

Climate  
Change  
Roadmap  
*for New England  
and Eastern Canada*

**Sierra Club  
NERC  
Northeast Conservation  
Committee Fall Conference**

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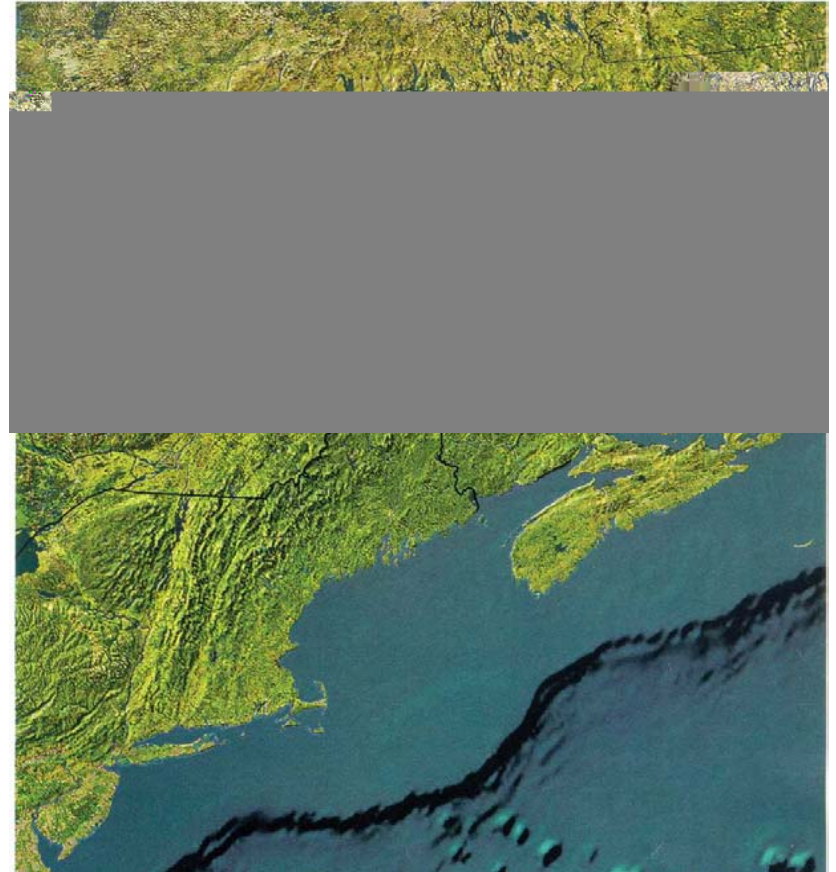
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**Environment  
Northeast**

# Environment Northeast

- ❖ Non-profit environmental research and advocacy organization working in the northeast US and eastern Canada
- ❖ Staff of policy analysts, economists and lawyers based in Maine, Connecticut, Rhode Island and Massachusetts
- ❖ Focus on Energy Policy, Climate Change Solutions, Clean Air/Diesel Emissions Reductions, and Forestry Issues

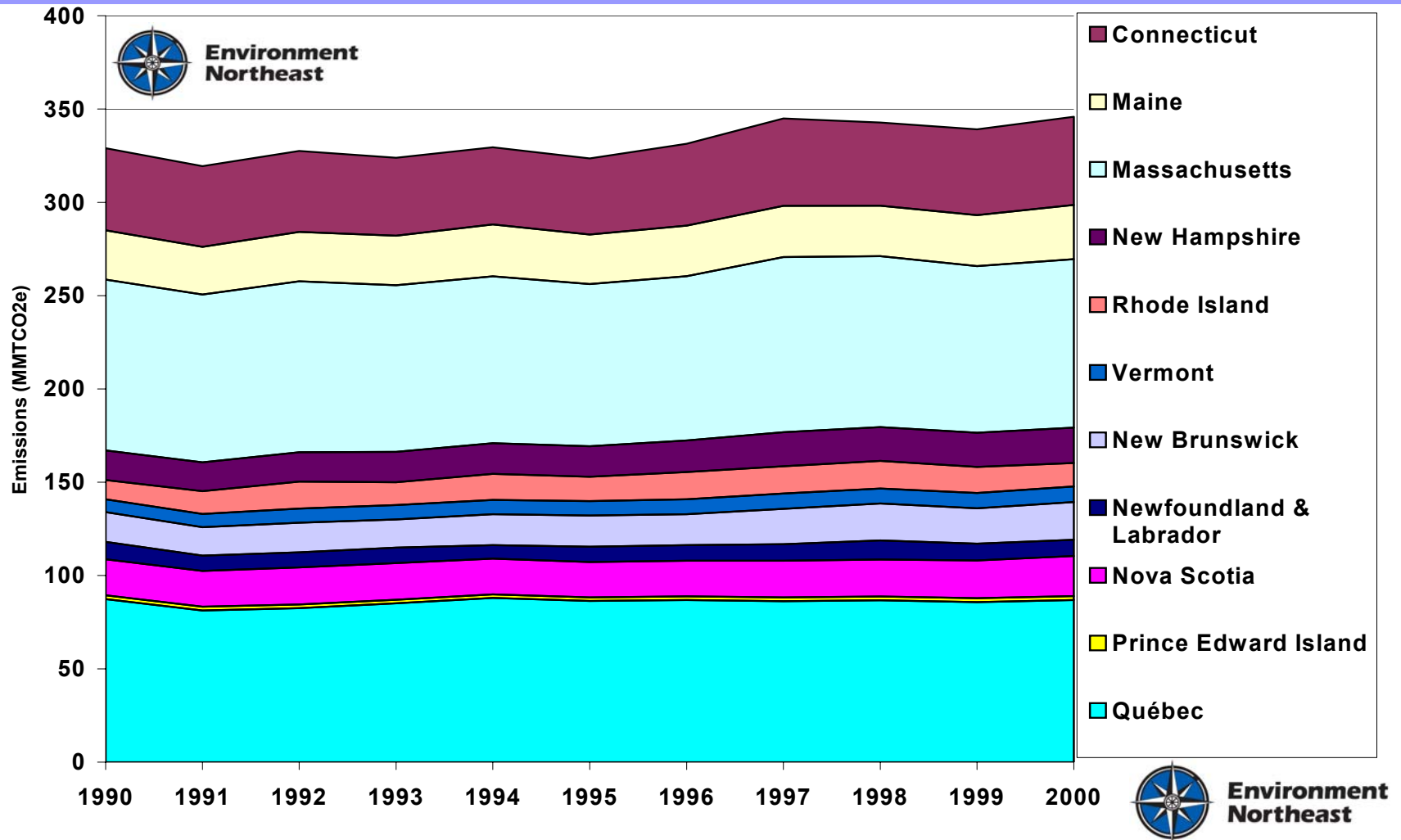


# The *Climate Change Roadmap* for New England and Eastern Canada

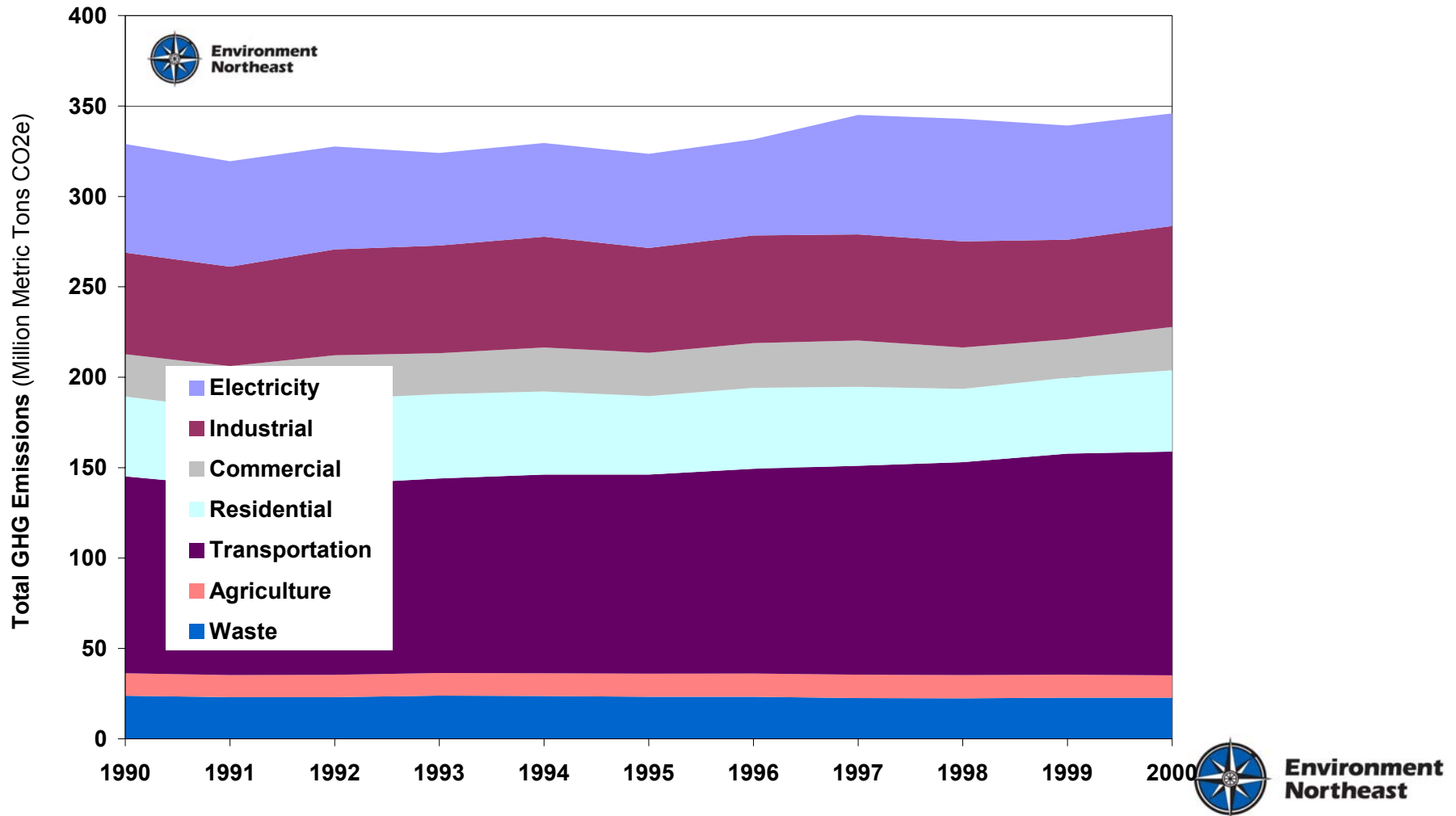
## Contents of report:

- GHG Emission Inventory, BAU, Targets
- Future scenarios
  - Projected GHG Emissions given various policy choices
- Best practices and policy analysis
- 10 Priority Solutions
  - Sector-by-sector policy solutions
  - 28 detailed *“Implementation Recommendations”* for state policymakers
- Lays out path to achieving 75% reduction trajectory

# NE-EC GHG Inventory – by Jurisdiction

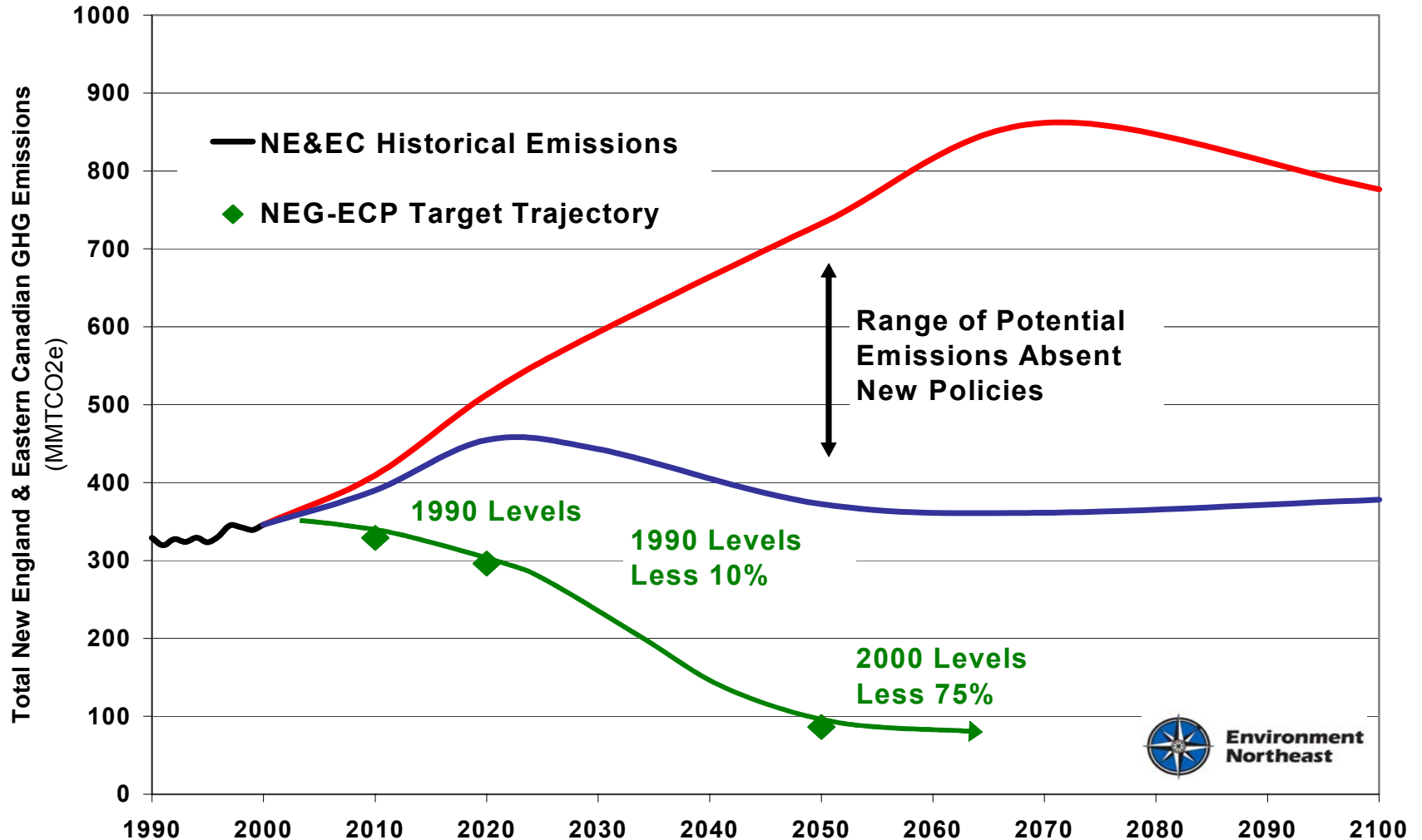


# NE-EC Emissions— by Sector



# The Climate Challenge:

## NEG-ECP Greenhouse Gas (GHG) Emissions & Targets



# Ten Priority Solutions for State Policymakers

## Energy

1. Invest in Energy Efficiency Resources
2. Increase EE of Buildings
3. Increase EE of Appliances
4. Reduce Emissions from Large Sources
5. Clean Energy Supplies

## Transportation

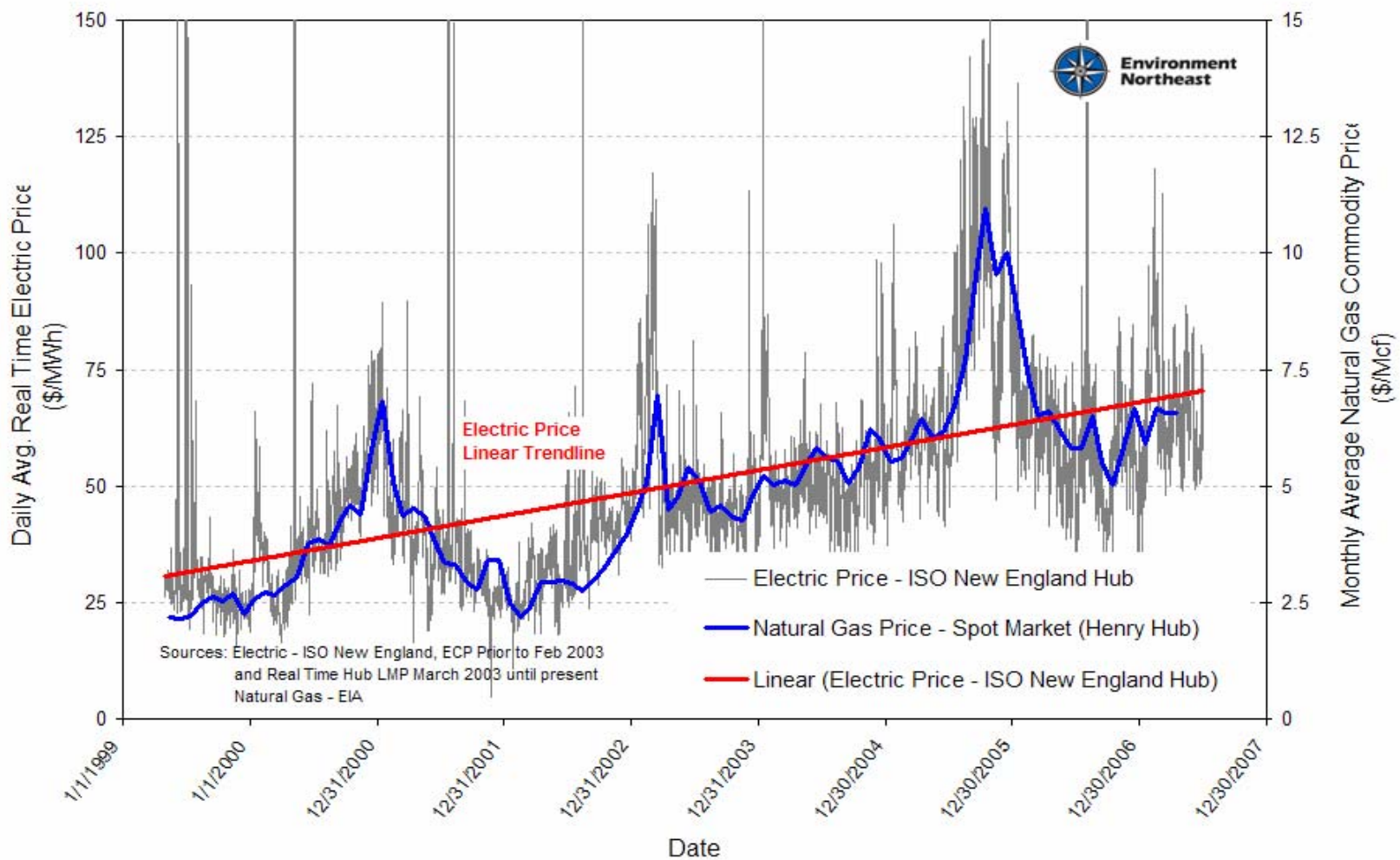
6. Clean Fuels
7. Light Vehicles
8. Heavy Vehicles

## Sequestration

9. Carbon Sinks on the Land
10. Geologic CO<sub>2</sub> Storage

# Natural Gas Prices vs. Electric Prices

(fossil fuel prices – especially gas are a major driver)

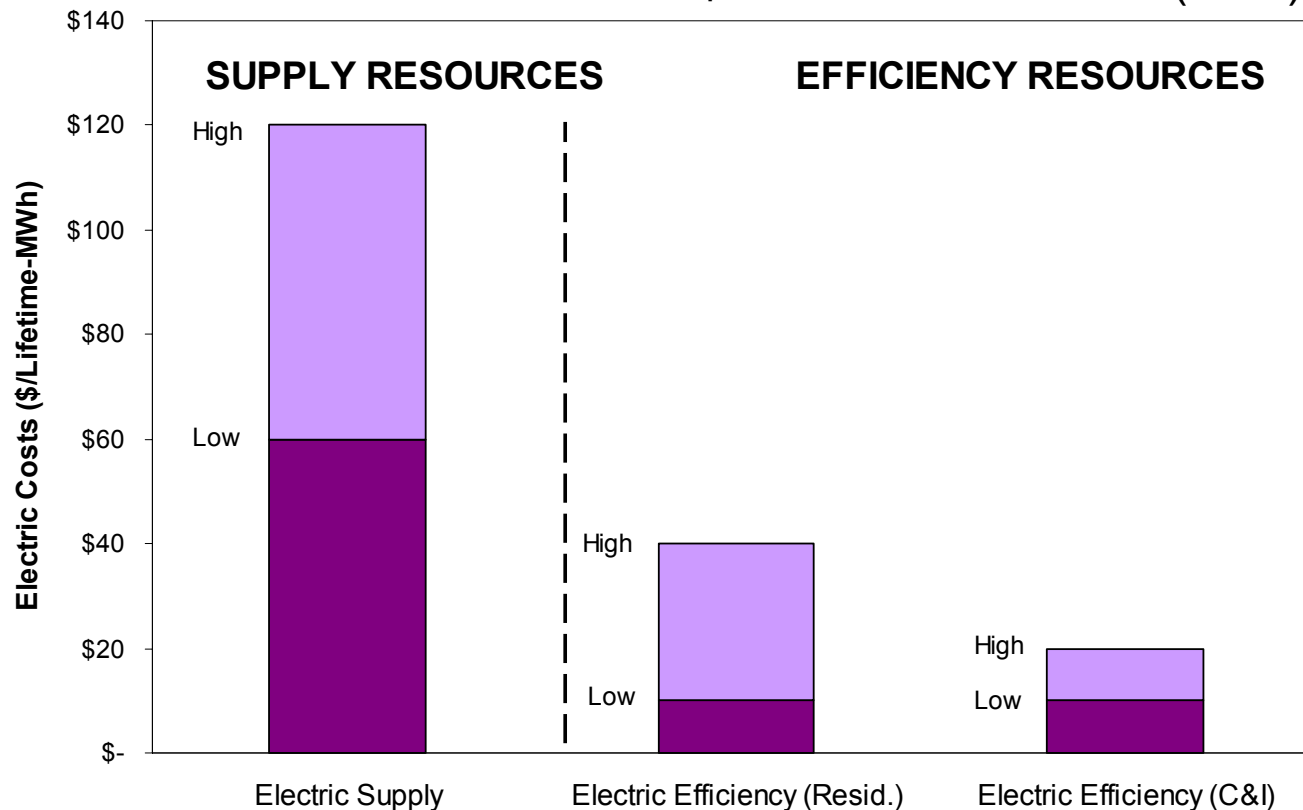


# Priority 1: *Invest in Efficiency Resources*

***Which would you rather buy?***

Supply at:      *or*  
**\$60-120/MWh**

Efficiency at:  
**\$10-20/lifetime-MWh (C&I)**  
**\$10-40/lifetime-MWh (Res.)**



# Priority 1:

## *Invest in Efficiency Resources*

- 1.1 Reform Utility Planning and Procurement
- 1.2 Establish Minimum Investment Levels for EE Programs (all fuels)
- 1.3 Align Utility Revenue Incentives with Promotion of Efficiency

# Connecticut: HB No. 7432 – An Act Concerning Electricity and Energy Efficiency

- Passed: *June 2007; House 128-9 and Senate 32-3:*
- Declares the state's energy needs shall first be met through **all available energy efficiency and demand-side resources** that are cost-effective, reliable and feasible.
- Requires development of electric utility planning for procuring energy efficiency.
  - Specifically requires an assessment of “how best to eliminate or stabilize growth in electric demand” and it pays attention to GHG impacts in meeting state GHG targets
- Creates a broadened stakeholder board with consumer, environmental, business and state agency representatives, assisted by expert consultants, to review the utility procurement plan.
- Requires the PUC to decouple distribution revenue recovery from sales for each electric and gas company in their next rate proceeding, ending the era of incentives for utilities to sell more.
- Creates a new home heating oil conservation program managed by a board of oil dealers, environmental and consumer interests reporting to the Energy Conservation Management Board (ECMB).



# Rhode Island: S2903, H8025 – *The Comprehensive Energy Conservation, Efficiency, and Affordability Act of 2006*

- Requires electric utility submit a “Least Cost Procurement” plan for all EE measures lower cost than supply to PUC by Sept. 2008.
  - Also requires utility’s to submit a “system reliability procurement” plan for distributed generation, demand response, and renewables.
- Establishes the Energy Efficiency and Resources Management Council (ERMC) comprised of consumer, environmental, business, and low income representatives. The ERMC is charged with:
  - Submitting an “Opportunity Report” identifying all cost effective EE as well as available DG, DR, and RE to the utility, PUC, Office of Energy Resources, and Legislature.
  - Writing draft least cost procurement standards to PUC by March 2008, PUC will issue LCP standards by June 2008.
- Establishes a new natural gas efficiency fund at 1.5 cents per therm to be coordinated with the electric efficiency programs.

# Maine: LD 1851

- Turns SBC of 0.145 cents/kWh - lowest in New England - from a ceiling into a floor.
- Requires PUC to approve additional investments “as necessary to realize all available energy efficiency and demand reduction resources in this state that are cost-effective, reliable and feasible”
- Creates Maine Energy Conservation Board (ECB) to work with PUC & RGGI Trust to:
  - Develop EE programs and write a Triennial Plan that prioritizes programming budgets and coordinate implementation between the efficiency funds.
  - The Conservation Board comprises reps of industrial, commercial and residential customers, environmental interests, small business interests, DEP, the Office of Energy Independence and independent experts

# Massachusetts: Growing Support for All Cost Effective Efficiency

- Speaker of the House and Senate Leadership are both working on comprehensive energy legislation
- Large group of stakeholders support the procurement of “all cost-effective energy efficiency that is cheaper than supply” (Environmental groups, large C&I users, electric and gas utilities, low income service providers, oil industry, demand response providers, energy efficiency organizations, municipal aggregators)
- Proposal is for an all cost effective energy efficiency mandate on natural gas and electric utilities, improved stakeholder oversight, and new oil efficiency programs
- DPU opened a general decoupling investigation, that is meant to complement the expected legislative changes around efficiency

# Priority 2

## *Increase Energy Efficiency of Buildings*

- 2.1 Adopt and Enforce Latest Building Energy Codes
- 2.2 Promote the Use of Energy Performance Standards to Exceed Building Energy Codes
- 2.3 Provide Operations & Maintenance Training

# Priority 3

## *Increase Energy Efficiency of Appliances*

### 3.1 Set Minimum Standards for Consumer Appliances and Commercial Equipment

- Residential furnaces and boilers, bottle-type water dispensers, commercial boilers, commercial hot food holding cabinets, compact audio products, DVD players and recorders, liquid-immersed distribution transformers, medium voltage dry-type distribution transformers, metal halide lamp fixtures, state regulated incandescent reflector lamps and walk-in refrigerators and freezers

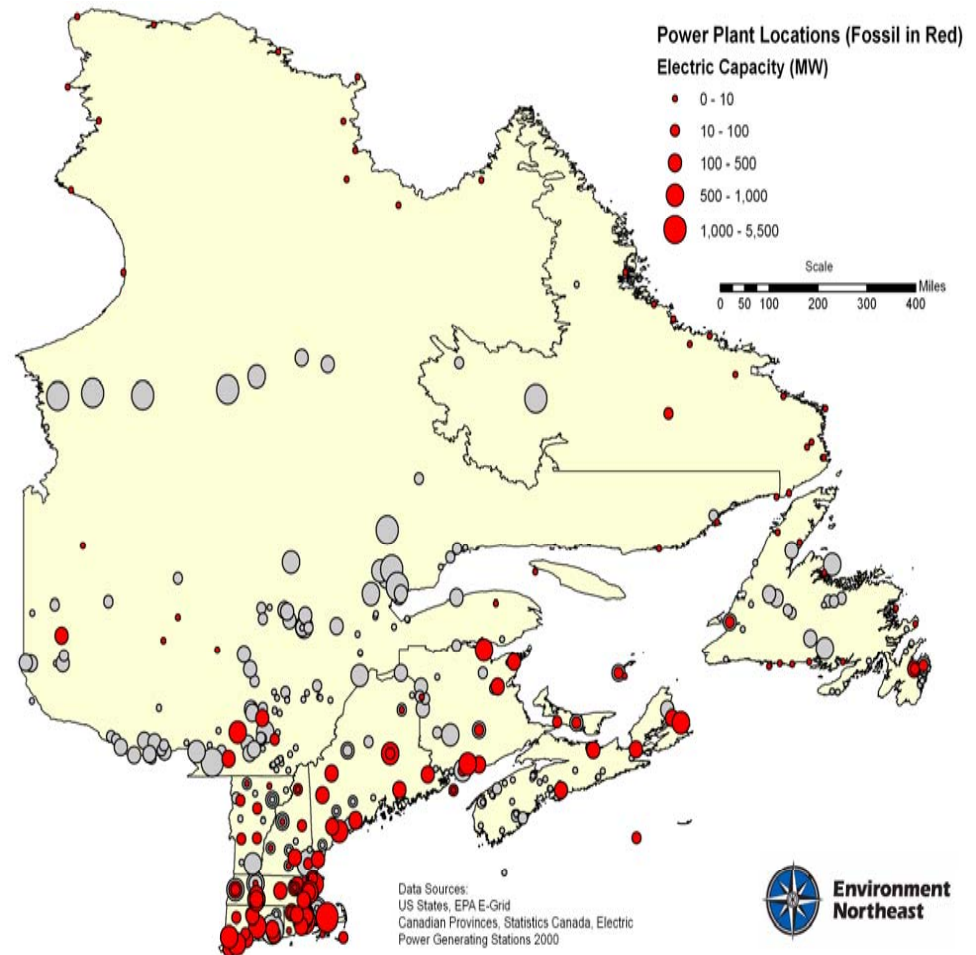
### 3.2 Require Government Procurement of High-Efficiency Models

# Priority 4

## *Reduce Emissions from Large Stationary Sources*

4.1 Implement a Greenhouse Gas Cap-and-Trade Program

4.2 Improve Greenhouse Gas Inventories and Registry



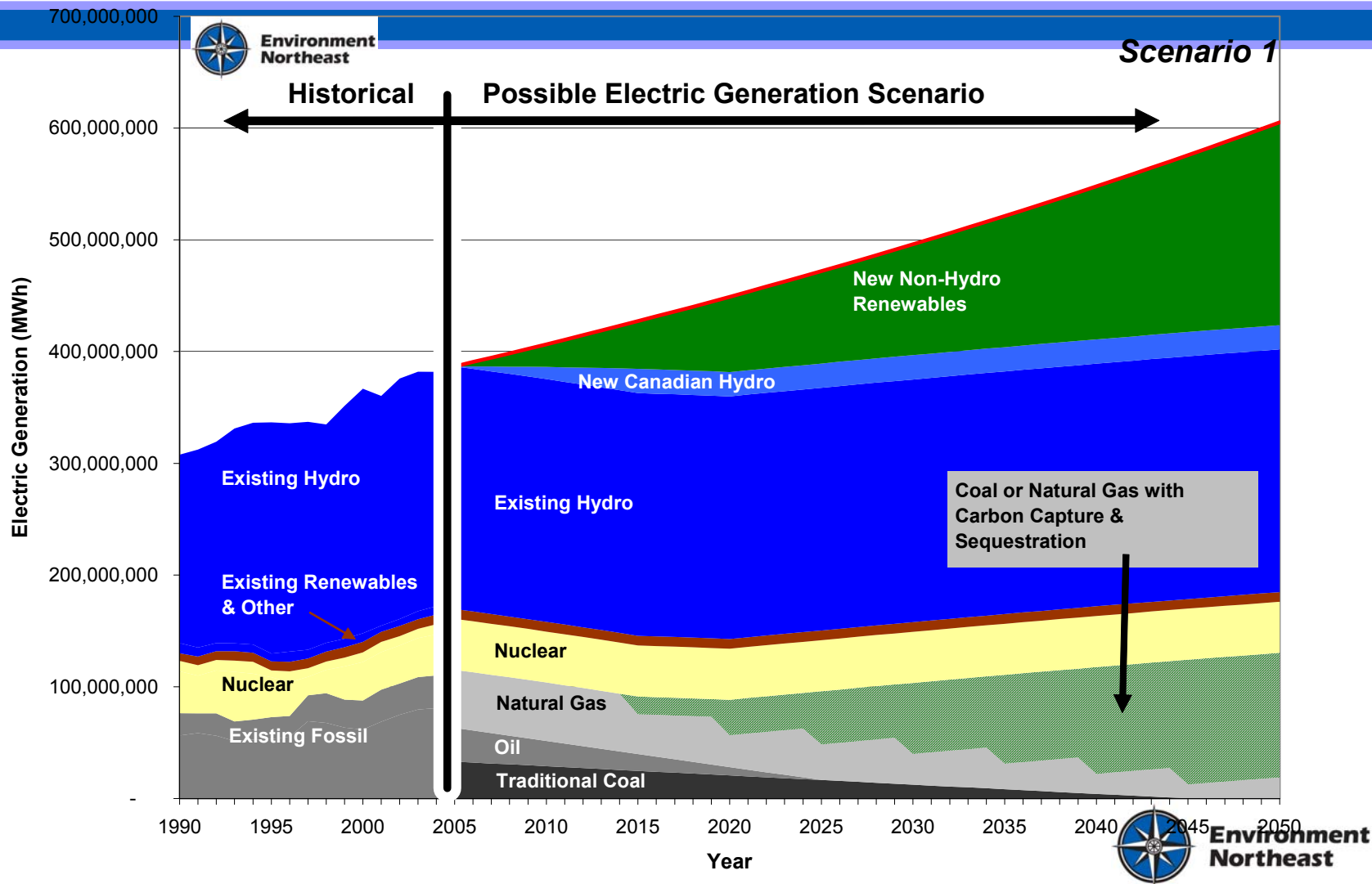
# Priority 5

## *Commercialize and Deploy Clean Energy Sources*

- 5.1 Commercialize and Deploy More Renewable Energy
- 5.2 Promote Clean, High-Efficiency Fossil Electric Generation
- 5.3 Improve Grid Access for Clean Distributed Generation
- 5.4 Establish Environmental and Safety Standards for Permitting New Power Plants
- 5.5 Provide Public Support for Clean Energy System Commercialization and Deployment

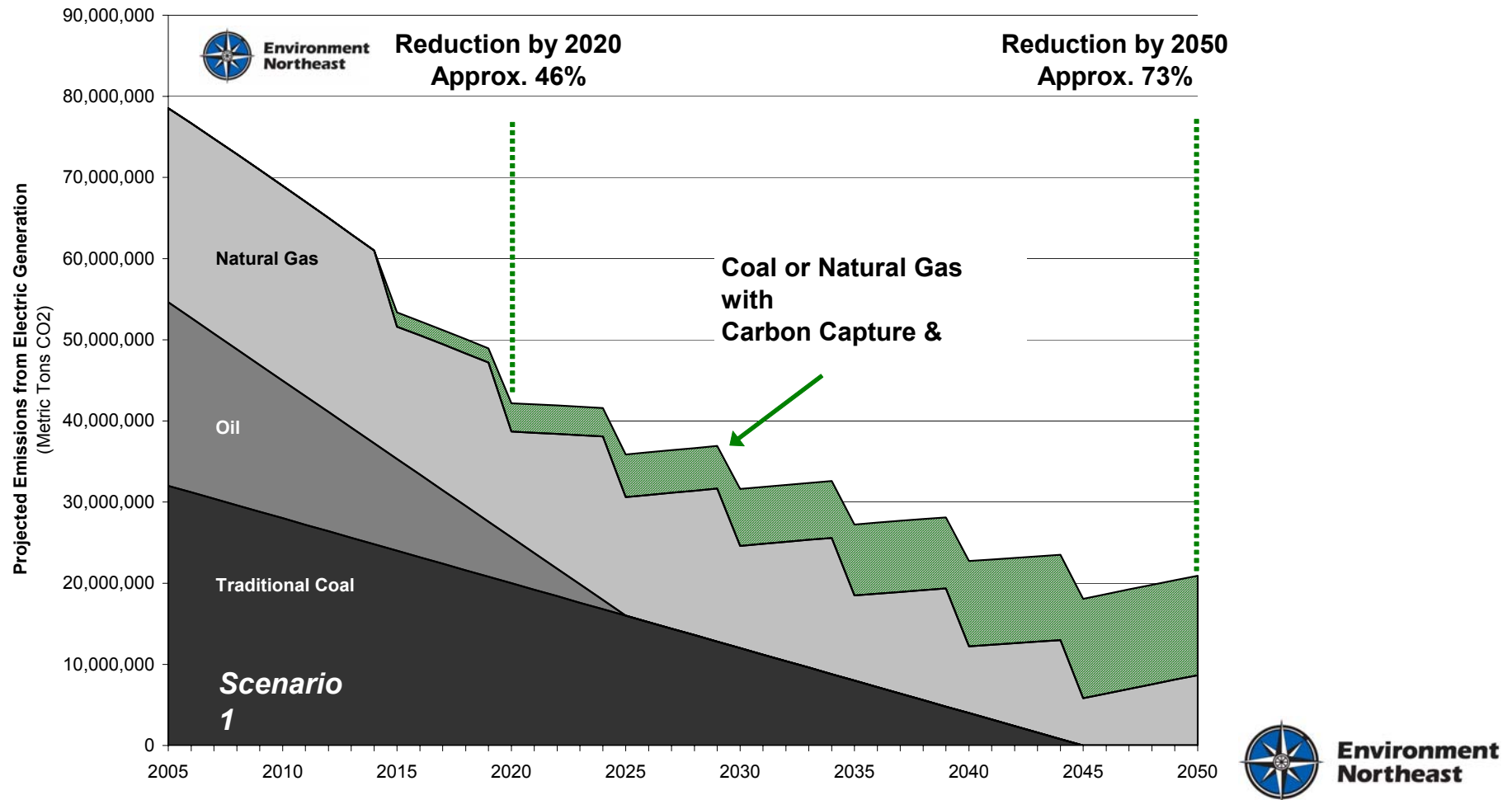
# Scenario 1: Electric Sector Clean-up

## Steady load growth, Aggressive Renewables; Nukes Stay



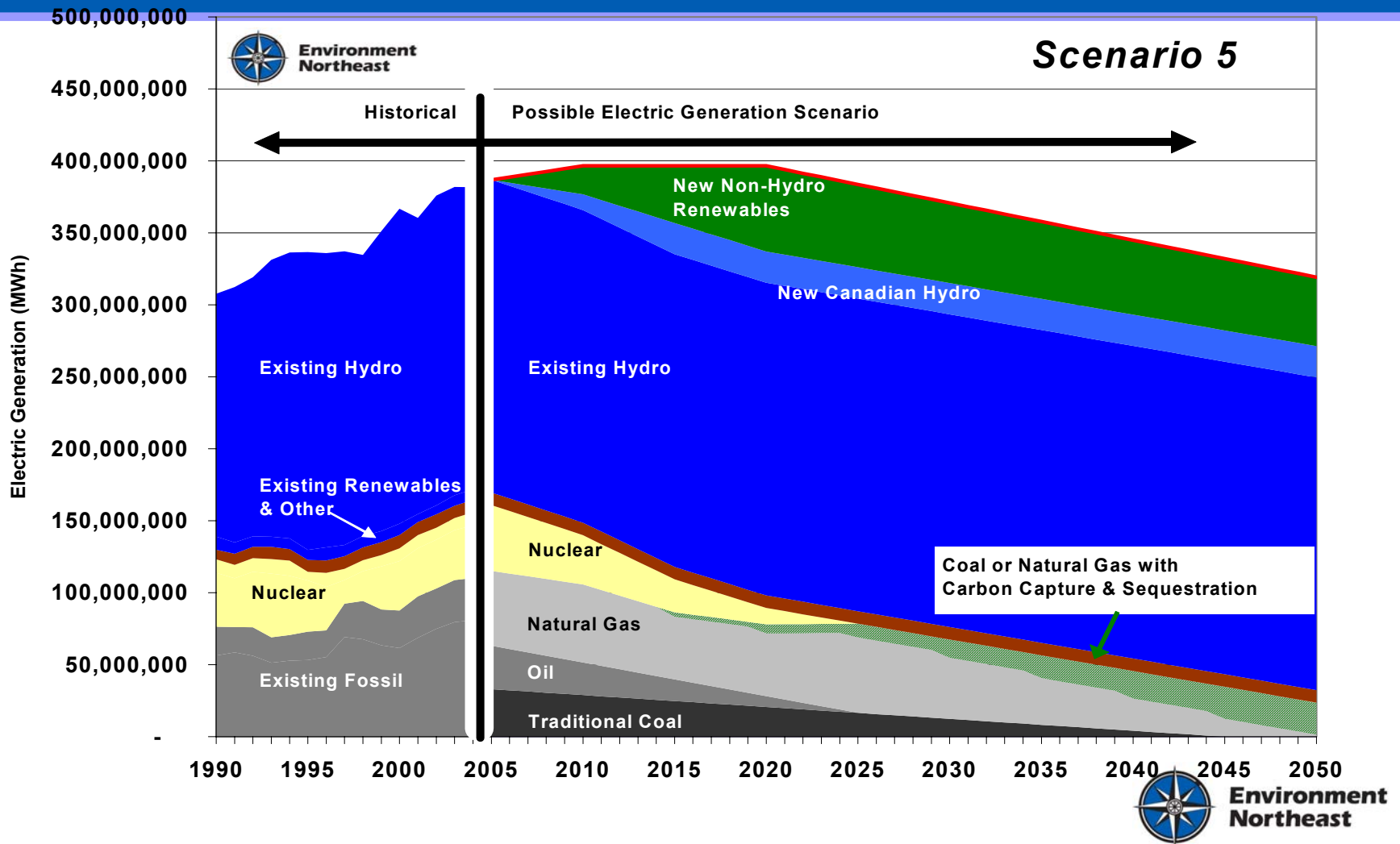
# Scenario 1

## GHG Emission Reductions



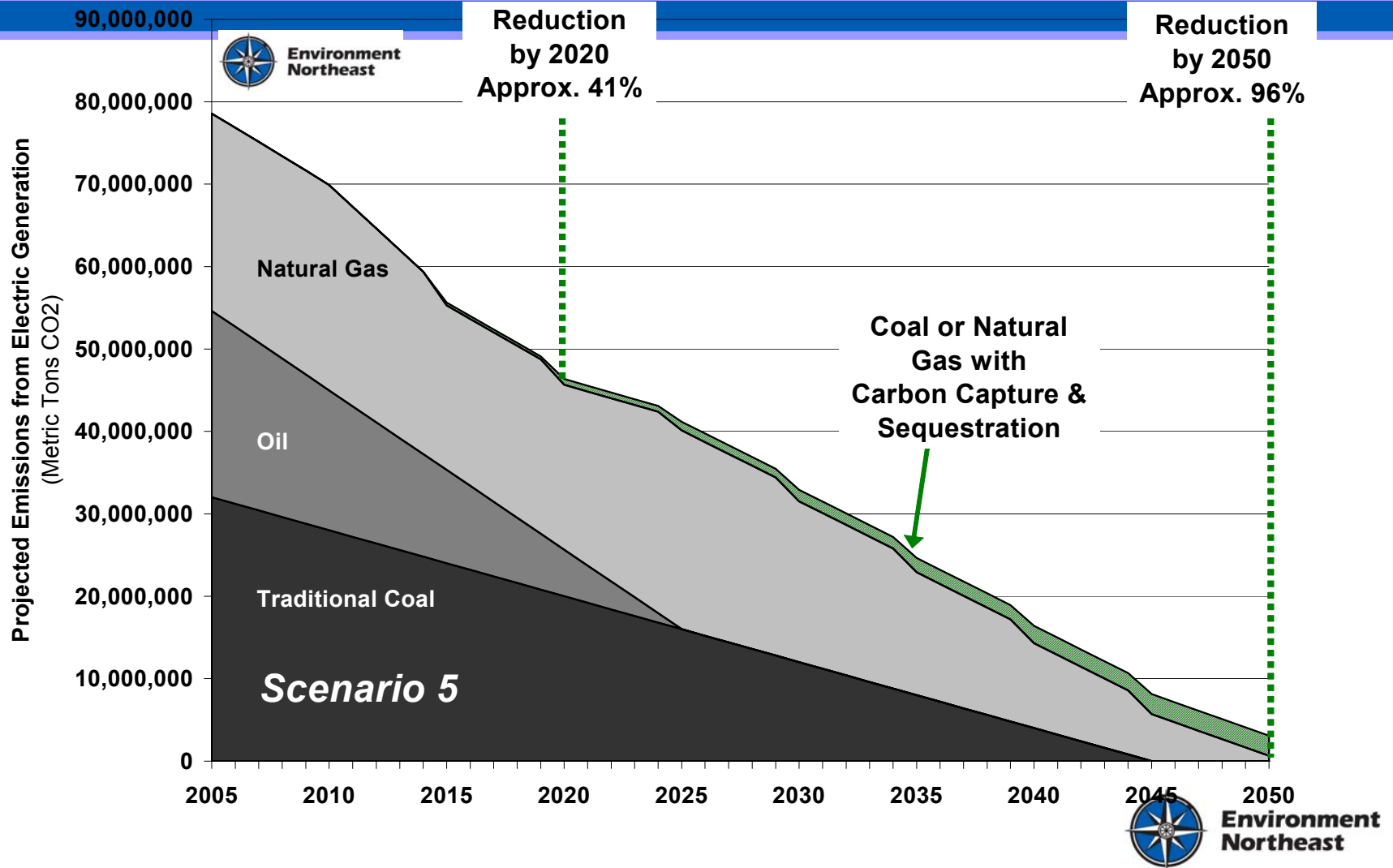
# Scenario 5: Electric Sector Clean-up

Aggressive Energy Efficiency and Increased Renewables;  
Phase-out Nukes



# Electric Sector Clean-up: Scenario 5

## GHG Emission Reductions



# Priority 6

## *Transition to Clean Transportation Fuels*

- 6.1 Establish a Declining Net Greenhouse Gas Fuel Standard
- 6.2 Explore Pathways to Develop Low–Greenhouse Gas Biofuels in the Region
- 6.3 Explore the Expansion of Electric Mobility Infrastructure

# Priority 7

## *Reduce GHG from Light Vehicles*

- 7.1 Implement Emission Standards for all Light-Duty Vehicles
- 7.2 Improve fuel economy standards in the U.S. and Canada
- 7.3 Reduce Vehicle Miles Traveled (VMT)

# Priority 8

## *Reduce Emissions from Heavy-Duty Vehicles*

- 8.1 Reduce Black Carbon Emissions from In-Use Diesel Engines
- 8.2 Promote Improved Efficiency of Heavy-Duty Vehicles
- 8.3 Improve the Efficiency of the Region's Freight Transportation System

# Priorities 9 and 10: Sequestration

## Sequester Carbon in *Terrestrial Sinks and Carbon Capture and Storage*

- 9.1 Improve Inventory and Accounting Tools to Better Quantify and Track Forest Carbon
- 9.2 Promote Forest Management Strategies That Sequester Additional Carbon
- 9.3 Minimize Carbon Loss from Land Conversion
10. Capture and Store Carbon Dioxide from Energy and Industrial Sources

# Projected Reductions

## *Compared to BAU in 2020*

### Million Metric Tons CO<sub>2</sub>e

- Energy Priorities
  - GHG Cap-and-Trade Programs: **45 to 50**
    - or
  - Other Electric Sector Policies (Sub-total): **52.5 to 57.5**
    - Renewable Targets & RPS 20
    - CHP Portfolio Standard 10 to 15
    - Electricity Zero Load Growth 22.5
  - plus Natural Gas Savings of 1% per Year **5**
  - plus Fuel Oil Savings of 1% per Year **6**
- Total Energy: **56 – 68.5**

# Projected Reductions

*Compared to BAU in 2020 (continued)*

<u>Transportation Priorities</u>	<u>MMTCO2e</u>
□ Net GHG Fuels Standard	3 - 4
□ GHG Vehicle Emissions Standards	16
□ CAFE, Fuel Efficiency Standards	--
□ Policies to Reduce VMT	--
□ Black Carbon Reduction from Heavy Vehicles	4
□ Efficiency Improvements from Freight	--
■ Total Transportation:	23-24

# Energy & GHG Policy Solutions for All Sectors:

## *Efficiency & Low-Carbon Energy*

- **Use Energy more Efficiently**
  - Efficiency programs for electric, natural gas, & oil
  - Building & equipment efficiency requirements
  - Reduce VMT and increase vehicle efficiency
- **Reduce the emissions or carbon intensity of the energy used**
  - Cap & trade for power plants and large emitters
  - Incentives for renewables and clean CHP
  - Vehicle emissions requirements
  - Net GHG fuels standard

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