

Major Considerations for GHG Regulations: RGGI and Canadian Systems

NEG-ECP Workshop on GHG Regulatory Requirements and Market-Based Trading Mechanisms

February 4, 2008

Delta Brunswick

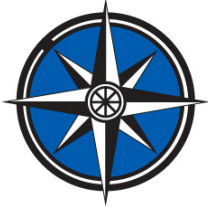
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**Environment
Northeast**



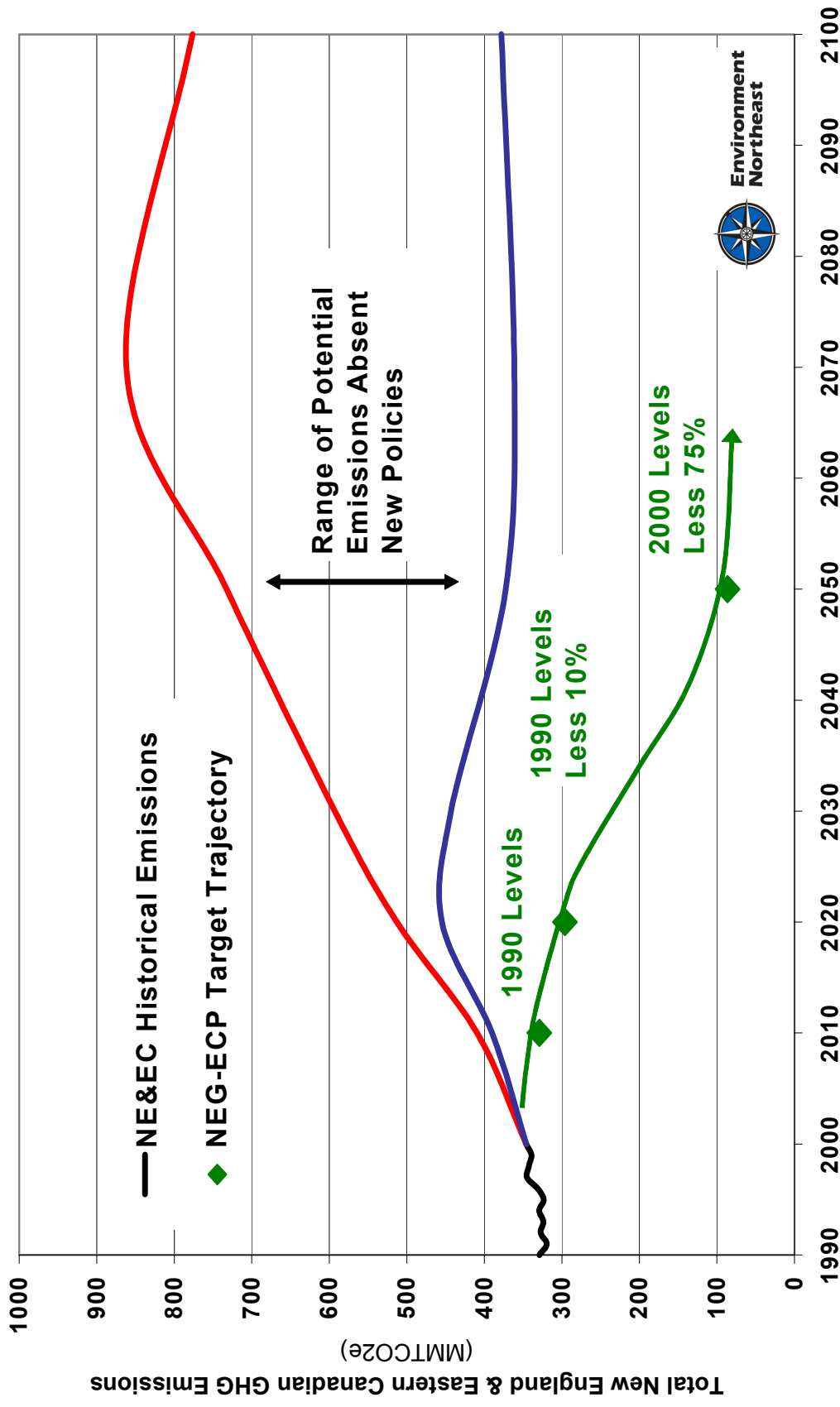
- **Policy Research and Advocacy**
 - Non-profit NGO
 - Offices:
 - Rockport, ME / Portland, ME /
 - Boston, MA / Providence, RI /
 - Hartford, CT / Charlottetown, PEI
- **Regional Approach**
 - Marketplace
 - Ecosystem
 - Regulatory Regimes
- **Policy Areas**
 - Energy
 - Transportation
 - 2 □ Forest Practices and Land Use

ENE's RGGI Stakeholder Experience, Goals

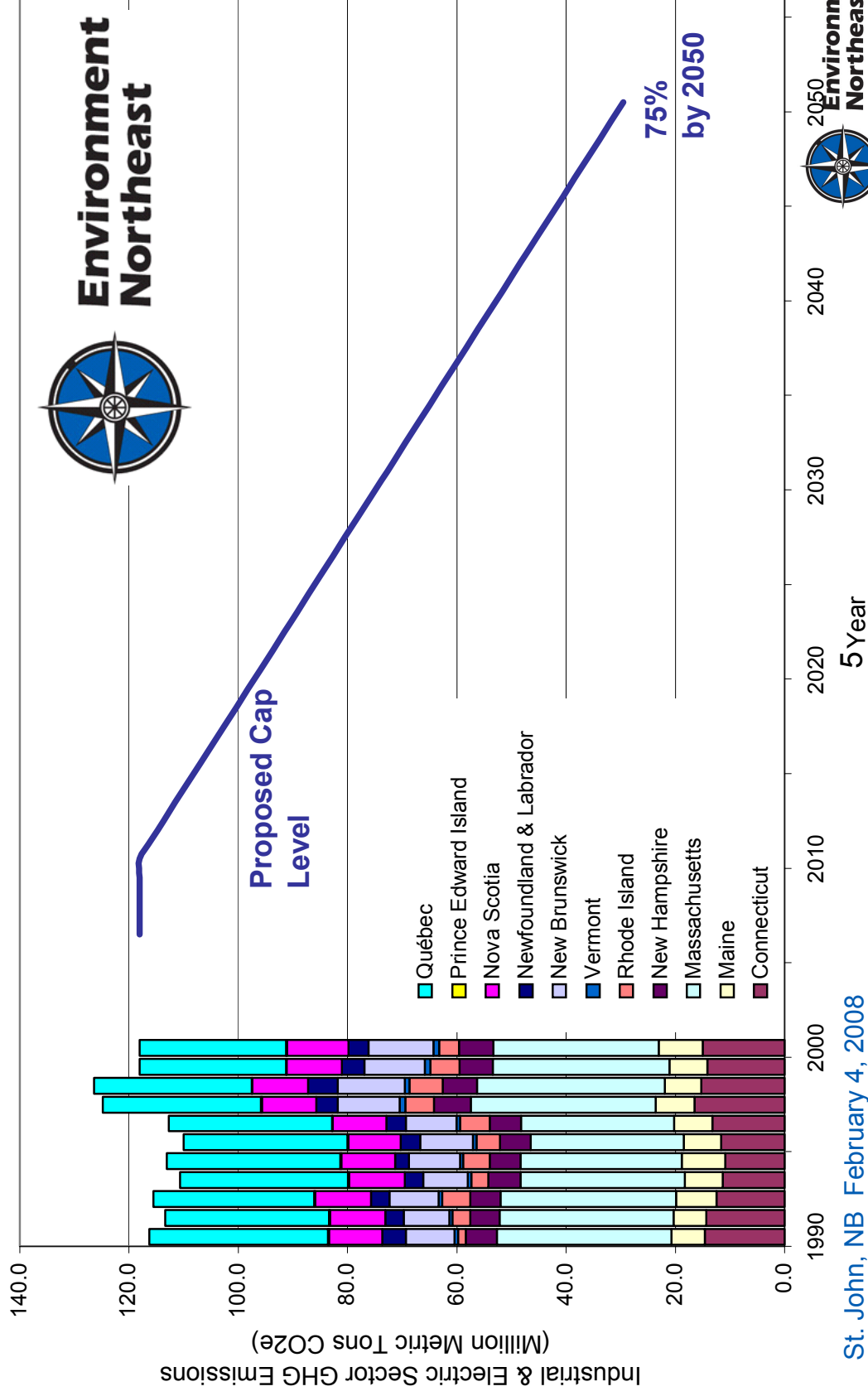
- 1 of 24 official Stakeholders (industry, ENGOs, academic) in RGGI
- Author of first “strawman” proposal for the RGGI Model Rule
- Provided extensive input and analysis on economic and emissions modeling
- Actively engaged in rulemakings in all states
- Sharing “lessons learned”
 - members of Congress from New England states, working on new federal Cap and Trade
 - in other regions of U.S.
 - in Canada
- Goals: assist in the development of appropriate C&T system(s) for jurisdictions in North America that
 - facilitates trading with the RGGI program and
 - ensures environmental benefits from any new energy trade or contracts (across carbon regulation systems or borders)



The Climate Challenge: NEG-ECP Greenhouse Gas (GHG) Emissions & Targets



GHG from NE-EC Generators and Industry: Getting on track, managing for carbon costs



Major Choices for a Carbon Market

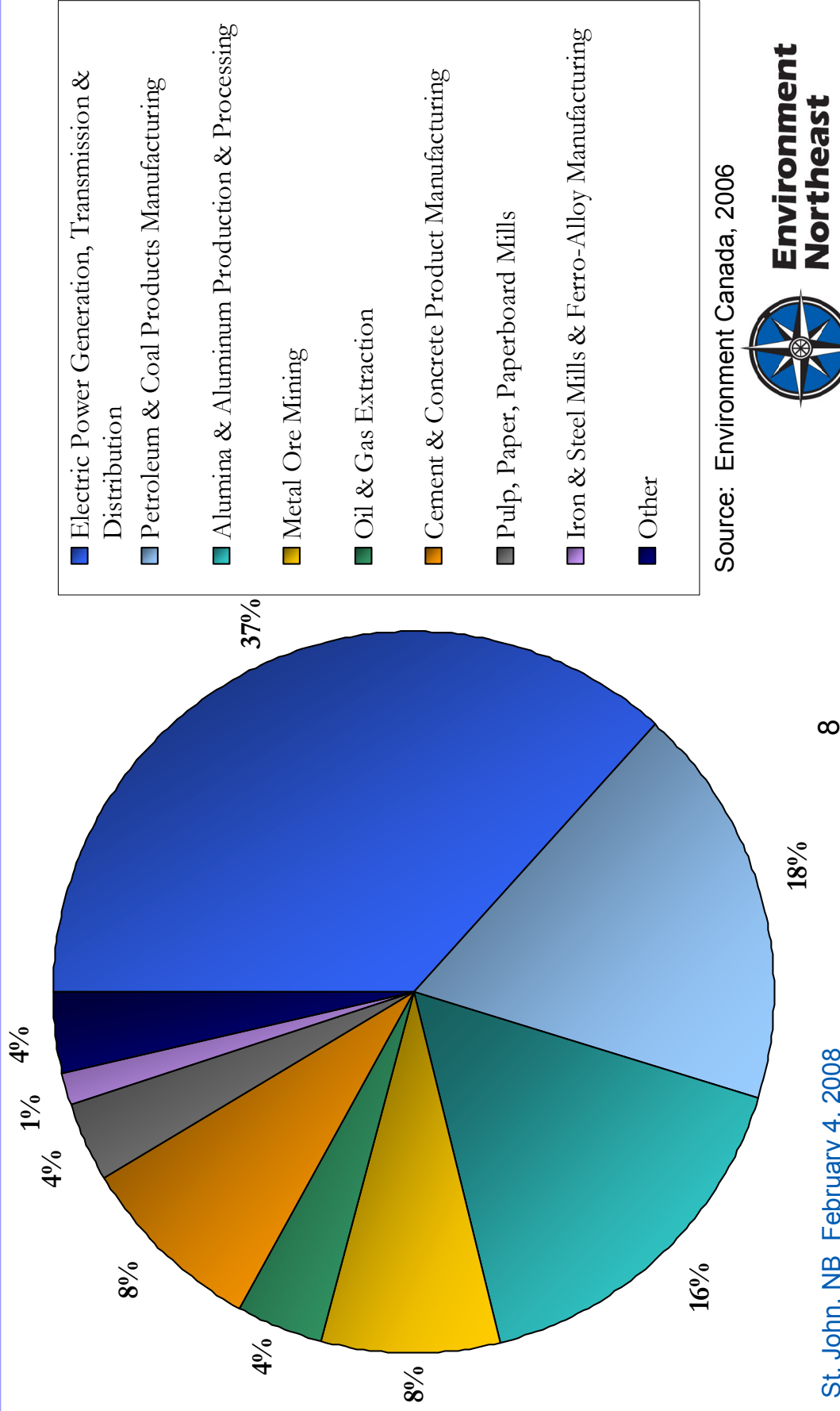
| | | |
|----------------------|----|----------------------|
| Electric generators | v. | All large emitters |
| Cap & Trade | v. | Carbon tax |
| Regulate at source | v. | Regulate at load |
| Hard cap | v. | Intensity targets |
| Auction allowances | v. | Free allocation |
| Invest in efficiency | v. | Rebates |
| Regional market now | v. | Federal market later |



All large emitters

- **RGGI**
 - Fossil fuel-fired electrical generating units > 25 MW
- **Other Models**
 - **Canada** (proposed) – Large point source emitters in the electricity, oil & gas, and other energy-intensive industry sectors (forest products, smelting & refining, iron & steel, cement & chemical, and some mining)
 - threshold not defined
 - **EU** – Large point source emitters in electric & heat generation sector and energy-intensive industry sectors: cement manufacturing; iron & steel; pulp & paper; oil refining; glass and ceramics;
 - all other industrial facilities > 20 MW-thermal capacity
 - **US** (proposed) -- Lieberman-Warner, economy-wide
 - **CA AB32** – Economy-wide, C&T details under development, likely to be broad in scope
 - **WCI** (proposed) -- the sectors to be covered by the C&T program are under consideration

Percent of Total Emissions from Reporting Facilities (> 100 kt CO2eq), by Type, in Eastern Canada (2006)

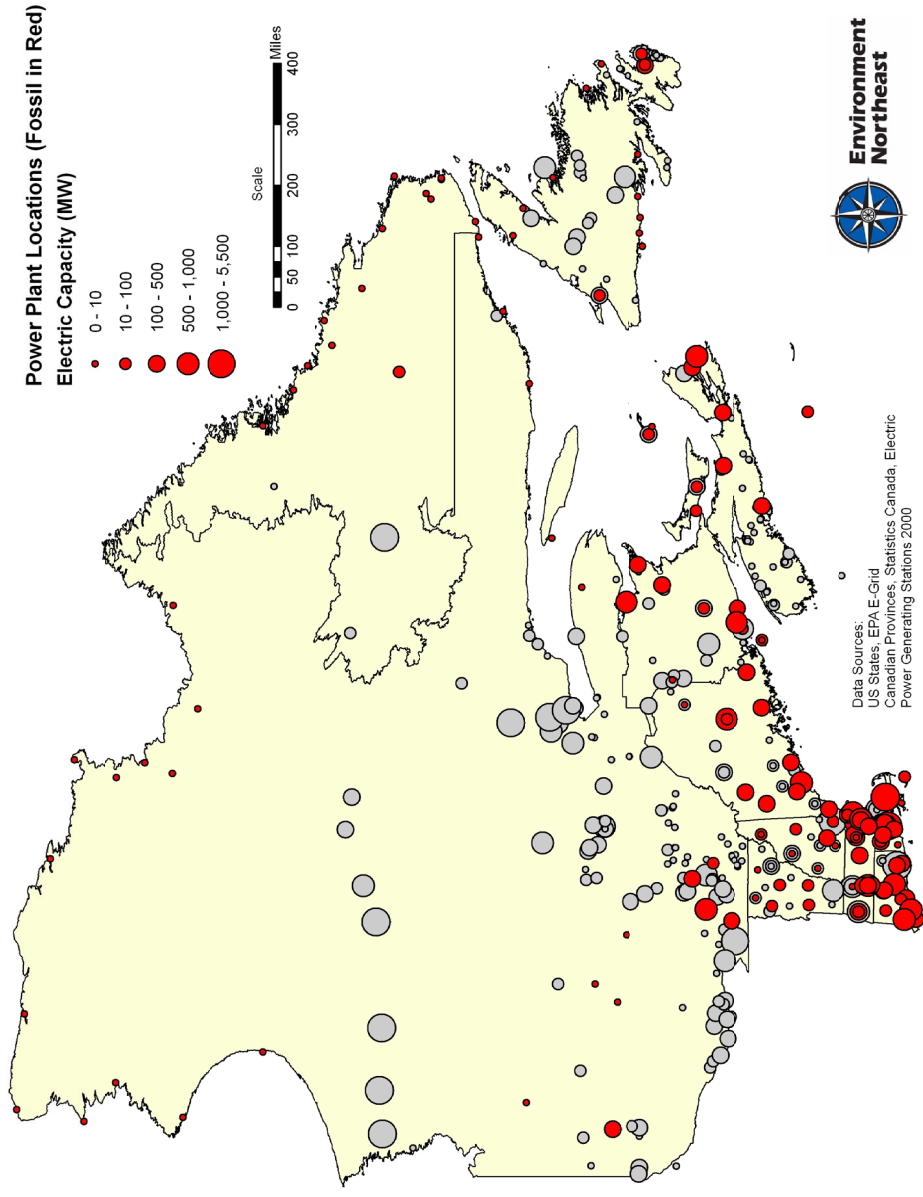


Source: Environment Canada, 2006



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Large units in the NE-EC region



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All large emitters

- Regulating large electric generators only
 - easy place to start administratively
 - large, stationary sources, regulated industry, existing reporting/data
 - significant contributor to total GHG emissions
- Regulating all industrial emitters
 - critical for achieving mid- and long-term climate stabilization targets
 - shares burden equitably among sectors
- Trend is to target all industrial sectors
 - CA AB32, Lieberman-Warner (US), EU ETS, WCI, Midwest GHG Accord
 - New bill in Connecticut, new bill in Massachusetts
- Equivalency agreement
 - granted if the provincial industrial regulations at least as stringent as federal
 - what if fewer sectors covered than under the proposed federal strategy?
- Broad support among ENGOs to cover all large emitters



v.

All large emitters

- NE states should indicate commitment and timeline to expand RGGI framework to cover all industrial facilities
- Eastern Canadian provinces can show leadership by pushing to regulate
 - all industrial facilities with emission level equivalent to a 5 MW generator
- Establish new multi-sector reporting requirements
 - Electric >1 MW that emit >2,500 MT of CO₂/yr
 - Cogeneration facilities
 - Refineries, hydrogen plants
 - Cement plants
 - Large combustion sources \geq 25,000 MT CO₂/yr



Cap & Trade

RRGI and Other Models

v.

Carbon Tax

- RGGI
 - Cap & Trade
- Other Models
 - EU ETS, WCI, Midwest use/propose Cap & Trade
 - Quebec – Carbon tax on hydrocarbons imported into the region
 - 0.8 cents/liter (3 cents/gallon) for gasoline;
 - 0.9 cents/liter for diesel;
 - 0.96 cents/liter for heating oil;
 - 0.5 cents/liter for propane;
 - 1.3 cents/liter for coke (steel);
 - \$8/ton of coal
 - Also pursuing a link with a cap-and-trade system
 - Sweden, Netherlands, Germany and UK are members of the EU ETS that also levy a carbon tax



Carbon Tax

- Not mutually exclusive policy instruments
 - However, carbon tax does not ensure GHG reductions
- Tax can generate funds to invest in new technology, market transformation programs, efficiency programs
- C&T can generate funds to invest and ensure GHG reductions
- **National Round Table on the Environment and the Economy (2008):**
 - “The most effective and efficient policy that would result in deep greenhouse gas emission reductions is a market-based policy, such as an emission tax, a cap-and-trade program, or a combination of the two.”



- Focus first on a Cap & Trade program:
 - Environmental perspective - emissions reductions are guaranteed
 - Political perspective – acceptable, established, better nexus between problem and solution
 - Ease of implementation - markets already in place and maturing, developing, or under consideration
 - takes work to set the cap “right” and allocate allowances fairly, rationally



Regulate at source

RGGI and Other Models

v.

Regulate at load

■ RGGI

- Cap and allocations are placed at the source – i.e. CO2 emissions will be regulated where they are produced
- Regulated entity = electricity generating units

■ Other Models

- Canada – at the source (elec generators, industrial plants)
- EU – at the source
- CA/WCI – Considering load-based cap on electricity sector that covers Load-Serving Entities (LSEs) – retail providers electricity.

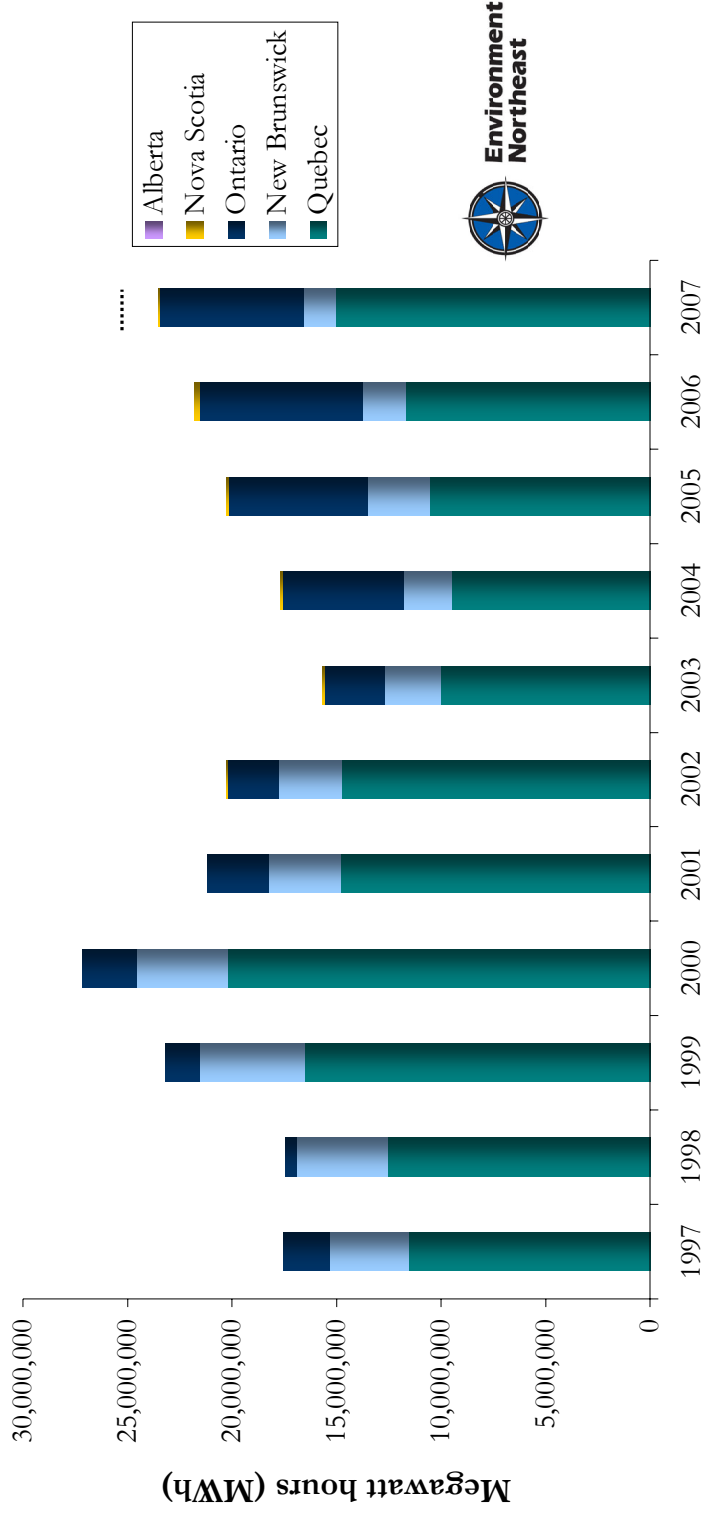


- Regulating at the load w/in the electricity sector could address leakage issues that result from regulating at source, however:
 - huge administrative challenge, new and unproven tracking and reporting approach, system may be game-able, may be subject to challenge
 - conflicts with RGGI and EU ETS approach
 - probably not workable for non-electric sectors
 - may limit size of marketplace for trading
- Expanding the regional scope of source-based Cap & Trade system(s) helps address leakage



Leakage, Clean Imports, or Both ???

Provincial Breakdown of Electricity Exports from Canada to New England and New York (1997-2007*)



Source: National Energy Board, Import/Export Statistics (1997-2007)



Regulate at source

ENE Recommendation

v.

Regulate at load

- Regulate at source
- Address leakage concern by:
 - 1st Choice – Collaboration between RGGI states and EC provinces to develop and implement compatible Canadian Cap & Trade program(s)
 - covering large emitters in all sectors
 - 2nd Choice – Emission limits or standards placed on future long-term contracts entered into by public authorities or regulated utilities
 - preferably for firm delivery of no-carbon or low-carbon supply



Hard cap

RGGI and Other Models

v.

Intensity targets

- **RGGI**
 - Hard Cap
 - Level from 2009 – 2014
 - Decline 10% from 2015 – 2018

- **Other Models**
 - Hard Cap
 - US Acid Rain and Ozone programs (successful experience)
 - US Congress proposals, WCI, EU ETS
 - Intensity targets
 - CAN (proposed)
 - CA Low Carbon Fuel Standard (proposed)



- **Hard cap**
 - higher level of compatibility and wider trading of allowances
 - among sectors, among jurisdictions
 - certainty about GHG reductions

- **Intensity**
 - uncertainty about GHG emissions – may continue to rise
 - not compatible for trading with hard cap system
 - accommodates economic growth by allowing additional GHG emissions even as intensity drops



Hard cap

ENE Recommendation

v.

Intensity targets

- Make N American GHG regulations compatible to ensure maximum trading, lowest cost of compliance and GHG targets
 - hard cap -- tradable tonnes (metric) across all industries, all participating jurisdictions,
 - set aggressive caps and trajectory to achieve approx calibration of price/tonne between systems
 - accommodate economic growth through
 - aggressive demand side efficiency programs
 - R&D investments for clean alternatives
 - appropriate phase in of cap reduction trajectory
 - locally and economically determined strategic set asides
 - address price risk with flexibility mechanisms
 - banking, very limited offsets, etc.



Free allocation

- RGGI
 - At least 25% of state allocation must be auctioned
 - Choice left to individual states
 - Most choosing to auction 100%
 - Connecticut, Maine, Massachusetts, New Hampshire, New York, New Jersey, Rhode Island, and Vermont
- Other Models
 - U.S. Acid Rain – free allocation to emitters
 - EU ETS – free allocation to emitters



Free allocation

- For emitters like electric generators, allowances present an opportunity cost, which cost is normally passed on to consumers even if allocated for free
- Generators in Northeast U.S. publicly acknowledged this, and over time did not fight auctioning in most states
- Benefits of auction
 - eliminate headache about who gets the allocations e.g., new sources vs. old
 - rewards early adopters / early reductions
 - avoids windfall for laggards
 - generates significant revenue, publicly controlled
 - \$10-25 million/yr in Maine, \$20-50 MM in CT; \$50-\$120 MM in MA



Free allocation

- 100% auction of allowances
- use proceeds
 - to significantly expand energy efficiency investments targeted for industry sectors that may be put at a disadvantage to competitors located in jurisdictions not regulating GHG
 - to fund more general efficiency programs in all sectors
- small set asides for targeted strategic energy objectives



Invest in efficiency

RGGI and Other Models

v.

Rebates

- **RGGI**
 - States choose how to spend auction proceeds

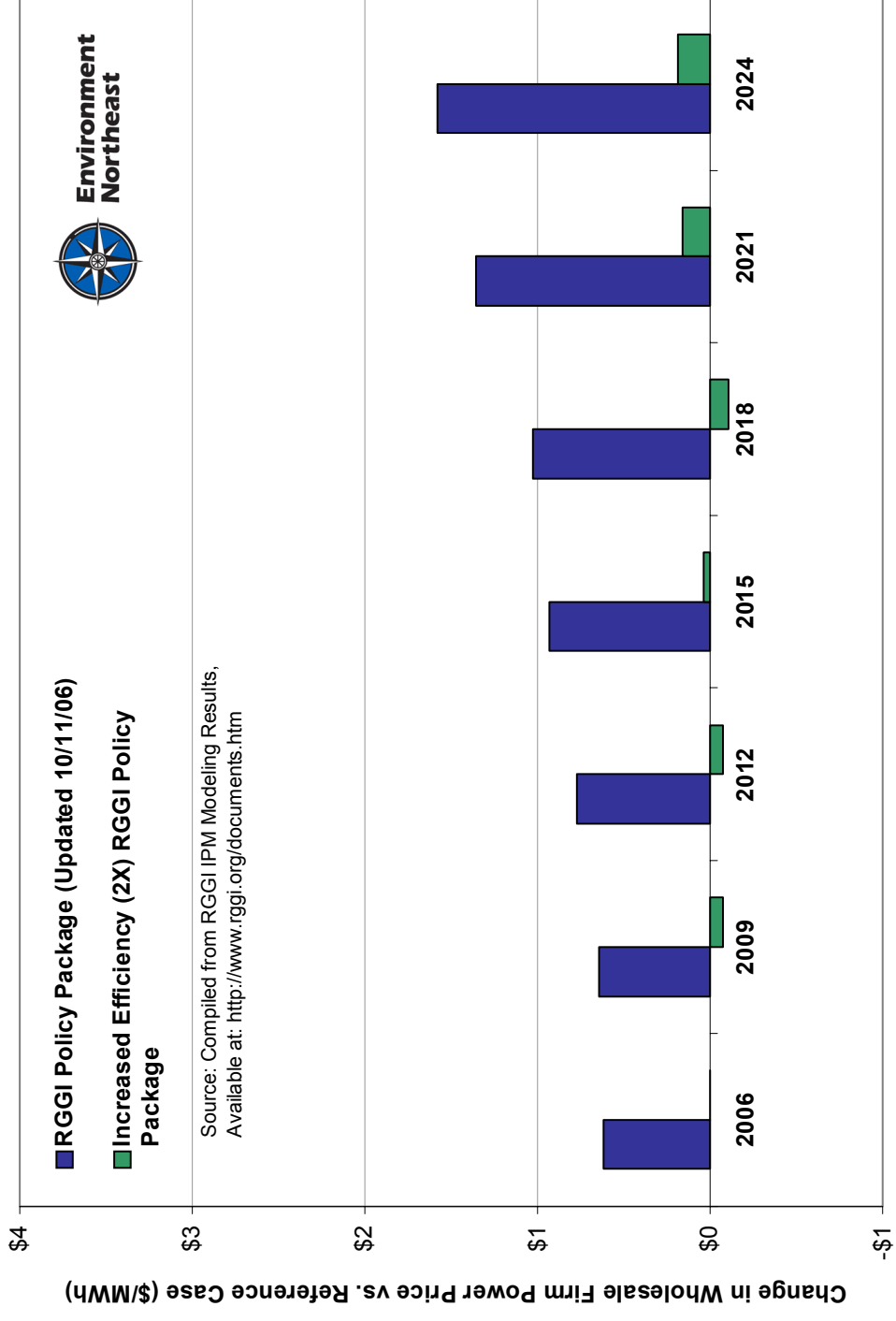
- **Other Models**
 - Failure to auction allowances eliminates ability to control, direct use of proceeds



Invest in efficiency v.

Analysis and Comments

Rebates



Efficiency funds are leveraged many ways:

- save \$3-4 for every \$1 of program investment
- savings stay local (but rebates to companies go back to headquarters)
- reduces demand for allowances, lowering cost of program



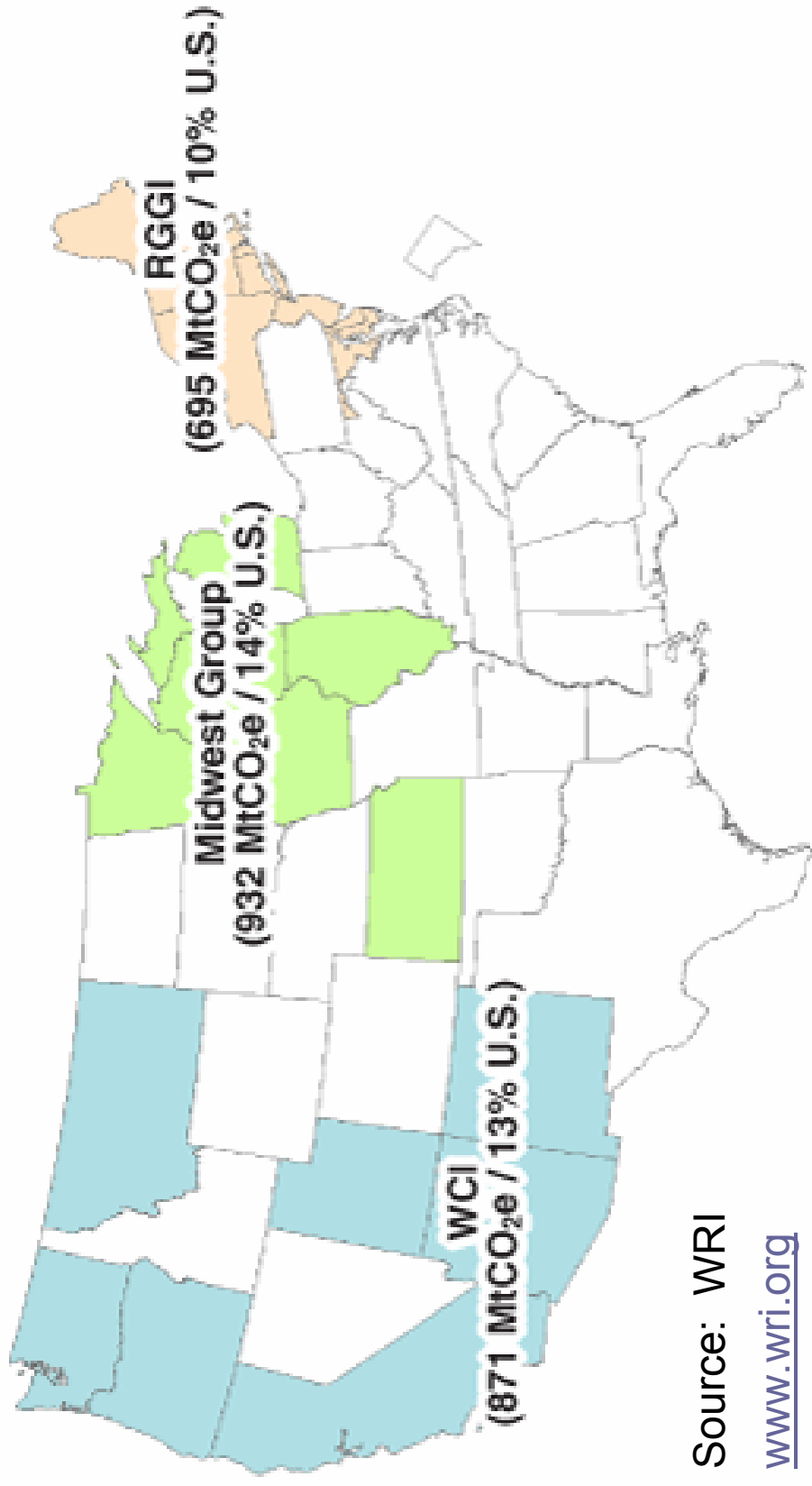
- Make energy efficiency investments the top priority
 - target industries / sectors and low income needing the most help to preserve competitiveness & transition to lower carbon technology
 - recognize that maximizing efficiency is the most effective way to minimize the cost of achieving climate targets
 - consider other investments with nexus to GHG reductions and reducing costs for the consumers/sectors paying for allowances, e.g.,
 - R&D for renewables
 - Carbon capture and sequestration



Regional market now
v.

RGGI and Other Models

Federal market later



Source: WRI

www.wri.org



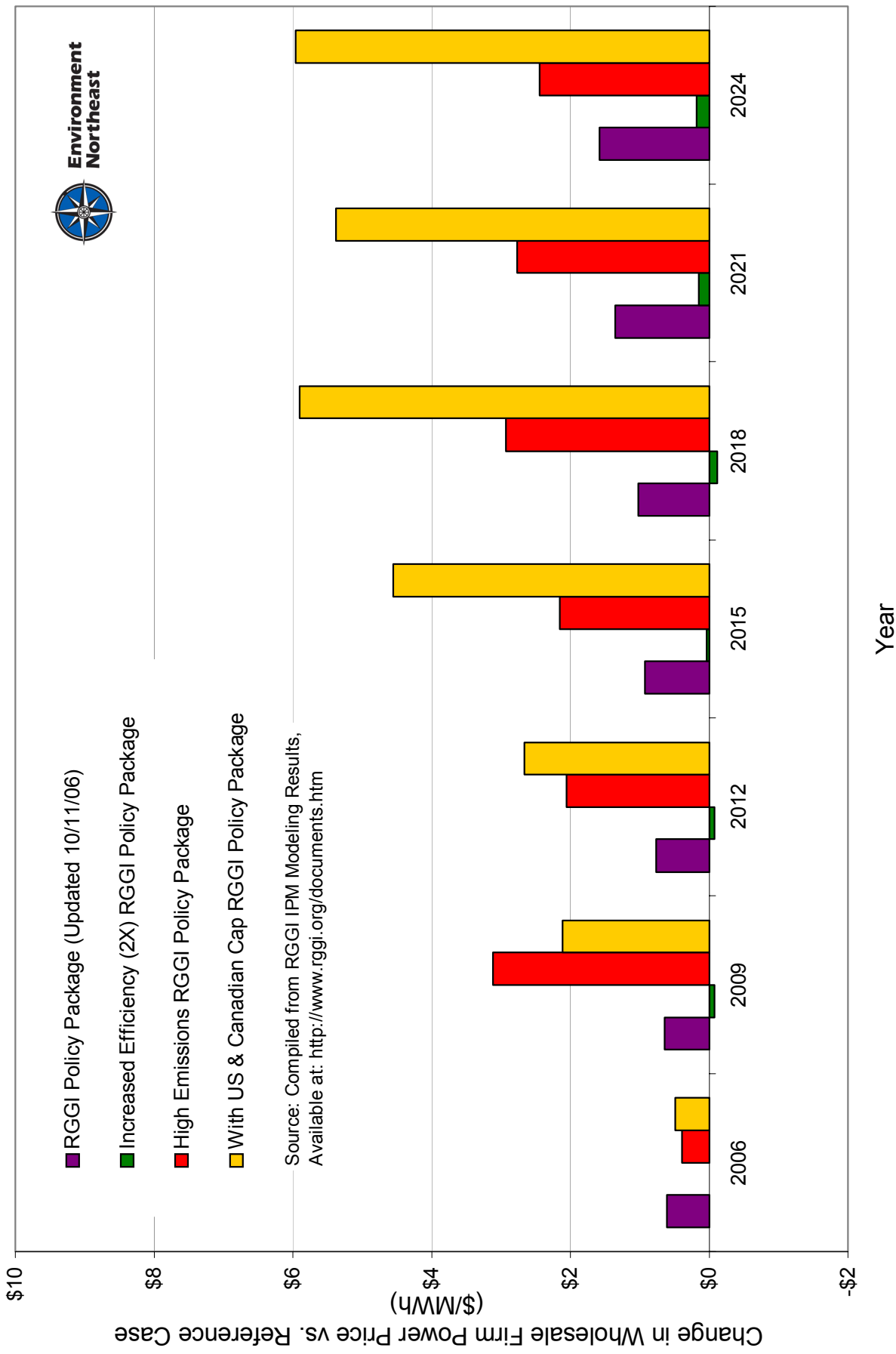
Federal market later

- **Comparative advantage for the region**
 - establish policy that guides businesses regarding long-term investments
 - promote investments in low carbon technologies and energy efficiency
 - avoid albatross investments (high carbon, long lifetime)
 - drives new investments and R&D inside region
 - carbon constrained economy is inevitable; when national and international GHG reduction programs are finalized:
 - regions w/ clean emissions profiles and high energy efficiency have lower costs
 - regions w/ high emitting energy/industry or low energy efficiency have higher costs (see, e.g., “High Emissions” bar on Chart, next slide) once they have to operate under a carbon regulation. (Note also, Chart on next slide does NOT show what would happen under the US & Canada Cap IF the region simultaneously invested 2X, or even 3X, in energy efficiency.)

- **The public gets it**
 - demanding action and accountability
 - 10 RGGI states GHG emissions are equivalent to the sixth largest industrial nation in the world – responsibility to reduce our contribution



Delay Leads to High Emissions, Higher Cost



Regional market now
v.

ENE Recommendation

Federal market later

- NE states – start now to design Phase 2 RGGI and/or economy wide cap federal program
- Canadian provinces – start now to research and design a Cap & Trade system among Canadian provinces
 - make system as compatible as possible with a RGGI, WCI, Midwest GHG, and future U.S. federal plan in order to maximize size of trading market, minimize cost of compliance
 - hard cap
 - covering large industrial emitters / multi-sector
 - auction allowances and invest in energy efficiency ASAP
 - address leakage concerns for RGGI markets
- Establish reporting requirements for smaller emitters
- Lobby the design of federal (US and CAN) government Cap & Trade to reward early adopters



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