

ORIGINAL	
N.H.P.D. Case No.	DE 11-250
Exhibit No.	32 TransCanada
Witness	William H. Smagula
DO NOT REMOVE FROM FILE	

Public Service Company of New Hampshire
Docket No. DE 11-250

Data Request TC-01

Dated: 06/04/2012

Q-TC-009

Page 1 of 36

Witness: Terrance J. Large, William H. Smagula
Request from: TransCanada

Question:

(Originally numbered TC-01, Q-TC-009 in the Temporary Rates portion of this docket) Please provide a copy of any document provided to any elected or appointed government official in New Hampshire related to its position opposing legislative approval for Senate Bill 152 and House Bill 496 in 2009.

Response:

Please see the attached. Also, please see the report at the following link:

<http://www.gcglaw.com/resources/economic/pdfs/scrubber.pdf>

The 2009 NH Industry FORECAST

ENERGY & UTILITIES BY GARY LONG

GARY A. LONG is the President and Chief Operating Officer of Public Service of New Hampshire, the state's largest electric utility.



Public Service
of New Hampshire
"The Northeast Utilities System"



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s we begin 2009, America is entering a new era, under new leadership, wherein clean and secure energy has emerged as one of the topmost priorities on the national agenda.

In New Hampshire, we have the resources to lead this transformation from the ground up. We can become the most energy-efficient state in the nation. We can dramatically expand our renewable energy resources. And we can power economic growth by investing in clean energy innovations.

We can do all of these things. In fact, we must. Scientists say it is necessary to reduce carbon emissions 80 percent below 1990 levels by 2050 to avoid the worst effects of climate change. This is a massive undertaking, but it is not impossible.

To be successful, we will need every tool at our disposal.

THE NEW ENERGY EQUATION

A key element of President Obama's energy plan is diversifying America's energy sources. "There are no silver bullet solutions to our energy crises," he has said. "Our economy, security and environment will be best served through a sustained effort to diversify our energy sources."

President Obama is right. The goals are too immense to be solved by any single approach. To make aggressive and sustained progress toward a renewable energy future, we need to focus on four key steps:

1. **Expand energy efficiency.** This is our first step, because it can be deployed immediately, on a wide-scale, for low-cost. This is just the first step, however; we need all four to bring about the large-scale reductions in greenhouse gasses that we can and must achieve over the next 40 years.
2. **Make existing fossil fuel power plants as clean as possible.** We will need these "workhorse" plants to serve as a bridge over the next 10 to 15 years as we develop renewables on a much larger scale. In the meantime, we should cut down on emissions as much as possible.
3. **Build more renewables.** We need solar, wind, biomass, geothermal—everything we can get.
4. **Offset the need for new fossil-fuel power plant construction in New England by importing clean hydro power from Canada.** About 75 percent of the proposed generation in New England is fossil-fueled. We can reduce the need for these new plants by connecting to the massive hydroelectric reserves just over the border in Canada.

THE RENEWABLE ECONOMY

The economic upheaval of 2008 will impact our progress along the renewable path. For one, the credit crunch is making it harder for merchant power plant developers to access capital for their renewable projects. And energy prices will continue to go up across the board. We should all expect that and prepare for it.

The good news is that the renewable energy revolution can help invigorate our economy at a time when job growth is desperately needed. Electric utilities like PSNH have an important role to play in this transition.

PSNH can be a valuable asset to New Hampshire because, unlike merchant power plant developers, we are regulated by the state. If permitted by the legislature, we can start building more renewable energy resources right away—and we have the proven ability to get things done. Our Northern Wood Power Project, which converted a coal-burning boiler to burn clean wood chips, is a great example of the innovation and capability we bring to the table.

Regulated utilities are also uniquely positioned to partner with businesses and research labs to pilot clean energy technologies and help bring new products to market. PSNH can help prove the worth of advanced "green" technologies to other businesses and to the general public. And we can create hundreds of new jobs in the process.

COLLABORATION IS KEY

Each of us must do our part to bring about a clean energy future. For families and businesses, that means reducing energy consumption and investing in small-scale renewable projects like solar panels. For merchant developers, it means providing a baseline fleet of commercial renewable energy projects for the state and the region. PSNH can supplement this fleet with regulated renewable plants, build infrastructure to import hydroelectric energy from Canada, and pilot clean energy technologies.

The time has come for us to start making real, tangible progress in each of these areas. These are the years when we can make the most difference in reducing the impact of greenhouse gas emissions. We can't afford to spend this time stalled in disputes and bureaucracy.

Our goal is nothing less than the complete transformation of our energy landscape. Only by working together can we make this vision a reality.

THE BRIDGE TO NEW HAMPSHIRE'S CLEAN ENERGY FUTURE

The Scrubber Project at Merrimack Station is Our Bridge to a Clean Energy Future

**New Hampshire can and must transition to a clean energy future.
This transition is necessary to avoid the worst effects of climate change,
and to reduce our dependence on foreign oil and gas.**



That said, we have a lot of work to do. Today, only about 13 percent of New England's electricity comes from renewable resources (PSNH's fuel mix is about 17 percent renewable, by comparison). Increasing that number to 25 or 50 or 80 percent will take many years and a huge amount of investment; but if we work together, it can be done, and Public Service of New Hampshire is putting real money behind its ideas to lead the way.

In fact, PSNH is pursuing an arsenal of strategies to advance clean energy in New Hampshire. We're expanding our energy-efficiency programs, piloting alternative energy sources at our facilities, investing in small-scale renewable energy projects in New Hampshire, and forwarding a proposal to bring clean hydroelectric power down from Canada.

We're also investing in our existing power plants to make sure they're as clean as possible. At Merrimack Station in Bow, we're currently halfway through a six-year project to install "scrubber technology" that will significantly cut emissions of mercury and sulfur dioxide. This project is an important middle step in the transition to a clean energy future.

Cutting emissions at PSNH's largest power plant is critical because we will need it to serve as a "bridge" over the next 10 to 20 years while alternative energy sources are developed and built on a much larger scale. The scrubber will make Merrimack Station one of the cleanest coal plants in the nation.

Many businesses, utilities, and other organizations are working to advance renewable projects in New Hampshire, but the challenges are great, and the transition will not occur overnight. In the meantime, Merrimack Station is an ideal "bridging" power plant to invest in. It is a major asset to our state because it runs on coal, not natural gas, which the New England region is becoming hugely over-reliant on as a fuel source for electric generation.

Coal makes Merrimack Station much less vulnerable to spikes in energy prices and fuel shortages. It gives New Hampshire something to fall back on when other fuel sources are too expensive, or in short supply. And—even with the cost of the scrubber, Regional Greenhouse Gas Initiative credits, and all other known state and federal environmental regulations included—Merrimack Station will continue to produce electricity for consumers at below-market prices.

PSNH has shown through projects like Northern Wood Power and its power supply agreement with the Lempster wind farm that it is very much in support of renewable energy. And the scrubber installation at Merrimack Station will in no way prevent renewable energy development in New Hampshire. There is an enormous demand for more renewable energy in the region to address climate change issues and meet Renewable Portfolio Standard requirements. PSNH would be building more renewable resources, itself, if state law allowed.

The choice we face today is not between Merrimack Station and renewable energy development; it is between action and inaction. We can invest in technology that is required by state law, and supported by PSNH, that will significantly clean up one of New Hampshire's most reliable and cost-effective power plants. And we can work together to escalate renewable energy projects at the same time. Or, we can spend our time and resources second-guessing a project that is already half done, and paralyze real progress toward a cleaner energy future, indefinitely, as researchers debate what the future will bring.



**Public Service
of New Hampshire**

The Northeast Utilities System

RELEASE DATE: FEBRUARY 2009

THE BRIDGE NEW HAMPSHIRE'S CLEAN ENERGY FUTURE

Senate Bill 152:

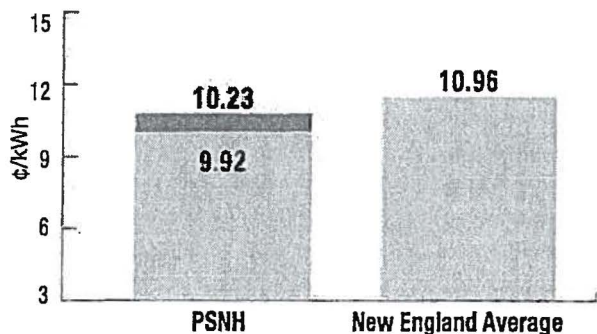
Important Information for Businesses

Facts About Cost

- The cost increase for the scrubber project from \$250M to \$457M reflects:
 - The difference between preliminary cost estimates in 2005 and firm price contracts in 2008
 - A massive increase in the price of raw materials, steel, labor, engineering, and energy in that time period
 - ~ In the first five months of 2008, alone, the price of steel increased 40 – 50% and iron ore was up 71% due to global demand
 - Customized design and technology to install one of the first scrubbers in the nation to guarantee 80% mercury reduction (other, traditional scrubbers only guarantee sulfur dioxide reductions)
- Customers protected on price because every dollar spent will be scrutinized by NH Public Utilities Commission before it can be recovered through rates

With the Scrubber, PSNH's Energy Rate Is Expected to Remain Below the New England Average

Upon completion, the Clean Air Project will add about 3/10's of one cent to PSNH's Energy Charge.



■ Energy Rate as of January 1, 2009

■ The total PSNH energy charge, if the cost of the Clean Air Project was in PSNH's rates today

SB 152 puts Merrimack Station on the Path to a Shutdown

- If the scrubber is not installed, Merrimack Station will be out of compliance with state and federal laws, which would lead to a shutdown of the plant
- A shutdown of Merrimack Station would mean:
 - Higher energy rates for PSNH customers
 - Hundreds of NH jobs lost in a recessionary economy
 - Hundreds of millions of dollars removed from the local economy

PSNH is Already Halfway Through the Six-Year Project Schedule

- \$230 million (more than half the project cost) has already been spent or contractually committed. This cost would have to be recovered from PSNH customers whether or not the scrubber installation is completed
- Project schedule is halfway complete
- Receipt of components and major construction beginning next week
- Even a short delay during this critical construction season would have a domino effect on the entire project, with the likely result of significant additional costs for customers

The Scrubber Project is NH's Bridge to a Renewable Energy Future

- It is important to make our existing power plants cleaner and more efficient because they still provide most of our energy and the lowest cost
- In the short-term, it is unrealistic to think that we can depend on new renewable energy sources in NH to replace the power produced by existing fossil fuel plants
- Stopping the scrubber project would be a step backward in NH's progress toward a cleaner energy future
- We need to invest in a variety of energy sources to ensure a cost-effective and secure transition from our current mix of existing power plants to a future with greater renewable energy



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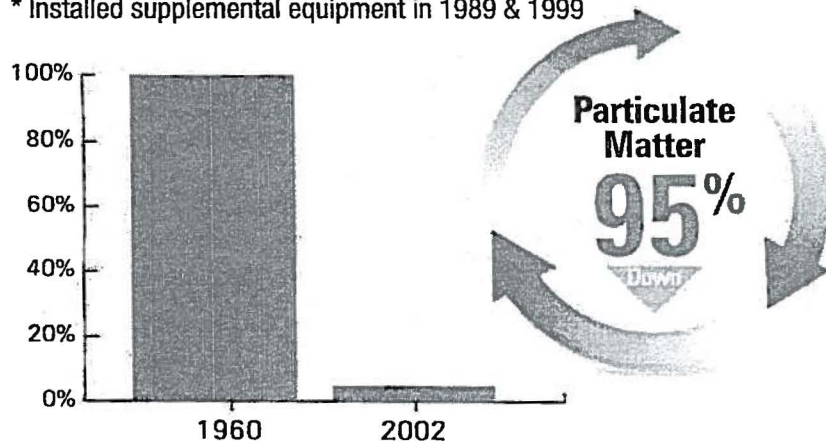
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Emissions Control Technology Installed at Merrimack Station

Electrostatic Precipitators

* Installed in 1960 & 1968

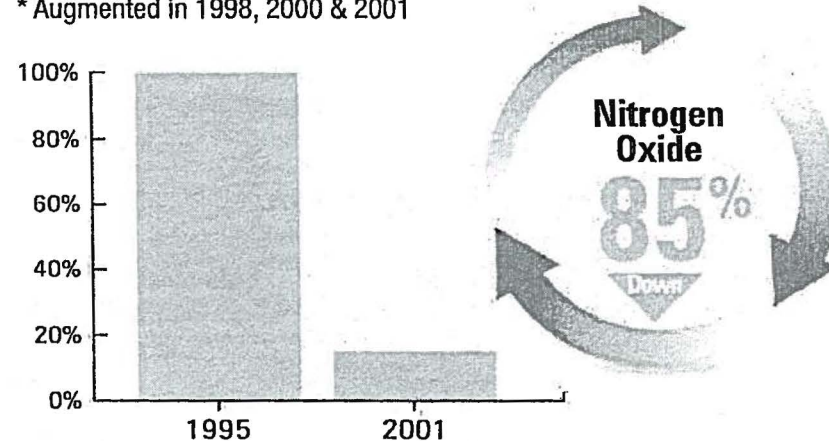
* Installed supplemental equipment in 1989 & 1999



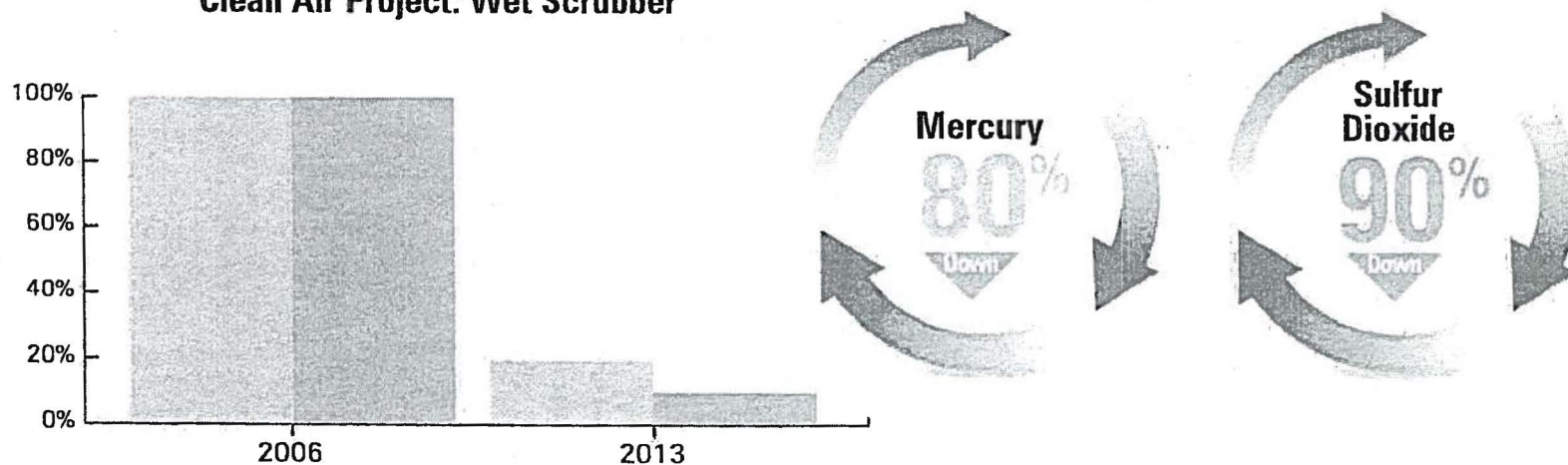
Selective Catalytic Reduction System

* Installed in 1995 & 1999

* Augmented in 1998, 2000 & 2001



Clean Air Project: Wet Scrubber

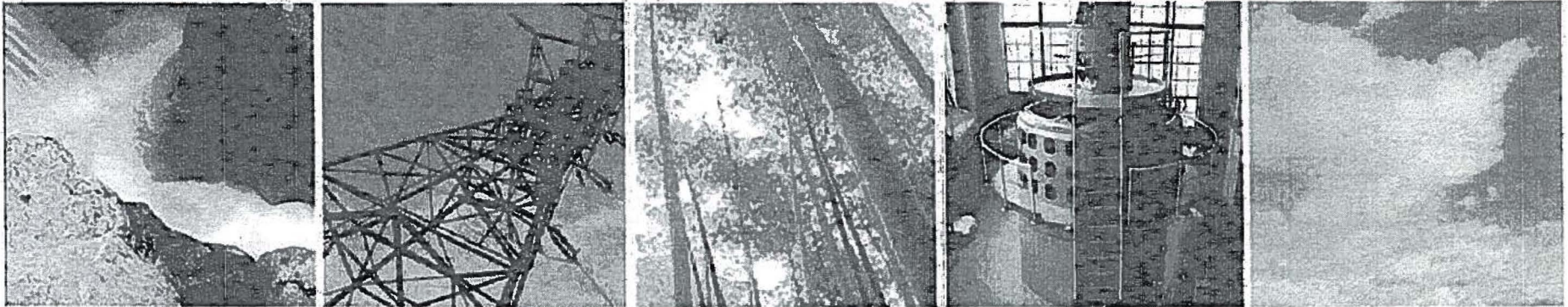


THE BRIDGE^{TO} NEW HAMPSHIRE'S CLEAN ENERGY FUTURE



**Public Service
of New Hampshire**

The Northeast Utilities System



Clean Air Project
Merrimack Station

Today's Agenda

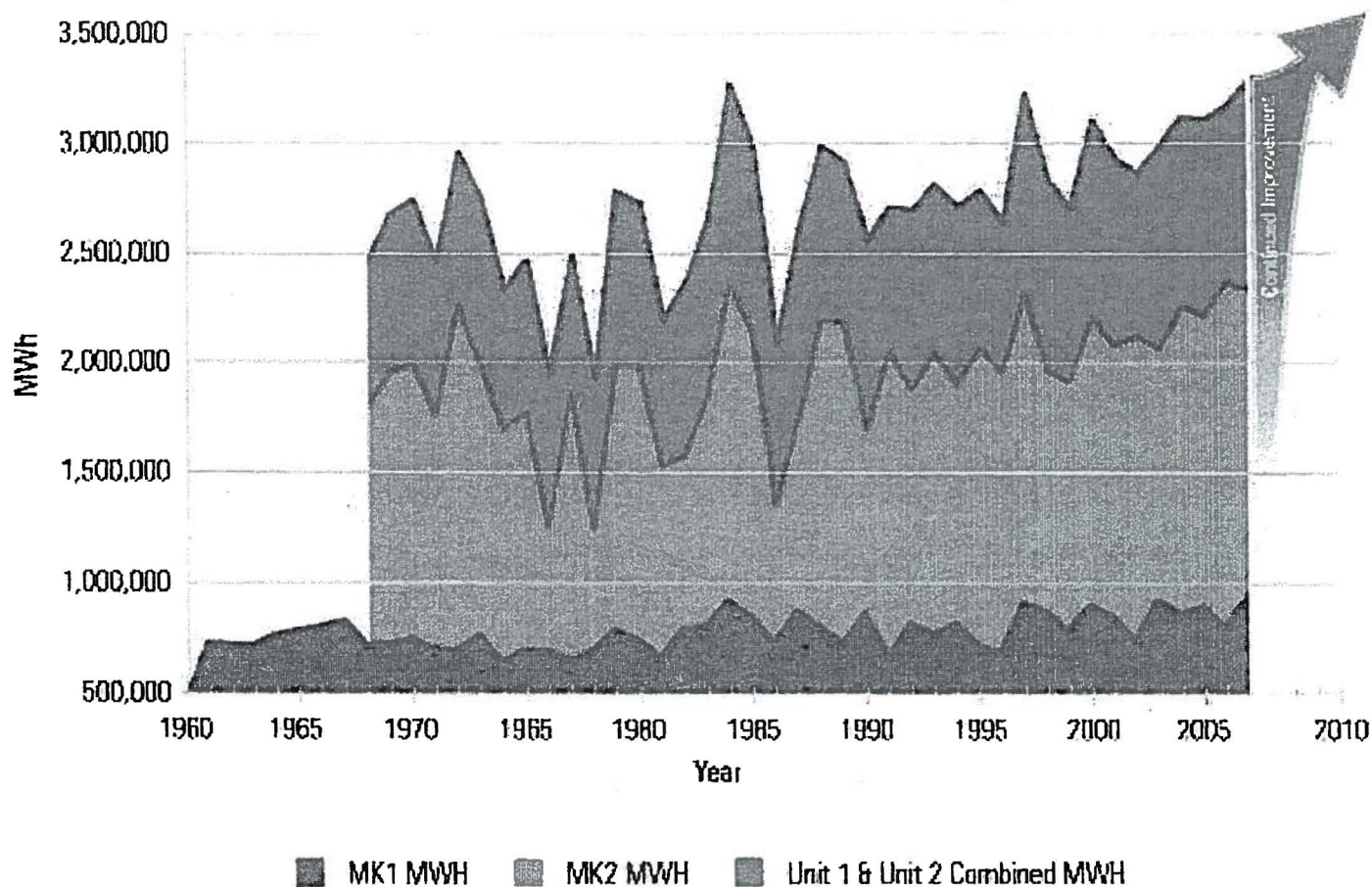
- The Clean Air Project
- Cost
- Project Benefits
- Senate Bill 152
- The Bridge to NH's Clean Energy Future

Merrimack Station in Bow

- **New Hampshire's workhorse**
 - Base load power plant that operates 24/7
 - Coal-fired
 - 433 MW net output
 - Enough energy for 190,000 NH households
 - » 35% of PSNH's generation mix
 - Meets or exceeds all environmental regulations
 - » 20 years of progress guided by state and federal clean power laws (NH Clean Power Act, RGGI, Mercury Law)

Merrimack Station is Running Better than Ever

PSNH customers have invested millions over the years to upgrade equipment and maintain Merrimack Station in top operating condition.



New Hampshire's Blueprint for Lowering Emissions: The 2002 Clean Power Act

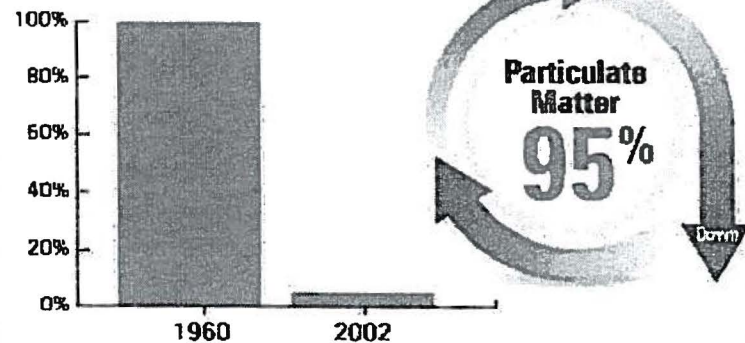
	NO _x	85% Reduction – 1995/2000 Achieved through installation of groundbreaking Selective Catalytic Reduction system
	Mercury	80% Reduction or Better – 2013 or sooner Required under the Mercury law that was passed in 2006
	SO _x	90% Reduction or Better – 2013 or sooner A benefit of the Mercury law that was passed in 2006
	CO ₂	Stabilized emissions through 2014: 10% reduction from 2015 – 2018 RGGI legislation passed in 2008

*Ground-breaking emissions reductions achieved through forward-looking
legislation, careful implementation, and staying the course.*

Emissions Control Technologies Installed at Merrimack Station: 20 Years of Progress

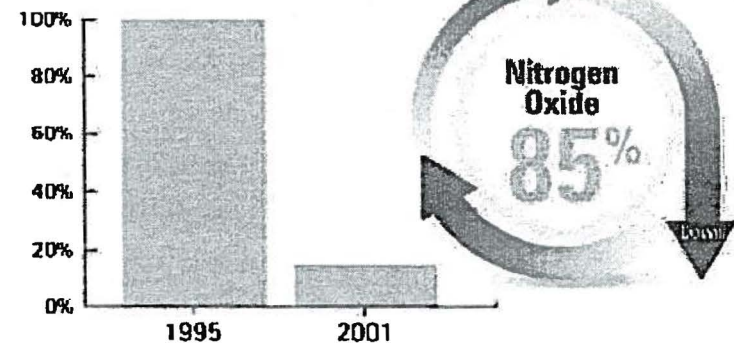
Electrostatic Precipitators

- * Installed in 1960 & 1968
- * Installed supplemental equipment in 1989 & 1999

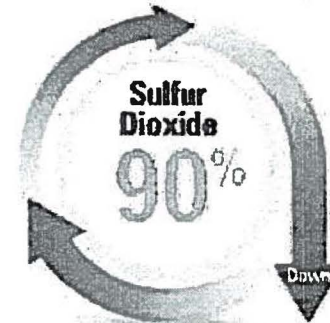
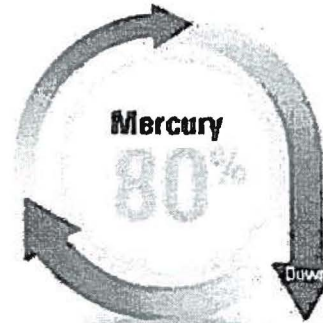
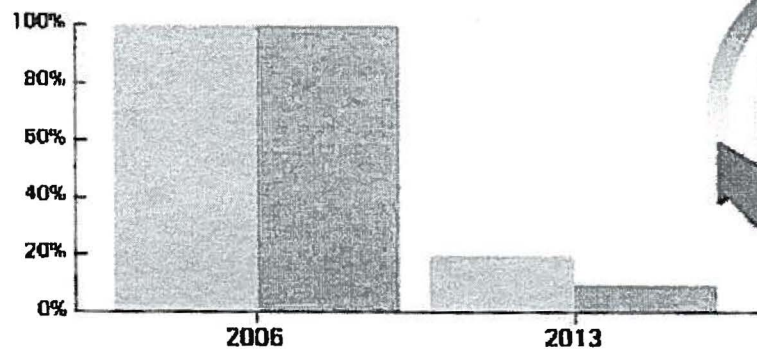


Selective Catalytic Reduction System

- * Installed in 1995 & 1999
- * Augmented in 1998, 2000 & 2001



Clean Air Project: Wet Scrubber



Status of the Clean Air Project

- In a 2006 law, the NH Legislature mandated that a scrubber be installed as soon as possible, but no later than July 2013
- Even without the state law, the scrubber will be needed to meet impending federal emissions requirements
- PSNH is currently halfway through the six-year project
- \$230 million (over half of the cost to engineer and build the scrubber) has been spent or contractually committed
 - This cost will have to be recovered from PSNH customers whether or not the scrubber installation is completed

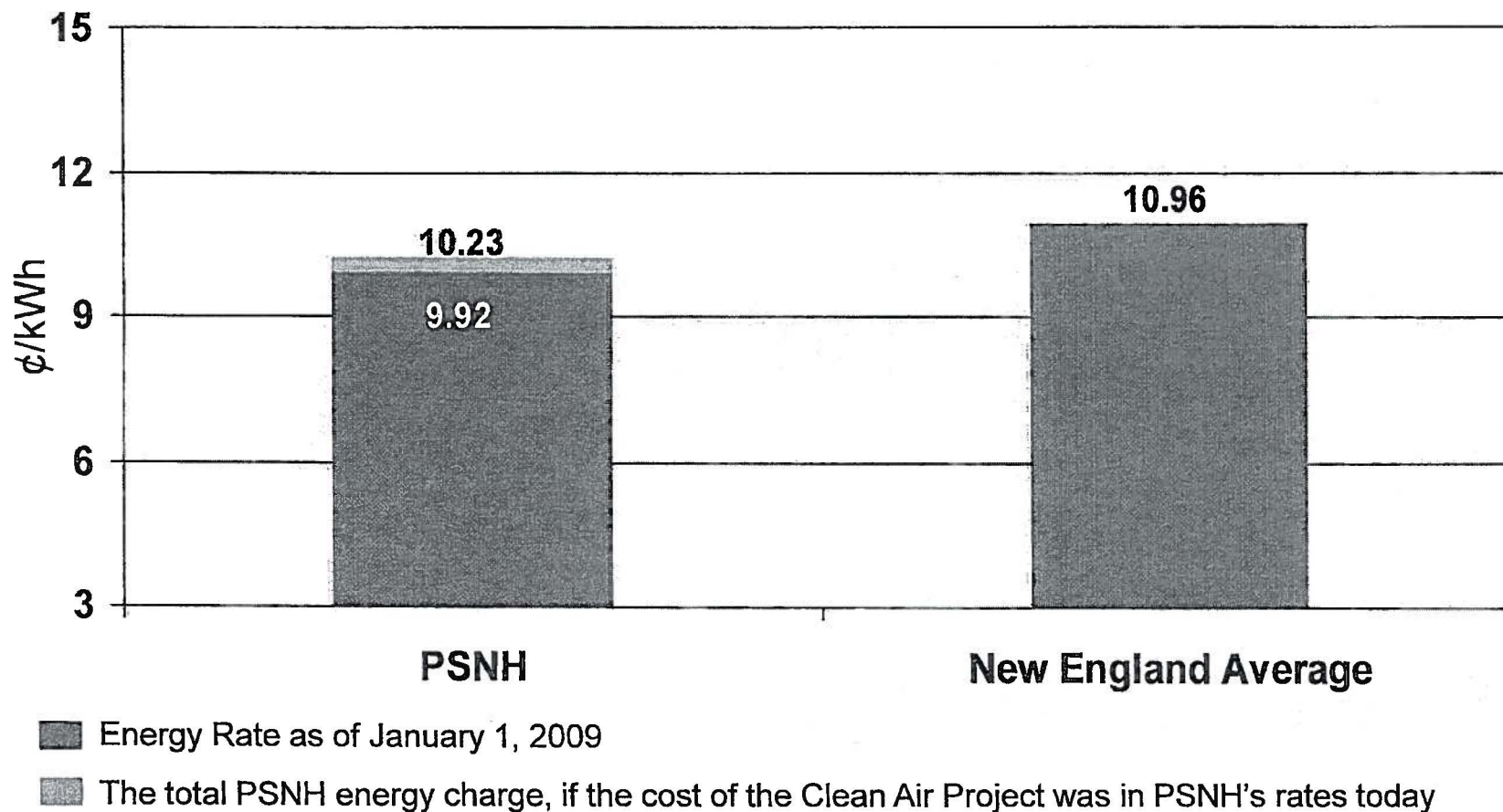


Project	2006	2007	2008	2009	2010	2011	2012
NH Mercury Reduction Act							
Preliminary Engineering							
Program Manager Hired							
Detailed Engineering							
Major Contracts Awarded							
Major Permitting							
Preliminary Site Prep.							
Major Construction (underway)							
Testing & Commissioning							
In Service							

COST

With the Scrubber, PSNH's Energy Rate Will Remain Below the New England Average

Upon completion, the Clean Air Project will add an average of about 3/10's of one cent to PSNH's Energy Charge.



Major Cost Components

- FGD (flue gas desulfurization)
- Chimney
- Material handling system
- Waste water treatment facility
- Program Manager
- Balance of plant (e.g., duct work, electrical)
- Site work (e.g., ground work, foundations)
- NU labor
- Financing, insurance, etc.

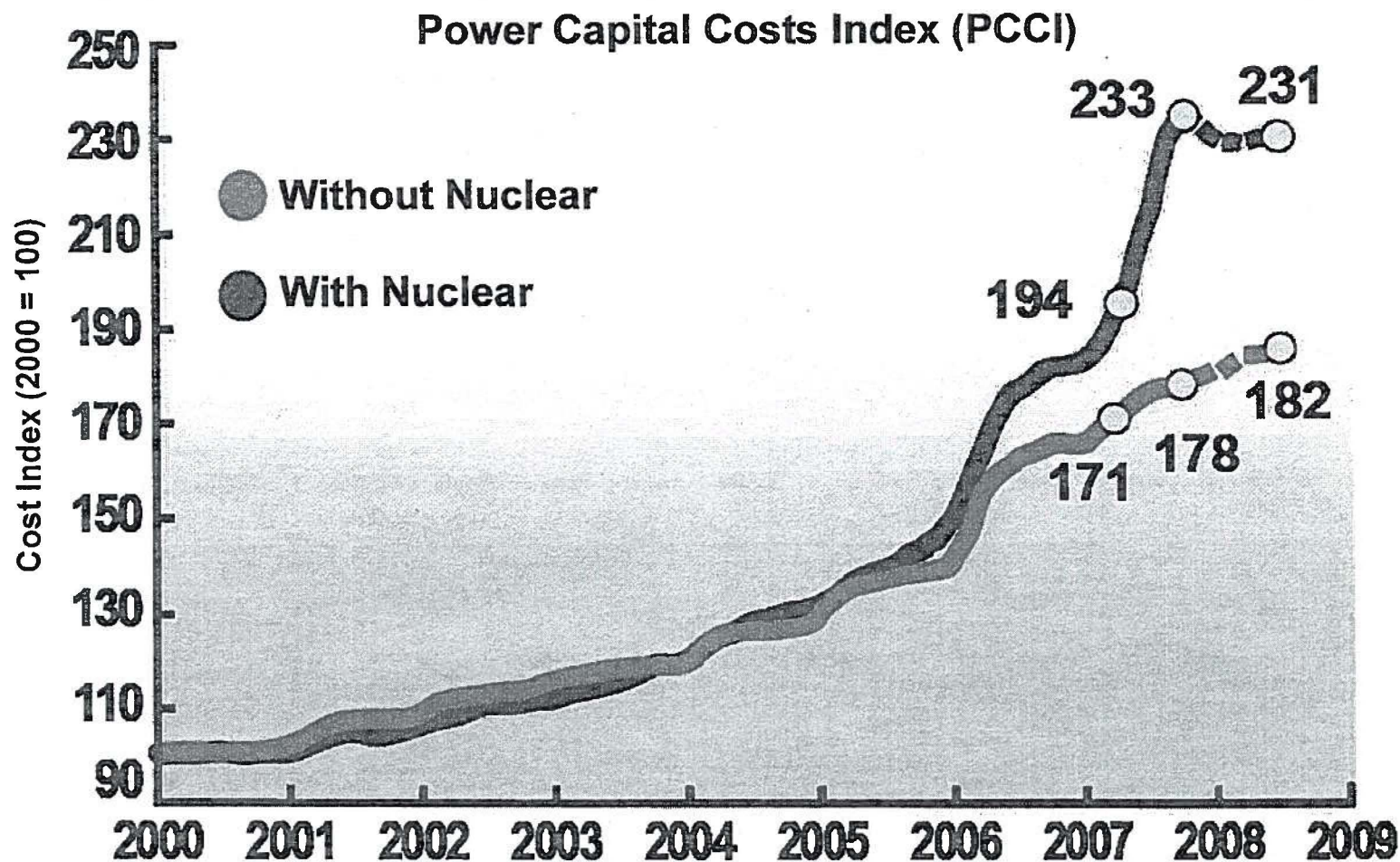
2005 / 2008 Cost Comparison

Project Components	2008 (firm price contracts)	2005 (initial estimates)
5 Major Contracts • Scrubber system, chimney, material handling system, wastewater treatment facility, program manager	\$213M	\$149M
Balance of Contracts and Materials • Ductwork, foundations, booster fans and motors, electrical, site work, etc.	\$135M	\$48M
Owners Costs • Project financing, insurance, NU labor, and overhead costs	\$80M	\$35M
Escalation and Contingency	\$29M	\$18M
TOTAL	\$457M	\$250M

Three Major Drivers of Cost Increase

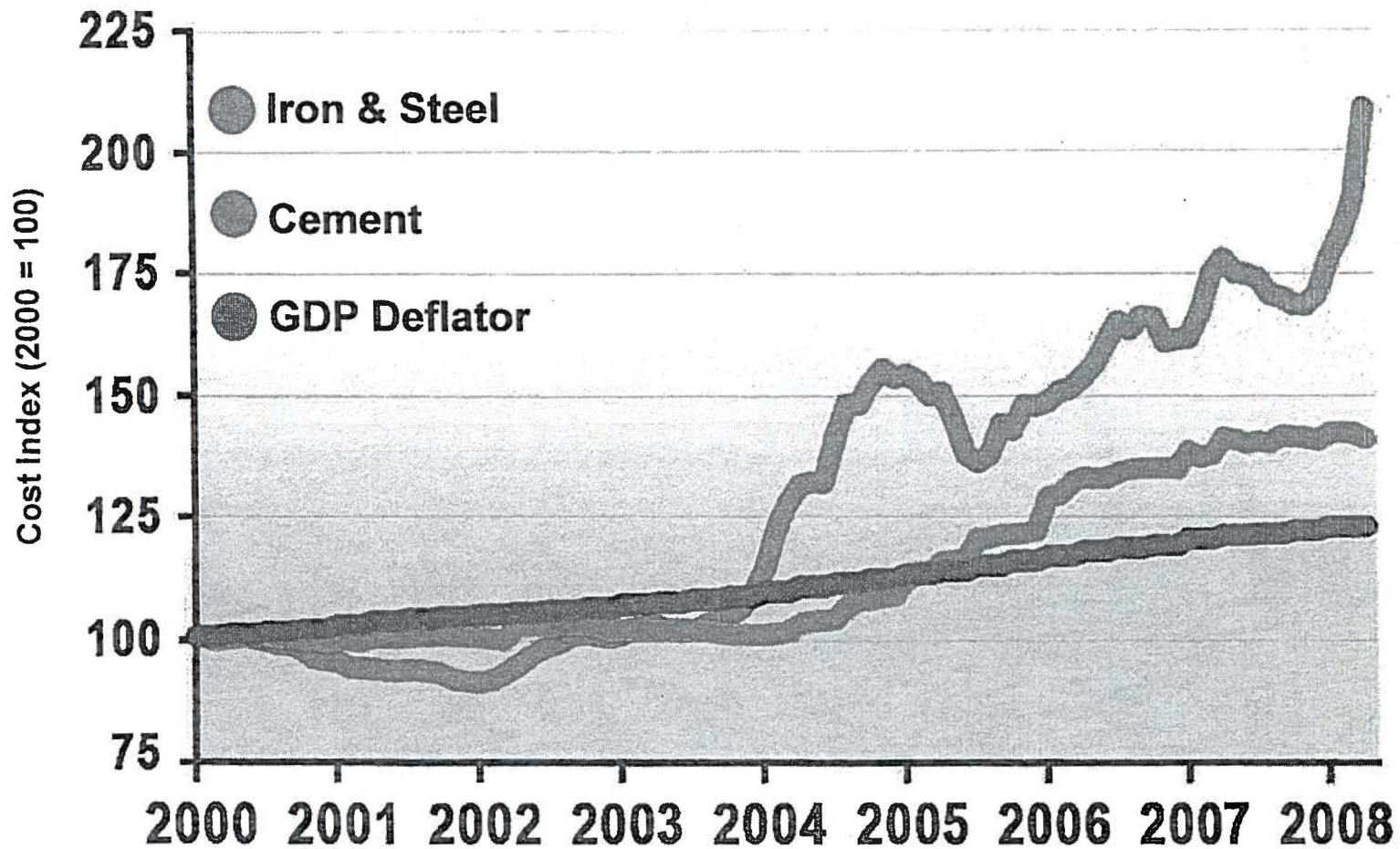
- **Economic and Commodity Volatility**
 - Significant cost increases reflective of national and world economy
 - Increased financing costs
- **Site Specific Factors**
 - Scrubber must guarantee 85% mercury reduction
 - Two power generation units of differing size must connect into one scrubber system
- **Progression from Initial Estimate Phase to Design Phase**
 - Firm price performance-based contracts with vendor guarantees have replaced initial estimated pricing
 - Majority of project design completed, replacing preliminary engineering used to determine initial estimates

Capital Costs Increased Significantly



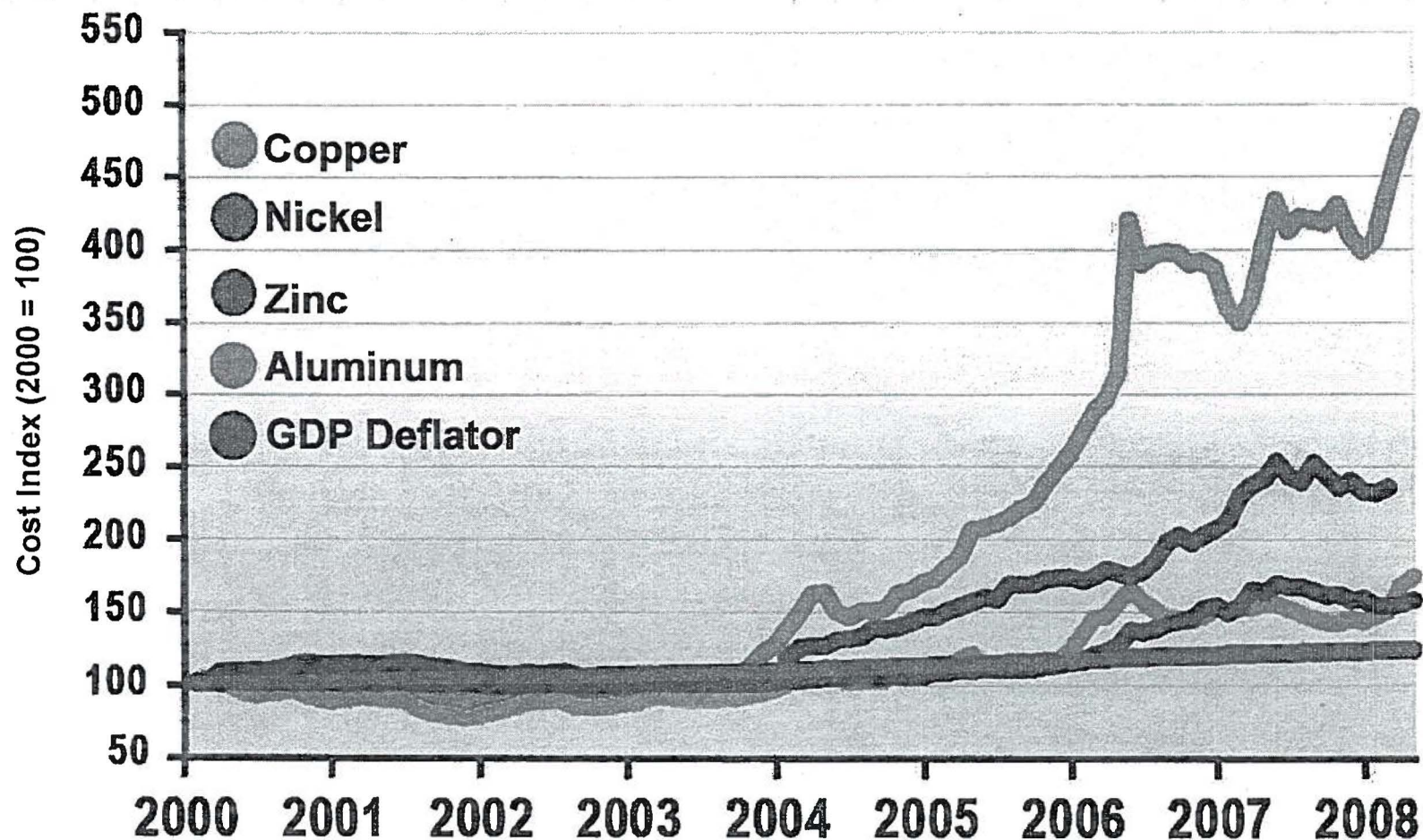
Source: Cambridge Energy Research Associates. 71023-12

Primary Construction Costs



Source: Derived from Bureau of Labor Statistics Data and Bureau of Economic Analysis Data

Secondary Construction Costs



Source: Derived from Bureau of Labor Statistics Data and Bureau of Economic Analysis Data

Overview of Cost Increase: From Estimate to Implementation

2005: \$250 million

- Preliminary estimate for generic scrubber
- Requirements for aggressive 85% mercury reduction and 2013 completion date were not yet established by Legislature
- Based on study performed by national engineering firm Sargent & Lundy, with additions for contingencies by PSNH
- Reflects market conditions in early 2005
- Reflects inability to forecast the highly volatile global market environment that emerged between 2005 and 2008

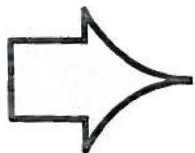
2008: \$457 million

- Confirmed cost for a scrubber that is required to reduce mercury emissions by 85% (one of the first in the nation)
- Includes guarantee from vendors for 85% mercury reduction
- Based on highly detailed engineering specs and firm price contracts for major components
- Reflects realities of market conditions in 2008 (including the cost of financing)
- Comparable with other multiple-unit scrubber installations now occurring elsewhere in the country
 - Reaffirmed by independent firm Power Advocate, Inc. in March of 2009

PSNH's Approach Is Designed to Reduce Customer Risk

- Cost risks for major components put on vendors, not customers
 - Obtained firm price contracts for “critical path” components with long lead times
 - Developed strict performance criteria, and required performance guarantees from vendors
- At every step of the way, we have affirmed pricing to ensure it is in line with marketplace
 - Independent firms retained to provide market analysis and price benchmarking in 2005, 2006, 2007, 2008, and 2009
 - Confirmed project costs are consistent with market prices for projects of similar scope and size
- Delayed subcontracts when possible to take advantage of opportunities for better price negotiations

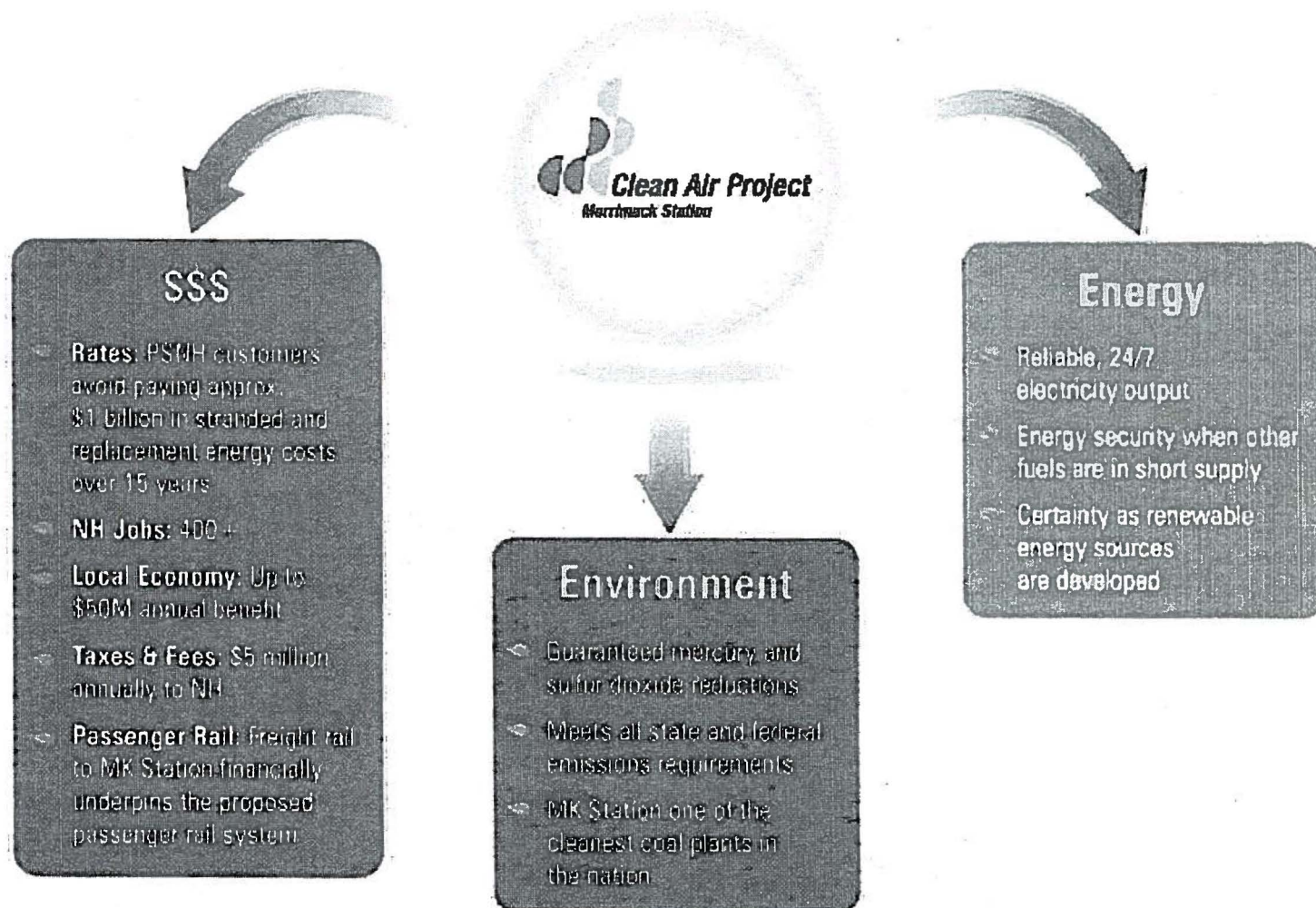
Customer Cost Safety Nets



- PSNH has legally binding, firm price contracts in place for major components of project
- When the project is complete, the NH Public Utilities Commission will scrutinize every dollar spent on the project before any money can be recovered from customers through PSNH's rates
- PSNH customers (esp. commercial customers) can switch to a different energy supplier at any time to avoid paying costs associated with the scrubber
- The bottom line:
 - Installation of the scrubber at \$457M continues to be a better option for PSNH customers than purchasing replacement energy in the open market

PROJECT BENEFITS

Project Benefits



SENATE BILL 152

Impact of Senate Bill 152

- No bill is necessary to understand the cost change outlined in earlier slides
- The only alternative to installing the scrubber is to NOT install the scrubber
 - *\$457M for scrubber is not transferrable to other clean energy projects*
- Without the scrubber, Merrimack Station will be out of compliance with state and federal laws, which would lead to a shutdown of the plant
- PSNH customers could be on the hook for \$300 million in stranded costs, with nothing to show for it
 - \$230M for scrubber costs already committed
 - \$63M for undepreciated cost of Merrimack Station in 2013

What Is the Harm in a 90-Day Study?

- What a study will **NOT** do:
 - Change the cost of the scrubber
 - Change Merrimack Station's fuel source
 - Provide accurate forecasts for the price of oil, gas, coal, or financing rates
 - Tell you what federal regulations will be passed and when
 - Tell you how much renewable energy NH will build, where it will be located, and when it will be in service
 - Accurately predict the future
- What a study **will** do:
 - Invite lengthy speculation and create momentum to not install the scrubber
 - Set Merrimack Station on the path to a shutdown

What Is the Benefit of a 90-Day Study?

- The study cannot change the price of the scrubber
- It cannot transfer the \$457M scrubber cost to other energy projects
- If the study *supports* the scrubber installation, it is redundant and not needed
- The only logical purpose for performing a study is to create momentum to derail the scrubber installation

Voting in favor of SB 152 is voting to shut down Merrimack Station.

The Bridge to NH's Clean Energy Future

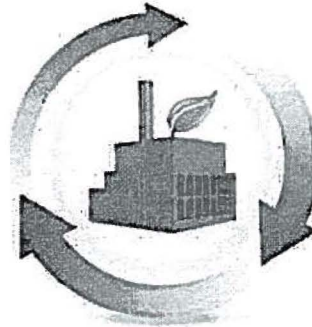
PSNH is Pursuing a Portfolio of Strategies to Advance Clean Energy in New Hampshire

Enhance and Expand Energy-Efficiency Programs



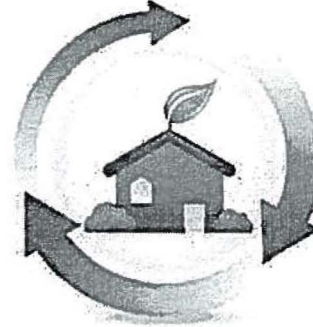
- Revise programs to meet modern needs
- Double investment in efficiency programs
- Goal of quadrupling energy savings for PSNH customers by 2025

Significantly Cut Emissions at Existing Power Plants



- Install scrubber at Merrimack Station
- Pilot alternative energy sources at PSNH facilities
- Increase efficiency at existing hydro plants

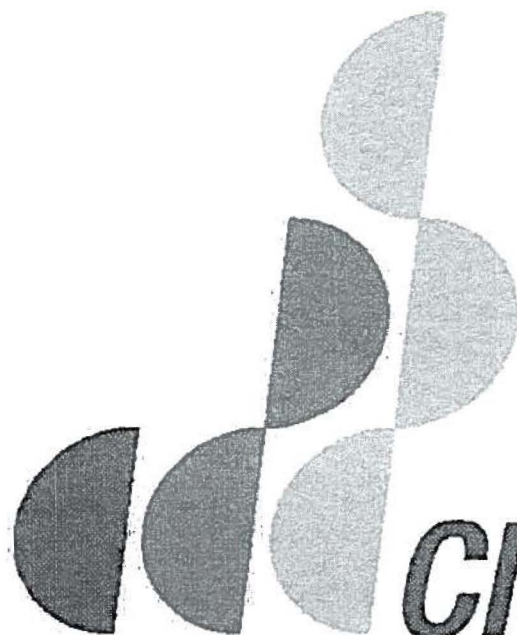
Invest in Renewable Energy Projects



- Small-scale projects (e.g. solar panels)
- Commercial-scale renewable power plants
- Import hydro power from Canada
- Provide transmission to connect customers with renewable energy sources

Conclusions

- **The Scrubber Project is NH's Bridge to a Renewable Energy Future**
- In the short-term, it is unrealistic to think that we can depend on new renewable energy sources in NH to replace the power produced by existing fossil fuel plants
- It is important to make our existing power plants cleaner and more efficient because they still provide most of our energy at the lowest cost
- Shutting down Merrimack Station would create needless economic harm to our state at a time when NH citizens are fighting every day to keep their jobs
- We implore you to vote NO to Senate Bill 152 -- *Voting in favor of SB 152 is voting to shut down Merrimack Station.*



Clean Air Project

Merrimack Station

Merrimack Station Clean Air Project

- o PowerAdvocate, Inc.
 - Premier provider of supply-chain and sourcing solutions to energy companies
 - Direct experience on over 20 different FGD projects with 9 different companies in the past 5 years
- o Merrimack Station Cost Estimate
 - 19 benchmark wet FGD projects were compared to Merrimack Station
 - Owner's costs and site specific factors were analyzed to make it "apples to apples"
 - Benchmark projects were escalated to 2012 dollars (Merrimack Station's projected in-service date)
 - Merrimack per kW cost of \$580 is within both the benchmark range (\$272-\$704/kW) and median cost (\$517/kW) of the other wet FGD projects
- o Project Sourcing Process and Contracting Terms
 - A procurement strategy and competitive bid process were used to ensure cost controls for customers
 - Performance guarantees and cost risks were transferred to the key suppliers to provide customer cost protection
- o Cost Savings Opportunities Exist
 - Market volatility and dropping commodity prices provide near term savings opportunities
 - \$6M (35%) foundation contract savings
 - Other savings opportunities exist

