Wood Pellets: Clean, Efficient Heating with Renewable Energy from New York's Forest Resources

Charlie Niebling, General Manager

Adirondack Research Consortium Renewable Energy Conference

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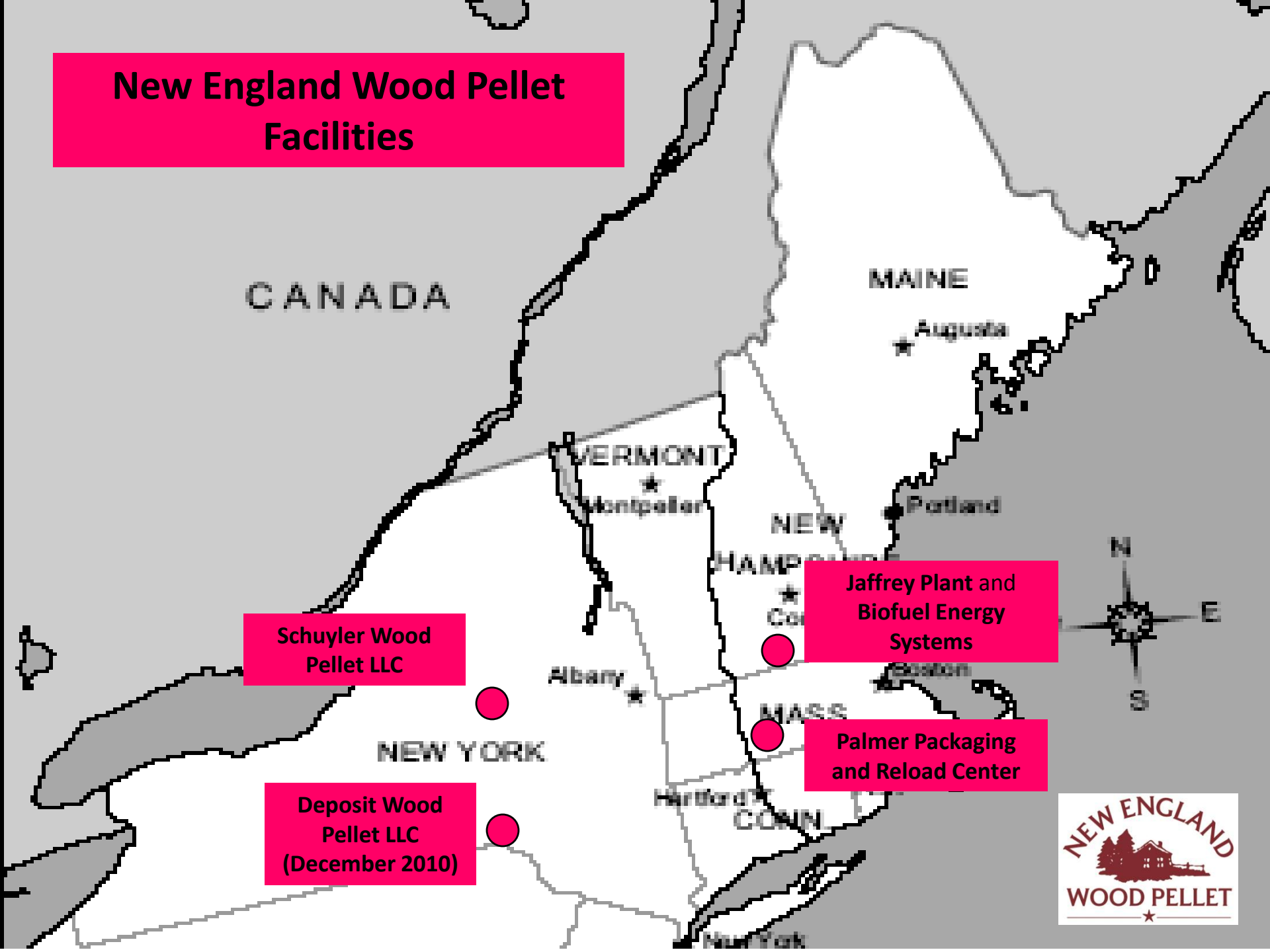
New England Wood Pellet Facilities



Facilities

Jaffrey, NH

Current 72,000 tons ; Potential 85,000 tons

Deposit, NY

Current 0 tons ; Potential 100,000 tons

Schuyler, NY

Current 78,000 tons ; Potential 85,000 tons

NEW ENGLAND WOOD PELLET

Pellet Fuels Ideally Suited to Northeastern US Market

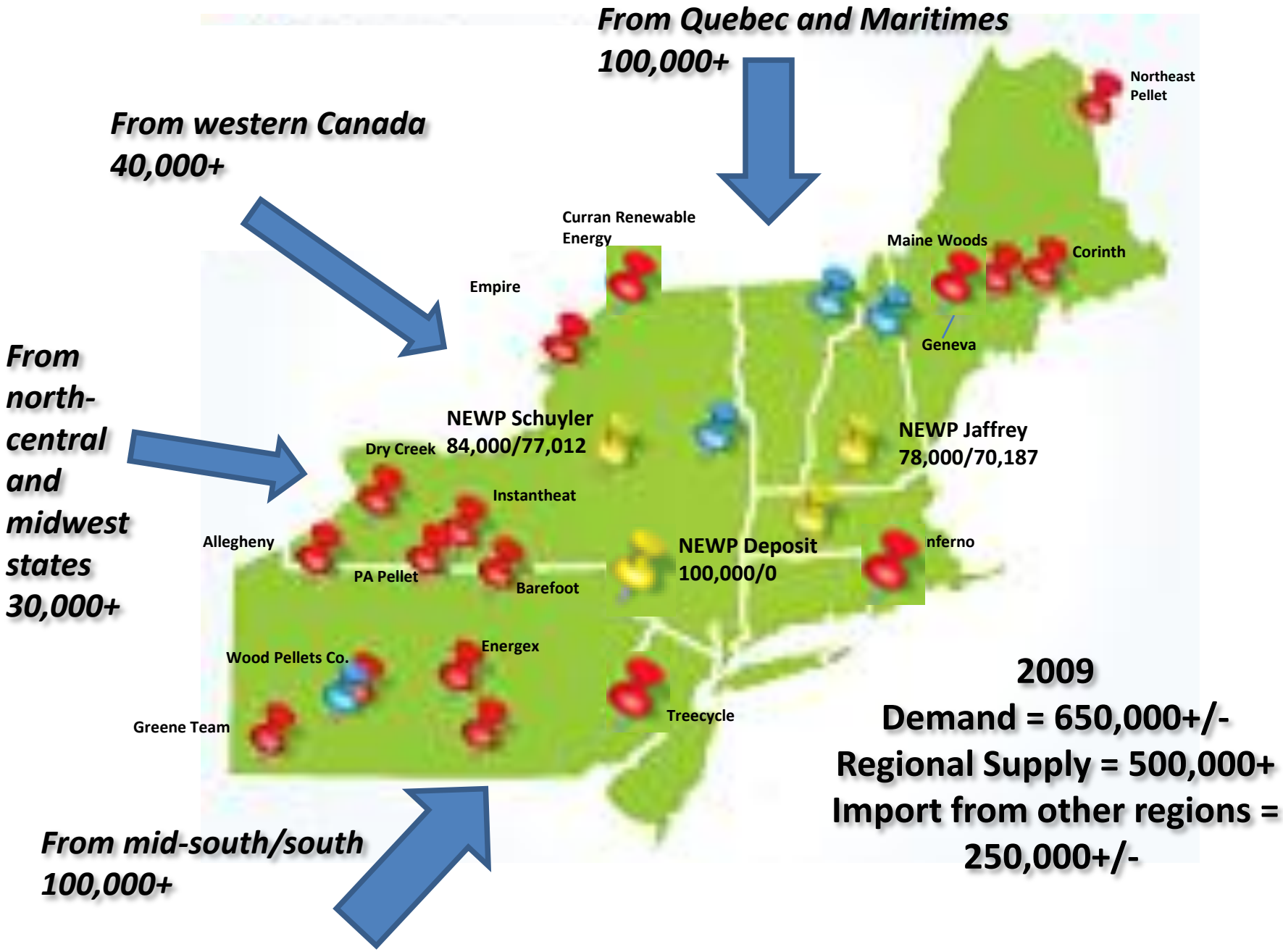
- **Abundant, underutilized forest and agricultural resources**; roundwood, chips, manufacturing residues – growing forest inventory and decline in pulp & paper manufacture; clean waste wood as well
- **Highest energy prices of anywhere in US**
- **Huge thermal (heat) market**, currently largely dependent on fossil energy (oil, natural gas, propane) – one third of total energy consumption in the region
- **Long tradition of using wood as fuel;** aging demographics favor more convenience in burning wood
- **Population and demand density that enhances potential for bulk pellet fuel distribution**
- **Generally favorable policy climate**

NEW ENGLAND WOOD PELLET

Status of Pellet Industry in Northeast (New England, NY, NJ and PA)

- **Approx. 400,000 homes heated** (primary or back-up) with pellet fuel in Northeast; annual growth >10% until 2009
- **19 manufacturers of pellet fuel in Northeast** – 8 are startups facing typical start-up challenges (4 of these recently closed), 2 in ME are currently closed but will reopen
- Total consumption approaching **700,000+ TPY**; total manufacturing production (2009) about **500,000+ TPY; import from other regions led to oversupply**
- At least **11 new plants announced** (ME-3, NH-2, MA-1, VT-1, NY-2, PA-2)
- **Limited distribution by bulk**; 99.5% of fuel distributed in bags vs. <40% in Europe

NEW ENGLAND WOOD PELLET


From Quebec and Maritimes
100,000+
From western Canada
40,000+
From north-central and midwest states
30,000+
From mid-south/south
100,000+
Northeast Pellet
Curran Renewable Energy
Maine Woods
Corinth
Empire
Geneva
NEWP Schuyler
84,000/77,012
NEWP Jaffrey
78,000/70,187
Dry Creek
Instantheat
Allegheny
NEWP Deposit
100,000/0
nferno
PA Pellet
Barefoot
Energex
Wood Pellets Co.
Treecycle
Greene Team
2009
Demand = 650,000+/-
Regional Supply = 500,000+
Import from other regions = 250,000+/-

Making pellets is not a simple proposition

Key Considerations in Siting Pellet Manufacturing Plant

- **Wood supply; proximity to wood supply**
- **Market; proximity to market**
- Transportation access: highway, rail, port for export
- Electricity cost
- Supportive community/region
- Labor/management talent
- Capital to build it right, cannot cut corners!

NEW ENGLAND WOOD PELLET

Wood Supply – Schuyler and Deposit

- 70% Green mill chips and sawdust
- 10% Kiln-dried sawdust, shavings, grindings
- <5% Clean pallet grindings
- >15% De-barked roundwood chips, HW and SW
- Whole tree chips for Deposit burner

Total procurement at full capacity = 450,000 green tons

NEW ENGLAND WOOD PELLET

The manufacturing process begins when tractor trailer loads of raw material (wet and dry sawdust, shavings, chips etc.) arrive at the plant. The material is unloaded by a skid steer, a live-floor or a truck dump.

NEW ENGLAND WOOD PELLET

…and here's the Truck Dump

NEW ENGLAND WOOD PELLET

Schuyler Wood Pellet

One acre covered wood storage – will hold 6,000 tons

NEW ENGLAND WOOD PELLET

Deposit will likely rely on HW and SW roundwood, with on-site flail debarking and chipping

New low-grade markets!

NEW ENGLAND WOOD PELLET

Job Number 1:
Building the Market

Pellet Stoves

<85,000 BTU

30-50 lbs/day during winter

Thermostatically controlled

350,000 in Northeast

1 million+ in U.S.

The Future…..not that far off, but we need help!

1. Home or Business Delivery of Pellets in Bulk

- Much like oil, gas, or propane
- Convenient - you don't need to be there

2. Sufficient Storage

- 1-3 deliveries a year
- Attractive and/or unobtrusive

3. Fully Automated Central Heating System

- Boilers and furnaces support existing distribution system
- Automated feed system
- Self-ignition and self-cleaning
- Safety that is superior to propane or gas

4. Easy Installation/Service

- Simple venting
- Simple, once-a-year maintenance includes ash removal

Biomass heating technologies

- automatic wood pellet heating systems

- biomass district heating networks

- large-scale combined heat and power plants

Propell Energy

- Import, sell & service commercial boiler systems
- 50-1,000 kW (170KBTU – 3.4 MMBTU)
- Swedish and Austrian technology
- Bulk fuel delivery
- Energy services
- Office buildings, schools, prisons, public works garages, apartment complexes, hospitals, shopping malls etc.

PROPELL ENERGY

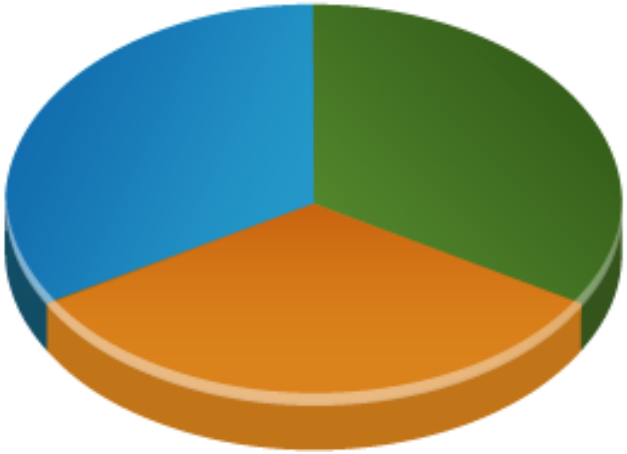
BIO Energy

BIO Energy

Bulk delivery

America's Energy Usage Has Three Major Slices

Transportation
29%



Electricity
40%

Heating
31%

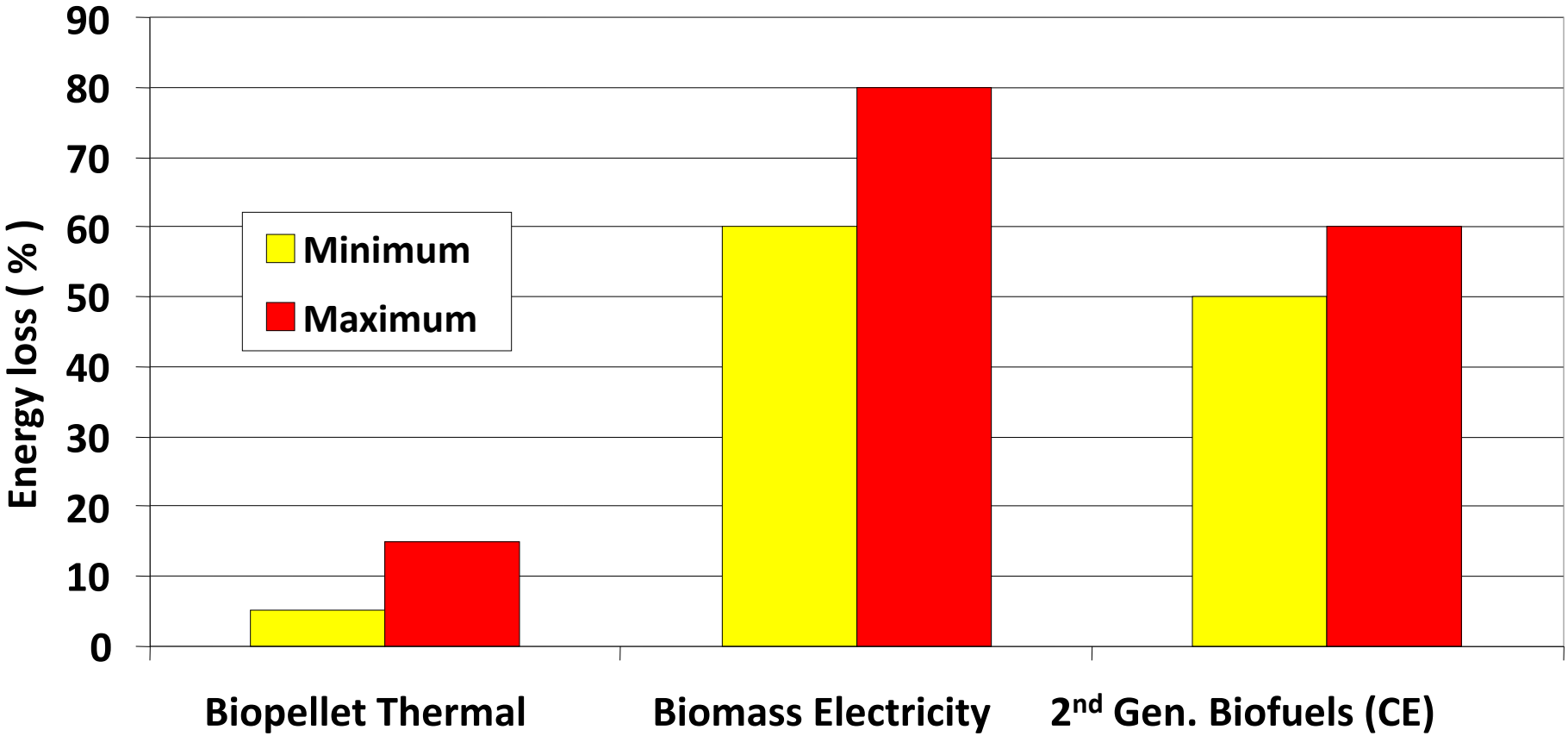
Necessary Drivers of Energy Policy

- ***Efficiency***
- ***Emissions***
- ***Greenhouse Gases***
- ***Sustainability***

Actual Drivers of Energy Policy

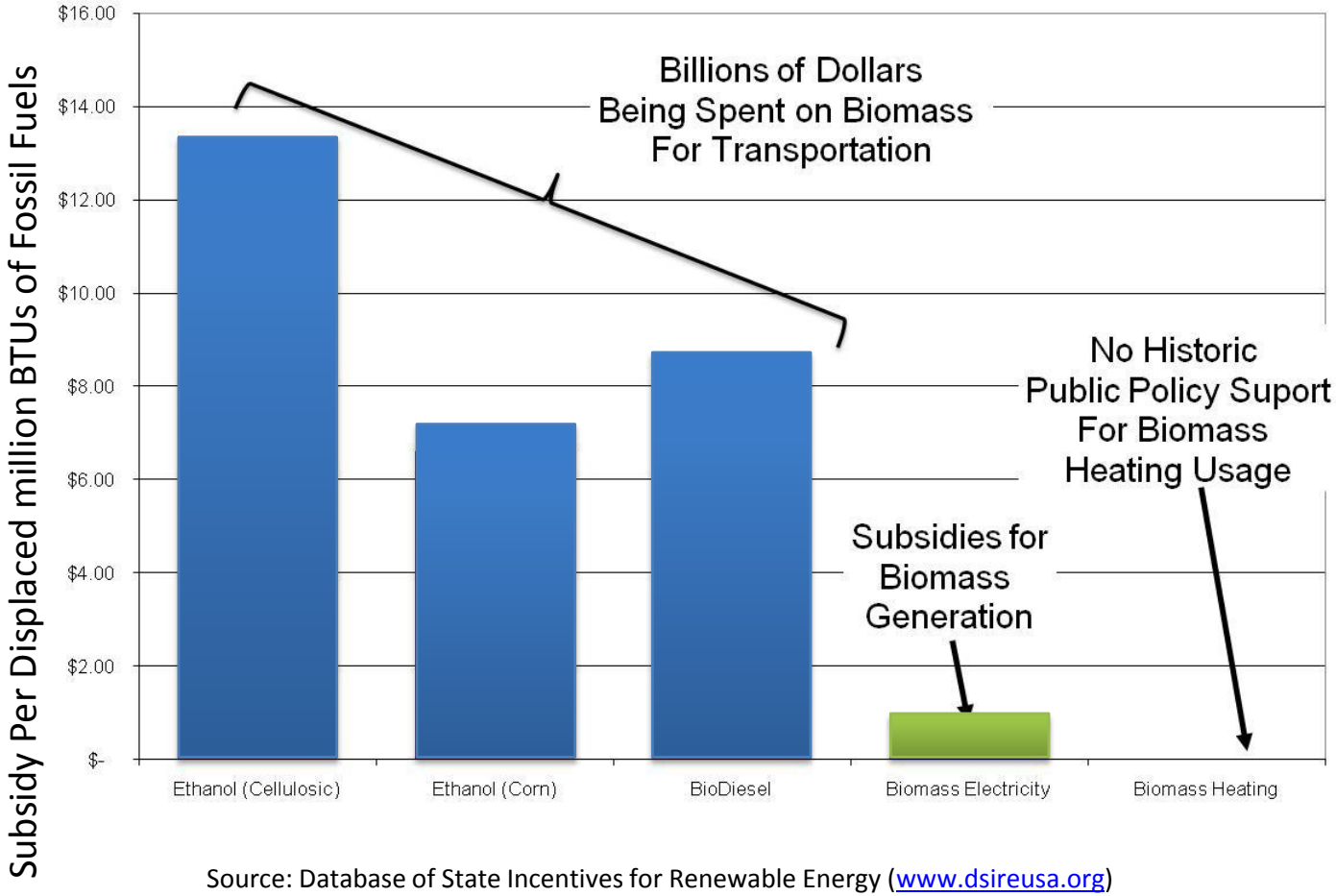
- ***Corn belt/Farm Bill politics***
- ***Oil/gas state politics***
- ***Auto industry***
- ***Myth of clean coal***
- ***Technology-biased policy rather than outcomes-based policy***

EFFICIENCY: Energy loss of different conversion technologies for woody biomass



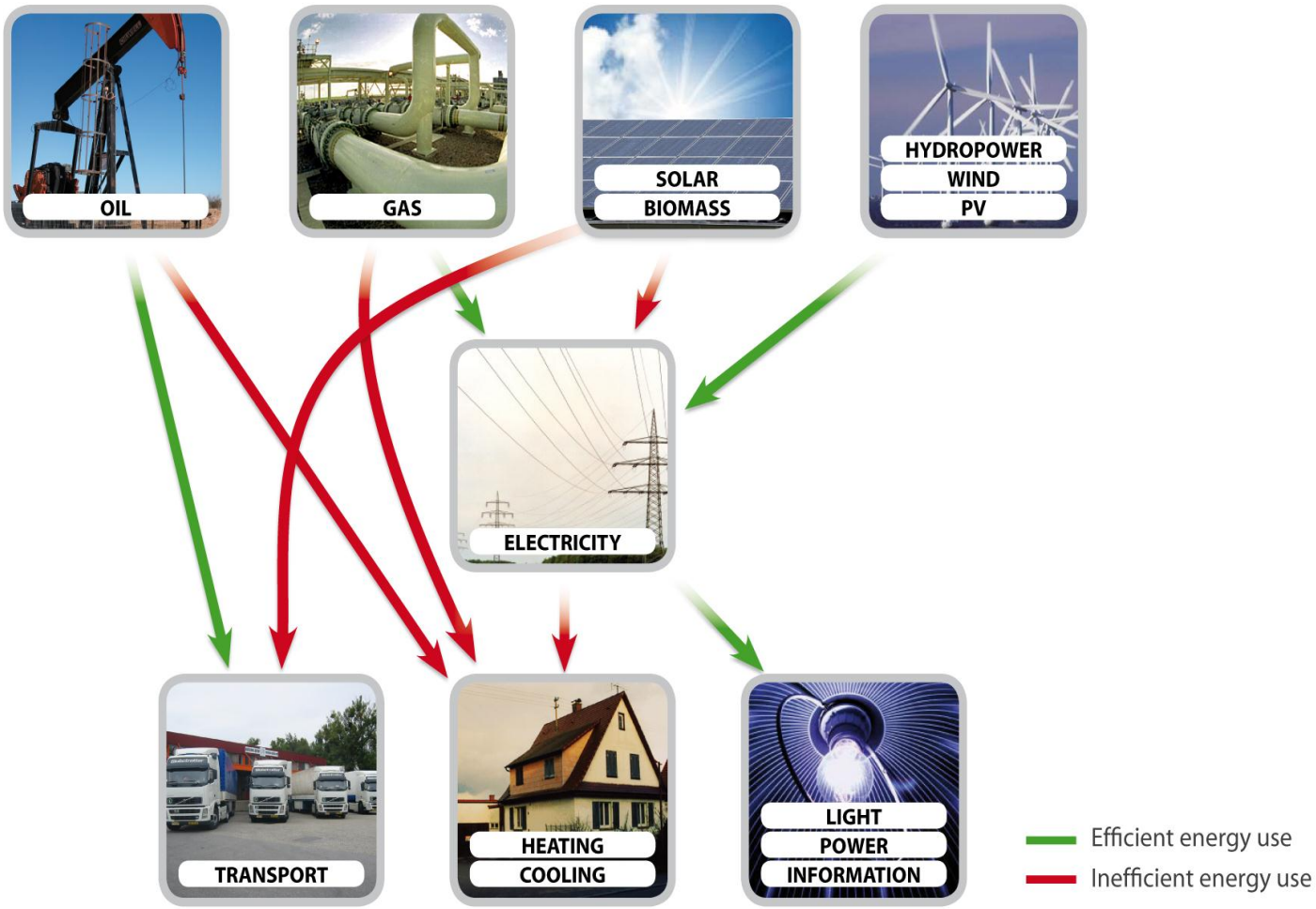
Thanks to ProPellet Austria

Public Policy in the US (and NY) Favors Transportation And Electric

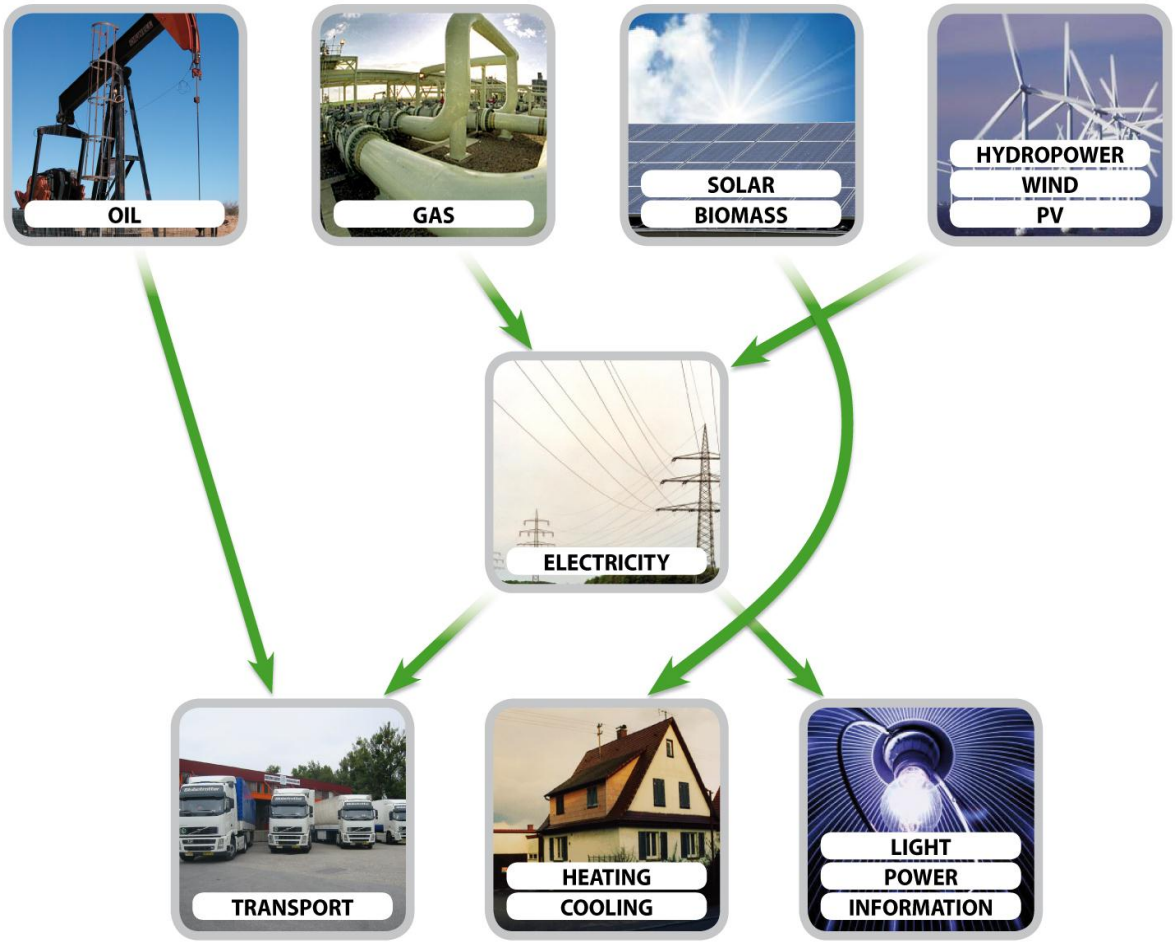


Source: Database of State Incentives for Renewable Energy (www.dsireusa.org)

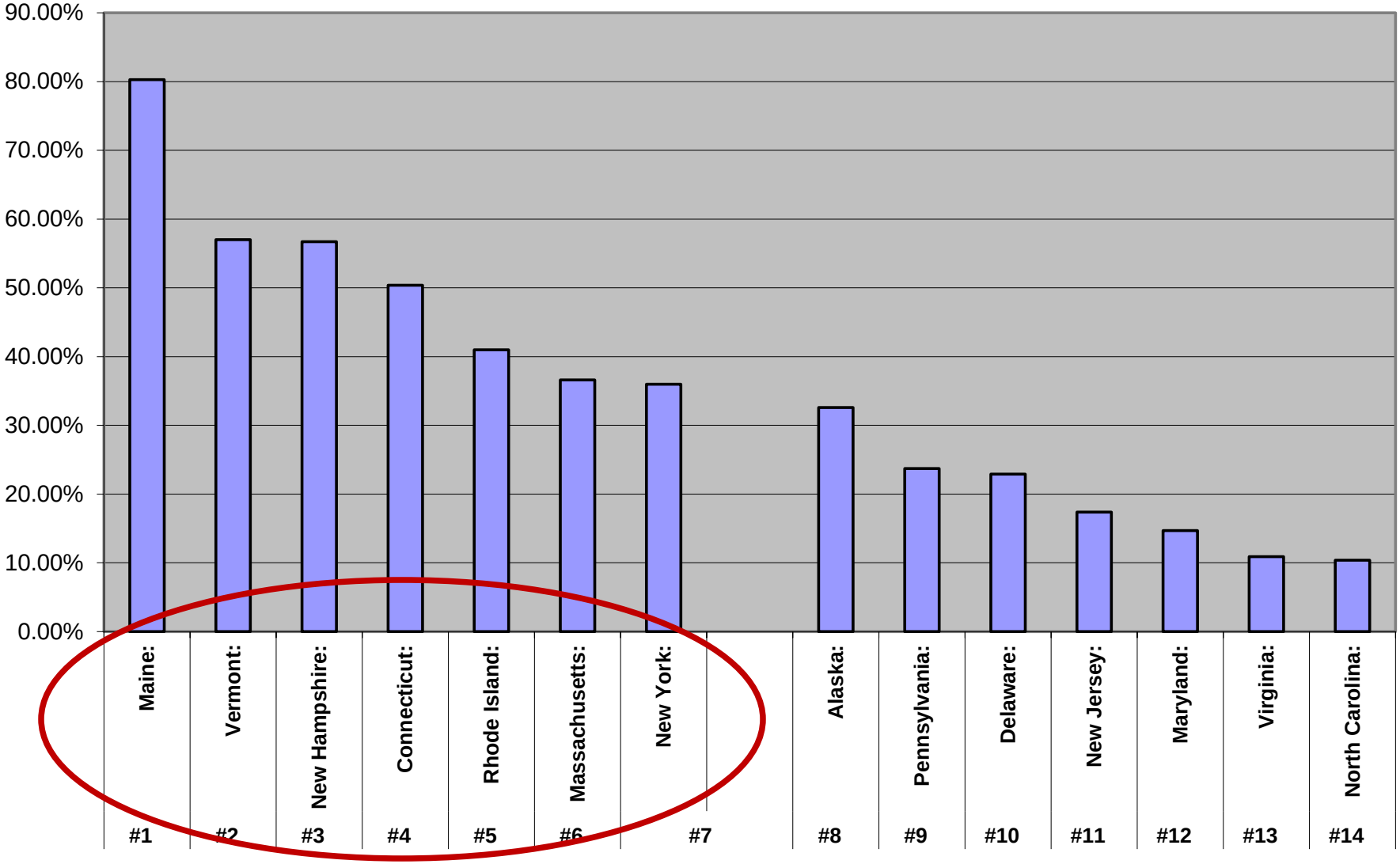
Energy Use Today



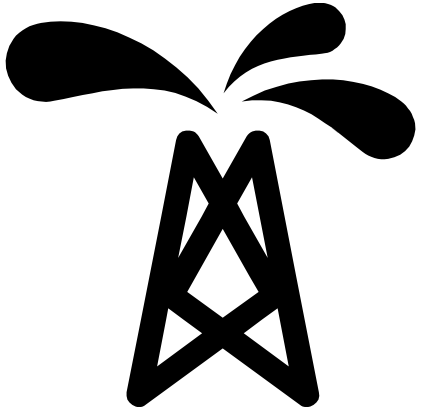
Energy Use Tomorrow



% of Households with Oil as Primary Fuel (2004, US Census)



New York Case Study



- 36% of households heat with oil
  = 2.47 million households
- At 40-year replacement rate = 62K boilers/year are being replaced
- 10% biomass replacement rate/year = 6,200 boilers/year
- Approximate fuel need = 10 T/yr in central heating of average home
- = 62,000 T/yr growth in demand

BTEC

Biomass Thermal Energy Council

- Government and Regulatory Affairs
- Education and Outreach
- Research and Analysis
- Business to Business Networking

www.biomassthermal.org

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Hosted by:
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THANK YOU

For more information:

New England Wood Pellet LLC

cniebling@pelletheat.com

www.pelletheat.com

www.propellenergy.com