lower prices for allowances, and lower cap and trade costs.



## RGGI States Use of Auction Proceeds for Energy Efficiency

All of the states are auctioning a majority of emissions allowances and investing a large portion of auction revenue in expanded energy efficiency programs as a critical cost containment mechanism. The first five RGGI auctions have raised over \$432.8 million in revenue for the states, over \$284.3 million of which is dedicated to energy efficiency.



# Energy Efficiency: Engine of Economic Growth

A Macroeconomic Modeling Assessment



Summary of Report | October 2009 | Complete Document Available at:

[http://env-ne.org/resources/open/p/id/964/resource/Energy Efficiency Engine of Economic Growth](http://env-ne.org/resources/open/p/id/964/resource/Energy_Efficiency_Engine_of_Economic_Growth)

Energy efficiency is emerging as a key policy solution to address high energy costs and the threat of climate change. As investments in energy efficiency programs increase, there is a need to understand economic effects on individual program participants and on the economy as a whole. While microeconomic benefits to ratepayers and program participants are analyzed and verified through public program design processes, less is known about macroeconomic benefits from efficiency investments.

ENE’s recent study – *Energy Efficiency: Engine of Economic Growth* – assessed the impacts of increased energy efficiency investments to capture all cost-effective efficiency (efficiency that is lower cost than supplying additional energy) in New England. The results of the report, which used a multi-state policy forecasting model by Regional Economic Models, Inc. (REMI), highlight the significant economic and environmental benefits of expanded efficiency programs for electricity, natural gas, and “unregulated fuels,” (fuel oil, propane, and kerosene).

New England is not unique in terms of availability of efficiency resources. Cost-effective efficiency savings can be found in any energy system. To capture the economic benefits of efficiency, policies must be created that include programs and incentives to overcome initial costs and deliver lasting benefits.

Assuming total program spending over the 15 year period of \$27.2-billion:

- Gross State Product (GSP) would increase by \$180-billion, of which \$130-billion would be returned to workers through increased real household income.
- On average nearly 38,000 jobs would be created per year.
- Increases in GSP per program dollar invested ranged for each state and fuel scenario from \$4 to \$10.
- Peak annual greenhouse gas emissions reductions are projected to rise to 18 million short tons of CO<sub>2</sub> for electricity, 5 million for natural gas, and 9 million for unregulated fuels – equal to 15% of total regional emissions in 2005. Lifetime emissions benefits would total 536 million tons of CO<sub>2</sub>.
- Total lifetime energy savings for 15 years of programs would be 489,300 GWh for electricity, 1,173 TBTU for natural gas, and 1,439 TBTU for unregulated fuels.

## Summary of New England Economic Impacts

	Electric	Natural Gas	Unregulated Fuels
<b>Total Efficiency Program Costs (\$Billions)</b>	16.8	4.1	6.3
<b>Increase in GSP (\$Billions)</b>	99.4	30.6	53.1
Maximum annual GSP Increase (\$Billions)	5.6	1.8	2.9
Percent of GSP Increase Resulting from Efficiency Spending	12%	11%	9%
Percent of GSP Increase Resulting from Energy Savings	88%	89%	91%
Dollars of GSP Increase per \$1 of Program Spending	5.9	7.4	8.5
<b>Increase in Employment (Job Years)</b>	767,011	207,924	417,061
Maximum annual Employment Increase (Jobs)	43,193	12,907	24,036
Percent of Employment Increase from Efficiency Spending	16%	15%	12%
Percent of Employment Increase from Energy Savings	84%	85%	88%
Job-Years per \$Million of Program Spending	46	50	66

# Considerations for Linking Cap & Trade Systems



The U.S. Congress is developing legislation that would establish a domestic greenhouse gas emissions cap and trade system. While the current focus is on a distinct U.S. system, both the *American Clean Energy and Security Act* (ACES) and the Senate's *Clean Energy Jobs and American Power Act* (CEJAP) recognize the positive economic impacts that would result from a larger and more liquid allowance market.

## Linking Legislative Language

Proposals in the U.S. set the groundwork for linking system by allowing covered entities to meet their compliance obligation by using International Emissions Allowances from “qualifying international programs.” ACES and CEJAP define a qualifying program as one that “imposes a mandatory absolute tonnage limit on greenhouse gas emissions...,” and requires that the program be:

“at least as stringent as the program established by this title, including provisions to ensure at least comparable monitoring, compliance, enforcement, quality of offsets, and restrictions on the use of offsets.” (Emphasis added.)

## Preserving Domestic Competitiveness

A U.S. bill seems very likely to contain protections to address competitiveness issues, especially as they relate to energy intensive industries. These requirements should be eliminated in the case of trade with countries with linked systems. The following is a summary of the section in ACES devoted to this issue:

- Purpose: to avoid significant additional emissions from sources in other countries due to a price on carbon being imposed in the U.S.; to provide limited compensation, through rebates, to eligible industrial sources who are subject to significant international competition.
- Distribution of Rebates: rebates will be distributed only to industries that are especially energy and carbon intensive, and have a high level of trade intensity; distribution among entities is based primarily on energy and emissions intensity of their facilities.
- Phase Out: starting in 2021 the program will begin to phase out, with earlier or later phase out/cancellation possible depending on progress in other countries toward limiting emissions.

## Key Considerations for Linking Cap and Trade Systems

As Canada moves to develop its own regulatory framework, the following are key design elements and issues that likely need to be considered if independent U.S. and Canadian cap and trade programs are to link in the short- to medium-term. Absent detail on the following it will be difficult to assess the cost of the program and thus whether it is deemed to be comparable action.

### 1) Reduction Goals and Targets

#### a) Reduction Goals

- i) Absolute cap – Technical and political considerations will preclude a system with intensity-based targets from linking with the U.S. system which has an overall absolute cap. Essentially an intensity based cap is at a competitive advantage to an absolute cap.
- ii) Economy-wide – Expanding coverage as wide as possible provides the greatest opportunity to control emissions and is most equitable. The U.S. cap and trade program will likely cover approximately 85% of domestic greenhouse gas emissions. If caps do not cover equivalent sectors, there will also be concerns about competitiveness between systems.

#### b) Supplemental Pollution Reduction

- i) Forest and Agriculture (domestic and international) – Additional emissions can be achieved by funding programs that avoid emissions from international deforestation as well as funding programs associated with domestic agriculture and forestry practices that do not qualify as offsets. It is unlikely

this area will be a barrier to linking, as while these kinds of programs deliver emissions reductions attributable to the countries' programs, they do not significantly impact cap and trade program costs.

ii) Additional Greenhouse Gas Standards – The U.S. intends to seek additional emissions reductions from outside capped sectors or entities below the emissions threshold. This includes specific standards for coal-fired power plants and other stationary sources, HFC regulations, black carbon, etc. The degree to which these programs and their design would limit linking is likely specific to the standard type and the implications of having various sectors or pollutants in or out of the cap.

c) Ability to Adjust the Cap – The cap should be set based on best available data and a mechanism could be put in place to adjust the cap at a later date if necessary. In ACES, the numerical tonnage limit established by the cap may be adjusted up or down if EPA revises the 2005 baseline or finds that covered sources are responsible for larger or smaller shares of emissions. Different expectations or opportunities for regulators to adjust cap levels in the future would raise uncertainty about the stringency and cost of a program over time and could limit the potential for linking.

## 2) Cap and Trade Program Rules

a) Covered sources – All sources responsible for significant GHG emissions should be covered by the cap and trade system as long as they are capable of complying with the regulations. In the U.S. direct regulation at the source of emissions is limited to large entities emitting over 25,000 tons of CO<sub>2</sub>e. Combustion of transportation and heating fuels are covered upstream at the refinery, importer, or distributor level depending on the fuel. As long as the sectors regulated are the same, linking should be possible. However, regulation at different points within the supply chain could lead to significant administrative complexity and obstacles.

### b) Flexibility and cost containment

i) Banking and Borrowing – All existing and proposed systems, including ACES and CEJAP, allow for banking. Different banking provisions could change the value of allowances and would require the establishment of usage rules if systems were different. Borrowing is a cost containment tool that allows entities to use allowances from future compliance periods. Borrowing impacts the programs' overall cost if it is used, and different provisions could limit the ability to link systems.

ii) Offsets (domestic and international) – Offsets will impact compliance costs and thus overall program costs. Offsets also have possible implications for the environmental integrity of a program. To overcome political concerns, programs that wish to link will have to reconcile offset eligibility criteria, including how additionality is defined, the percent of emissions that can be addressed through offsets use, and project types. ACES allows regulated entities to use offsets for approximately 30% of their emissions in early years; half may come from domestic sources and half from international offsets. Because offsets are generally viewed as a primary early compliance tool, the rules and requirements will have a significant impact on the price of the program.

iii) Emissions allowance price caps or collars – Price control measures, such as a price ceiling or floor, in one system have a very significant impact on both the program costs and total emissions. Different designs and price points could significantly limit the ability to link systems since one mechanism would essentially transfer to another once linked.

### c) Allowance allocation

i) Technology RD&D – The use of allowance value to support new technology development could put one country at a competitive advantage to another, but this would be over a long timeframe, so differences in this area likely would not be a hurdle to linking.

ii) Investments to Contain Costs (energy efficiency) – near-term programs that contain costs, such as energy efficiency investments, could lead to problems if one country is reducing energy consumption and another is not, with associated free-rider concerns. While consistency would be preferred, the country making the investments gets a significant portion of the benefit and we do not believe differences in this area would be a significant hurdle to linking.