



Pellet Fuel Quality, Delivery, and Storage

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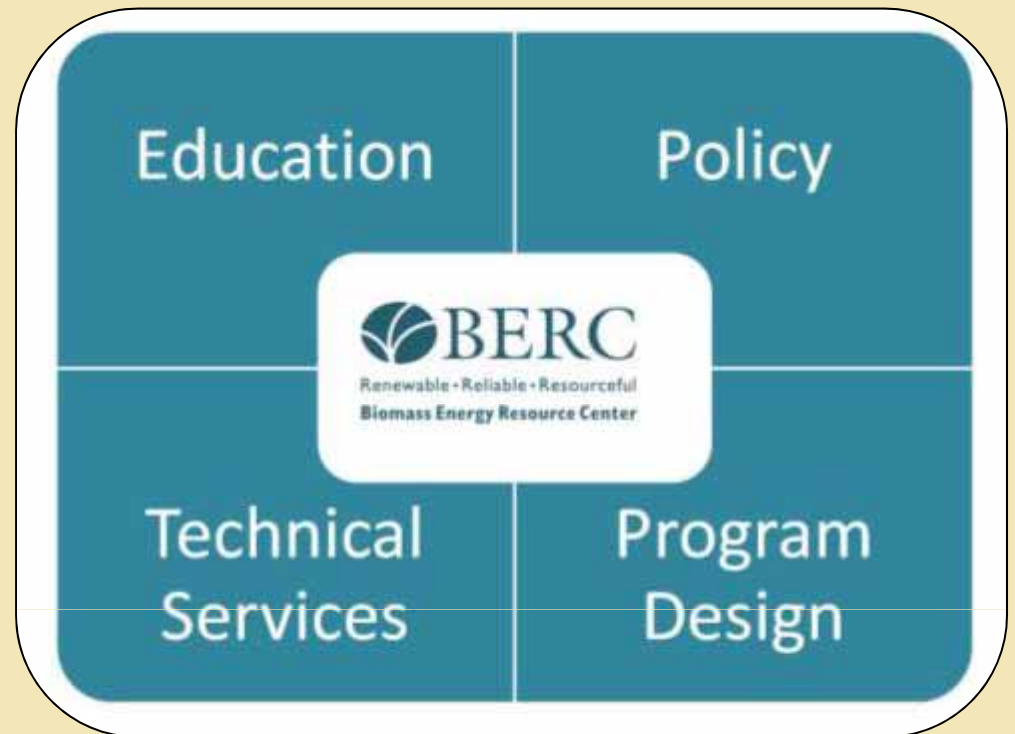


Biomass Energy Resource Center (BERC)

Founded in 2001, BERC is a national not-for-profit organization working to promote responsible use of biomass for energy.

BERC's mission is to achieve a healthier environment, strengthen local economies, and increase energy security across the United States by developing sustainable biomass systems at the community scale.

BERC partners include communities, colleges and universities, local state and federal governments, businesses, utilities, schools, institutions, other conservation and energy nonprofits, energy offices, and federal organizations.



Pellet Fuel Quality

- Not all pellets are created equal
- Pellet fuel quality impacts system performance, maintenance, emissions, and reliability
- Changing PFI standards (to be finalized in 2012)

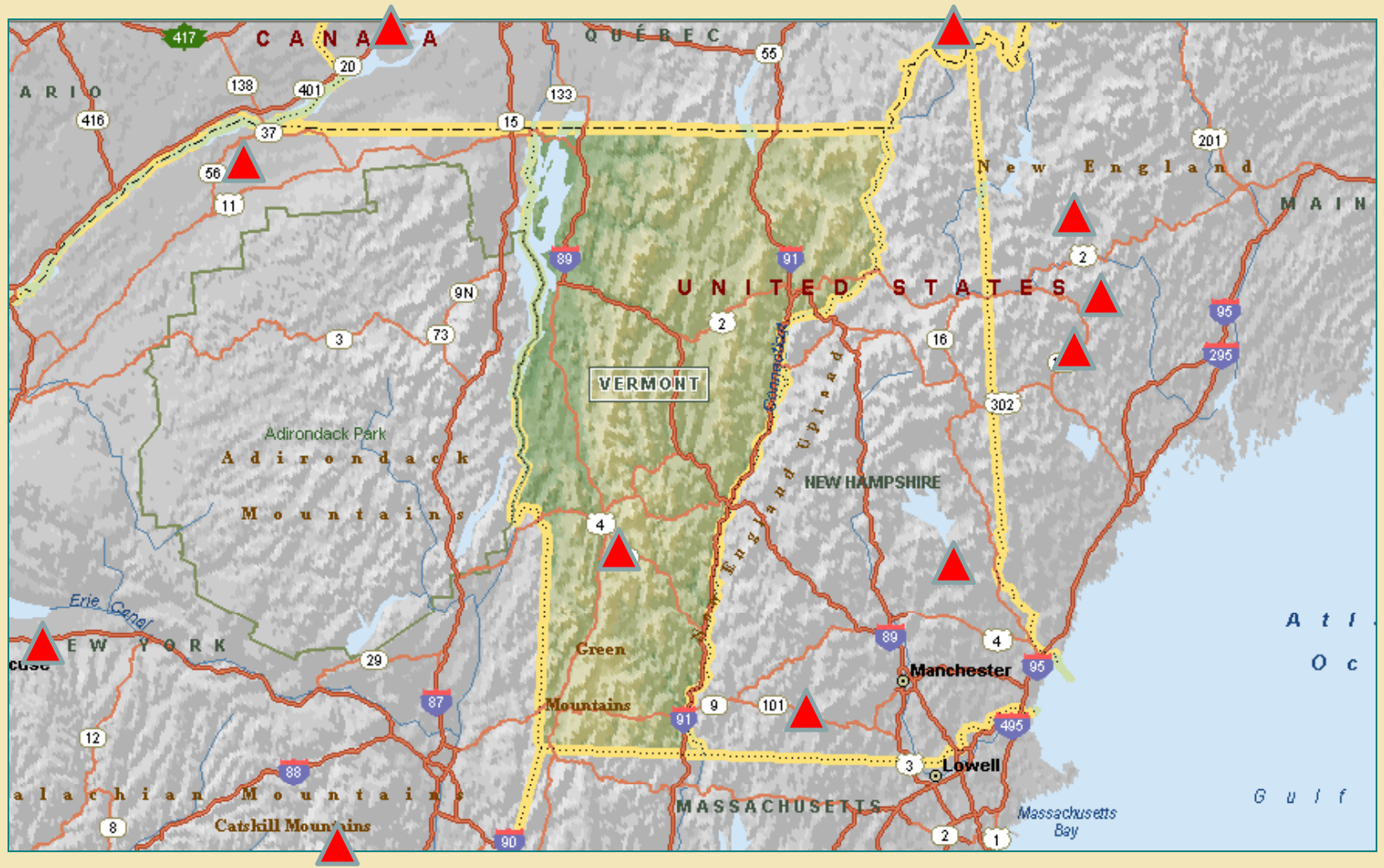


PFI Pellet Quality Standards

	Super Premium	Premium	Standard	Utility
Bulk Density (lbs/ft ²)	40.0 - 46.0	40.0 - 46.0	38.0 - 46.0	38.0 - 46.0
Durability Index	>97.5	>97.5	>95.0	>95.0
Fines (% at mill gate)	<0.50	<0.50	<0.50	<0.50
Inorganic Ash Content (%)	<0.50	<1.0	<2.0	<6.0
Moisture	<6.0	<8.0	<8.0	<10.0
Chloride (PPM)	<300	<300	<300	<300
Heating Value (Btu/lb)	>8,000	>8,000	>8,000	>8,000

Source: <http://www.woodpellets.com/Pellet-Fuel-Standards.aspx>

Regional Pellet Production and Availability



Pellet Fuel Manufacturing

Currently only one pellet mill in Vermont:

- Vermont Wood Pellet located in Clarendon, VT
- Produces approx. 20,000 tons/yr

Rest of supply is imported:

- Quebec
- New Hampshire
- Maine
- New York
- and beyond

There is a growing number of brokers and pellet distributors in the region.



Traditional Bulk Pellet Delivery



Bulk Delivery Advancements

- Use of pneumatic systems
- Reduced pellet breakage during delivery!!!
- Dust control systems for indoor storage bins are essential
- On-board scales = accurate measure of every delivery



New Pneumatic Bulk Pellet Delivery

Newton Pellets



Vermont Renewable Fuels



Maine Energy Systems



Sandri Energy



Loading Bulk Pellet Trucks at the Pellet Plant



Bulk Pellet Storage Options



Outdoor grain silo bin



Rigid metal bins



Timber-framed fabric bins



V bottom rigid bin in storage room

Pneumatic Pellet Delivery Ports



Fuel Transfer and Dust Control



On-board Scales and Fuel Metering





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