

A photograph of a dense forest with tall, straight tree trunks and green foliage, serving as the background for the slide.

Northern Wood Power Boiler Re-Powering: Coal to Biomass

*A Positive Step Toward Reducing Climate Change and
Achieving Energy Independence*

EBC NH Chapter Meeting

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*William Smagula
Director of Generation*



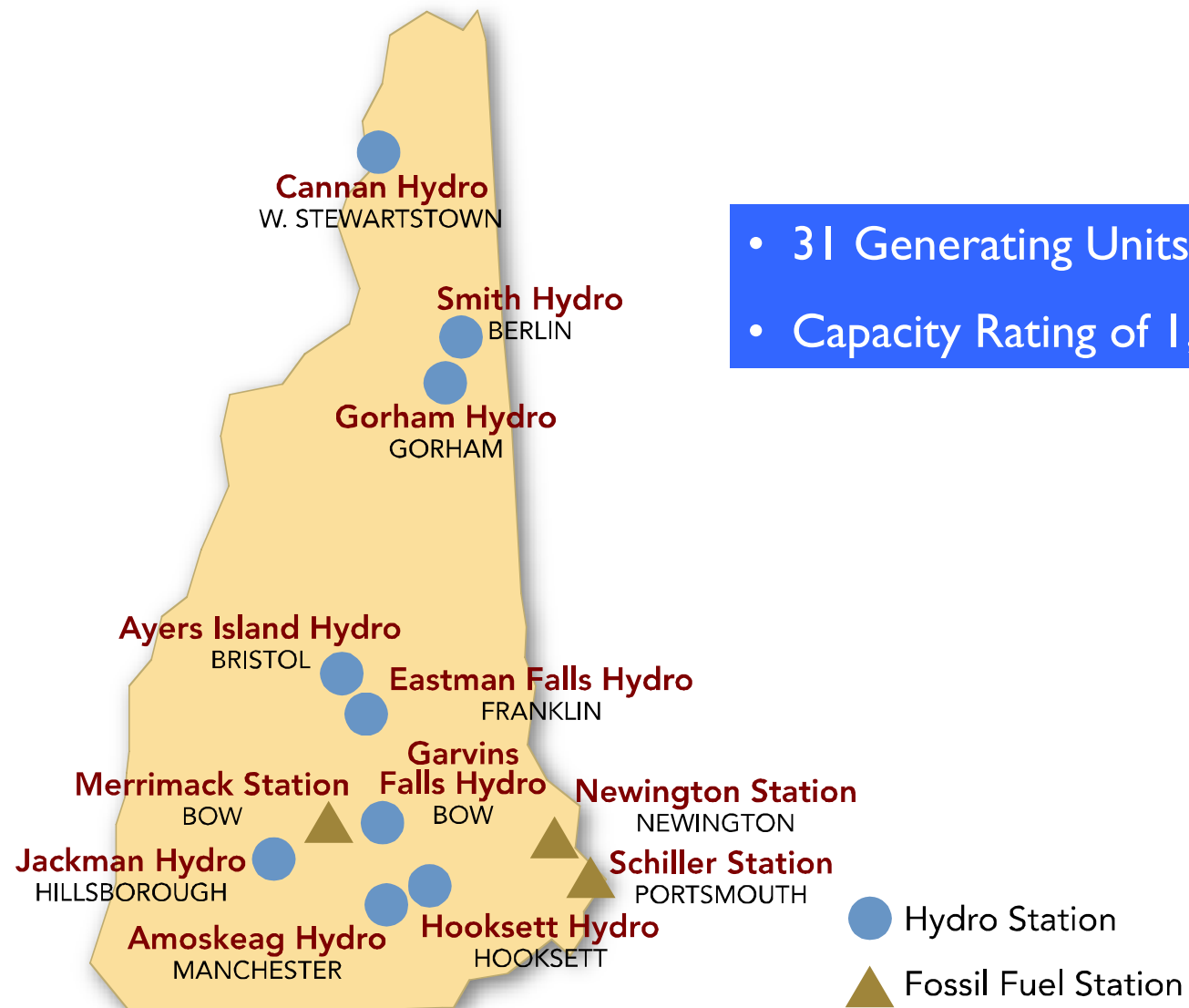
**Public Service
of New Hampshire**

The Northeast Utilities System

PSNH Is NH's Largest Electric Utility

- Founded in 1926. Serves about 75 percent of the residents in NH, or about 475,000 homes and businesses in more than 212 communities
- PSNH-owned generation serves 70% of customer needs. Fleet includes hydro, oil, gas, coal, and now wood-fired generation

PSNH Generating Plants



PSNH's Generation Position in New England is Unique

- PSNH deregulated in 2001. Customers have choices of suppliers
- Only regulated utility in New England still owning generation
- Divestiture was planned since the 1990s, but did not occur
- In 2002, NH Legislature formally deferred the sale of stations:
 - Concerns raised by supply problems in CA and elsewhere
 - Our low energy costs vs. market prices
 - Fuel diversity of the fleet
 - High reliability of our plants
 - Cost advantages from depreciated assets

The Genesis of NWP was Driven by Several Factors:

- A need to comply with regulations requiring reduced air emissions
- An emerging market for “green power” in the region
- NH forest products industry assessment
 - 80 percent of the state is forest (only ME is higher)
 - Covers 5.7 million acres
 - Forestry represents \$3.9 billion in economic activity statewide, roughly 11% of the gross state product
 - An existing infrastructure for harvesting low-grade wood, which declined drastically in recent years


NWP Driving Factors (continued)

- Synergies with the existing coal-fired facility at the site
- Benefits of using wood as fuel in meeting emissions targets and clean air laws
- Passage of enabling legislation
 - A 2002 law allowing PSNH to retain its generation
 - An April 2003 law enacted to enable PSNH to modify its generation upon NHPUC approval


Northern Wood Power – Key Facts

- 50-MW wood boiler installed to replace existing, coal-fired unit at Schiller Station in Portsmouth, NH
- New boiler design and technology implemented to maximize efficiency and minimize environmental impact
- Project will use 450,000 tons of clean wood annually
 - No demolition or construction debris
 - Primarily whole-tree chips
 - Supply is coming primarily from forests in NH and ME
- Project cost: \$75 million

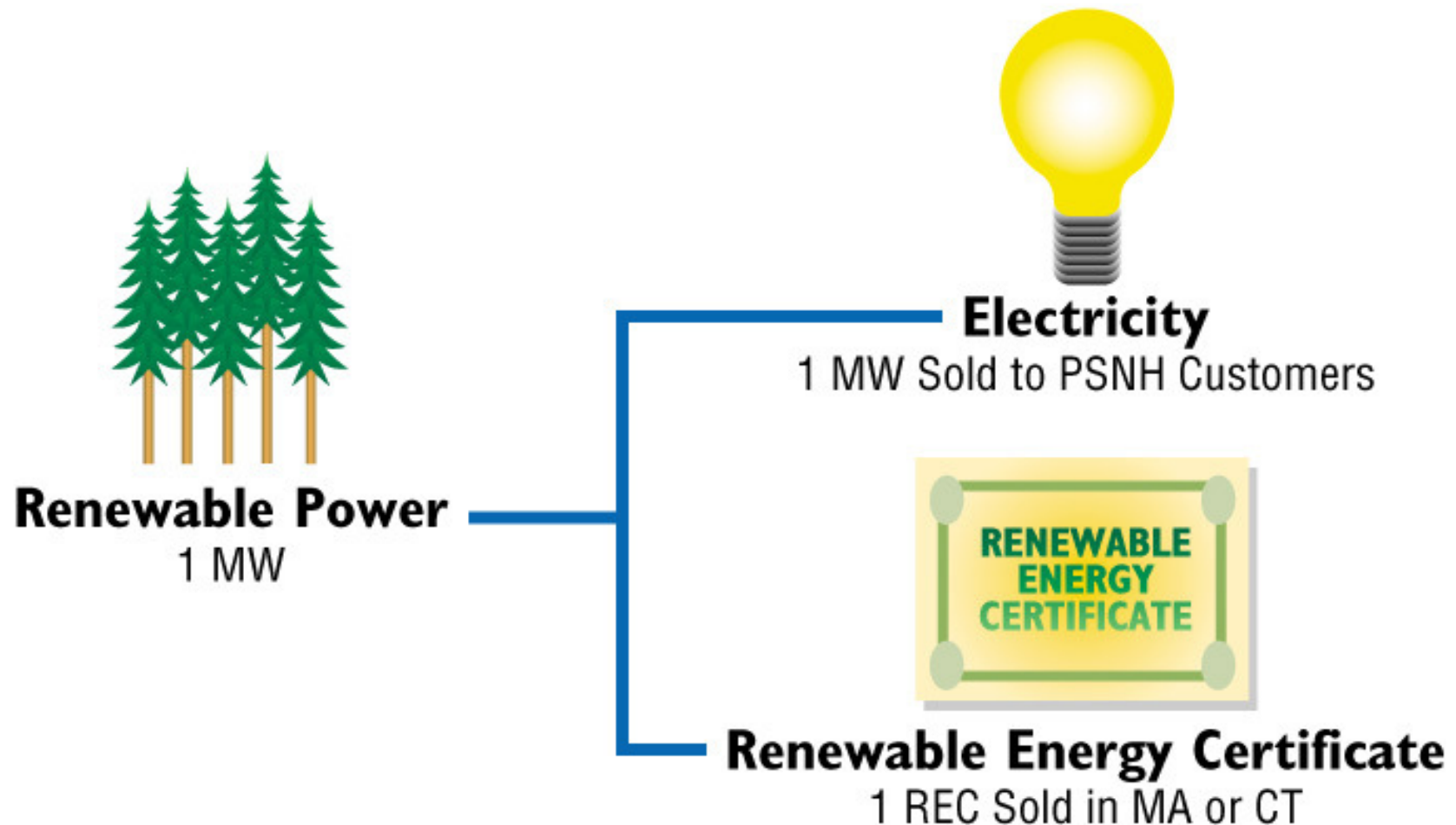
Project Is Providing Significant Benefits to NH and the Seacoast Region

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- Provides substantial environmental benefits, particularly in lowering air emissions
 - Provides needed, long-term wood market for the forest industry
 - Estimated regional impact of approximately \$20 million annually
 - Accomplished without state subsidies
 - Local tax benefits

Wood Procurement Facts

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- Annual fuel usage 450,000 tons
 - Primary source NH, backup MA, ME, VT
 - Over 12,000 deliveries a year
 - Over 60 suppliers contribute to inventory
 - 10 + day inventory maintained on-site
 - Wood yard is working well, minimizing truck unloading times
 - Maintaining **Good Forest Management Standards**

Northern Wood Power is Designed to Have No Negative Impact on PSNH Customer Rates



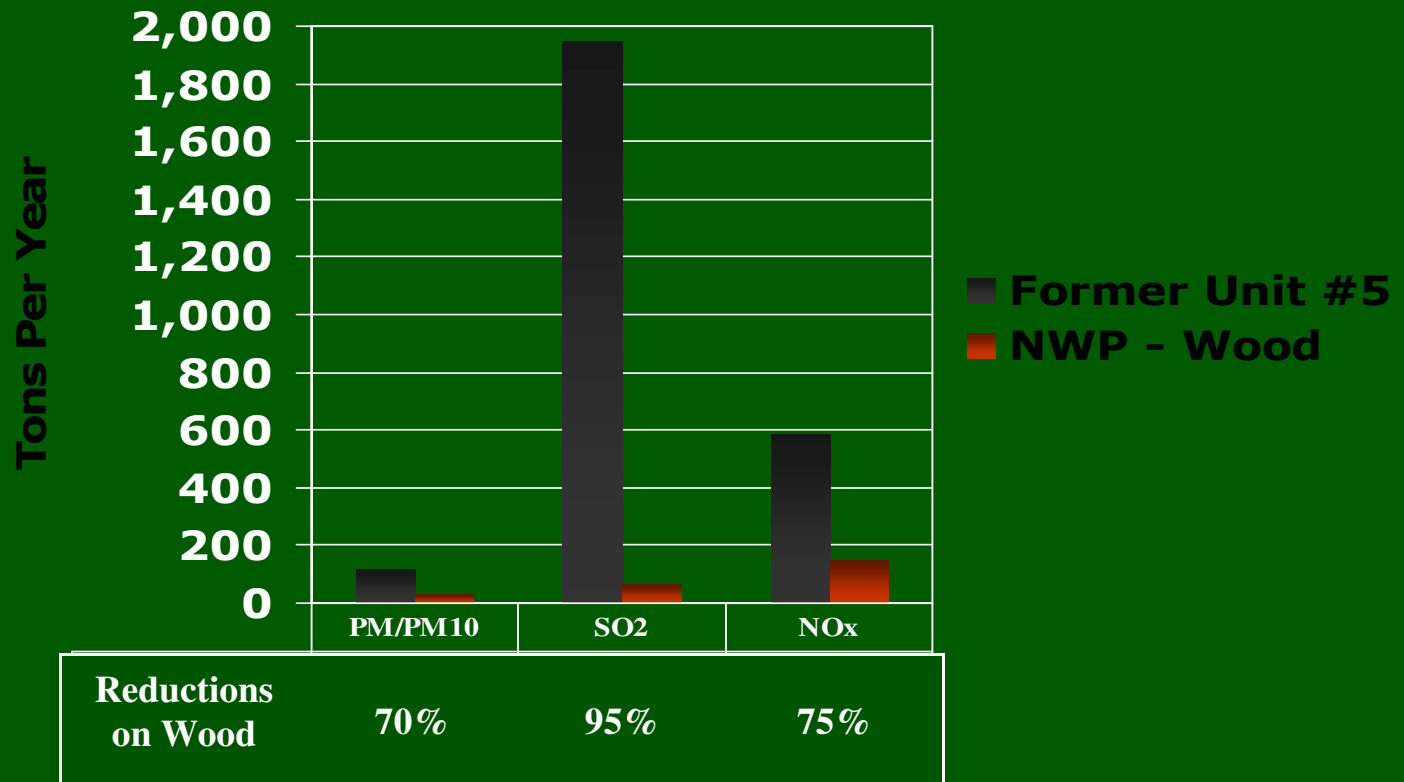
NWP creates a new revenue stream to help support this investment

Status of REC Sales

- NWP expected to generate at least 315,000 RECs a year
- We are actively marketing 2007 – 2008 RECs
- Forward REC marketing negatively influenced by market's six-month lag in reconciling purchases
- REC prices are currently in the \$50 range

11.


Comparison of Emissions: NWP Boiler (Max Potential) vs. Former Unit (Actual)



Schiller 5 is now one of the cleanest emitting units in New England

12.

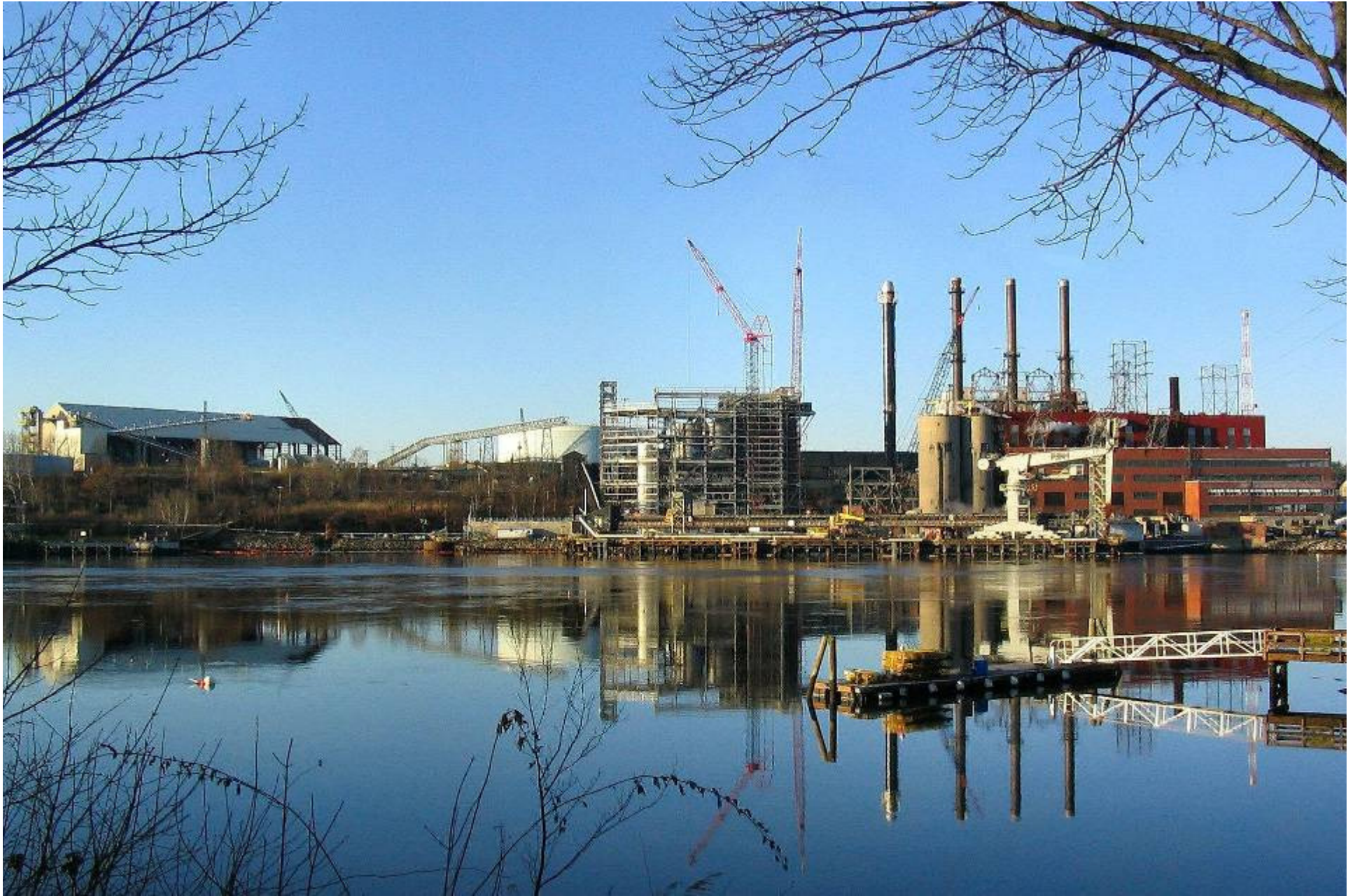
The NWP “Generates” Results with Reduce, Reuse, Recycle

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- Reduces the use of fossil fuels
 - Recycles low-grade wood fuel
 - Reuses existing auxiliary plant equipment
 - Reduces air emissions
 - Reduces the amount of landfilled coal flyash
 - Reuses wood ash to benefit agriculture
 - Reduces customer rates

13.



Schiller Station – Before Northern Wood Power



The new boiler building, as viewed from across the Piscataqua River.

**The wood storage area for NWP
has three truck-lifts.**





A wood chip delivery being unloaded.







Wood being deposited into storage bin

Interior of wood storage facility.





C b il



conveyor to boiler



Schiller Station Today

NWP Success Positions Us Well for Future Wood Burning Plant Opportunities

- We've demonstrated our ability to successfully permit and build the largest coal-to-wood conversion project in the country
- We've established solid partnerships with key state, environmental, and forest industry leaders
- We've shown that market-based rates can work for wood-fired plants