



RENEWABLE THERMAL: PURSUING THE POLICY PIPELINE

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Northeast Sustainable Energy Association | G338

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Session Description

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- ***Renewable Thermal: Pursuing the Policy Pipeline***
- In a region heavily dependent on natural gas and heating oil, how are renewable thermal alternatives being pursued? Hear the latest from policy experts in 3 states on the transition of a fuel oil company to an energy company from CT, biomass and cold-climate heat pumps in VT and a coordinated thermal strategy in MA.

Energy Futures Group Consulting

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Areas of Expertise

- Policy Development
- Program Design
- Building Codes
- Evaluation
- Cost-Effectiveness

Range of Clients

- Government Agencies
- Advocates
- Regulators
- Utilities

Clients in 20 states/provinces plus regional, national and international organizations.

Presentation Overview

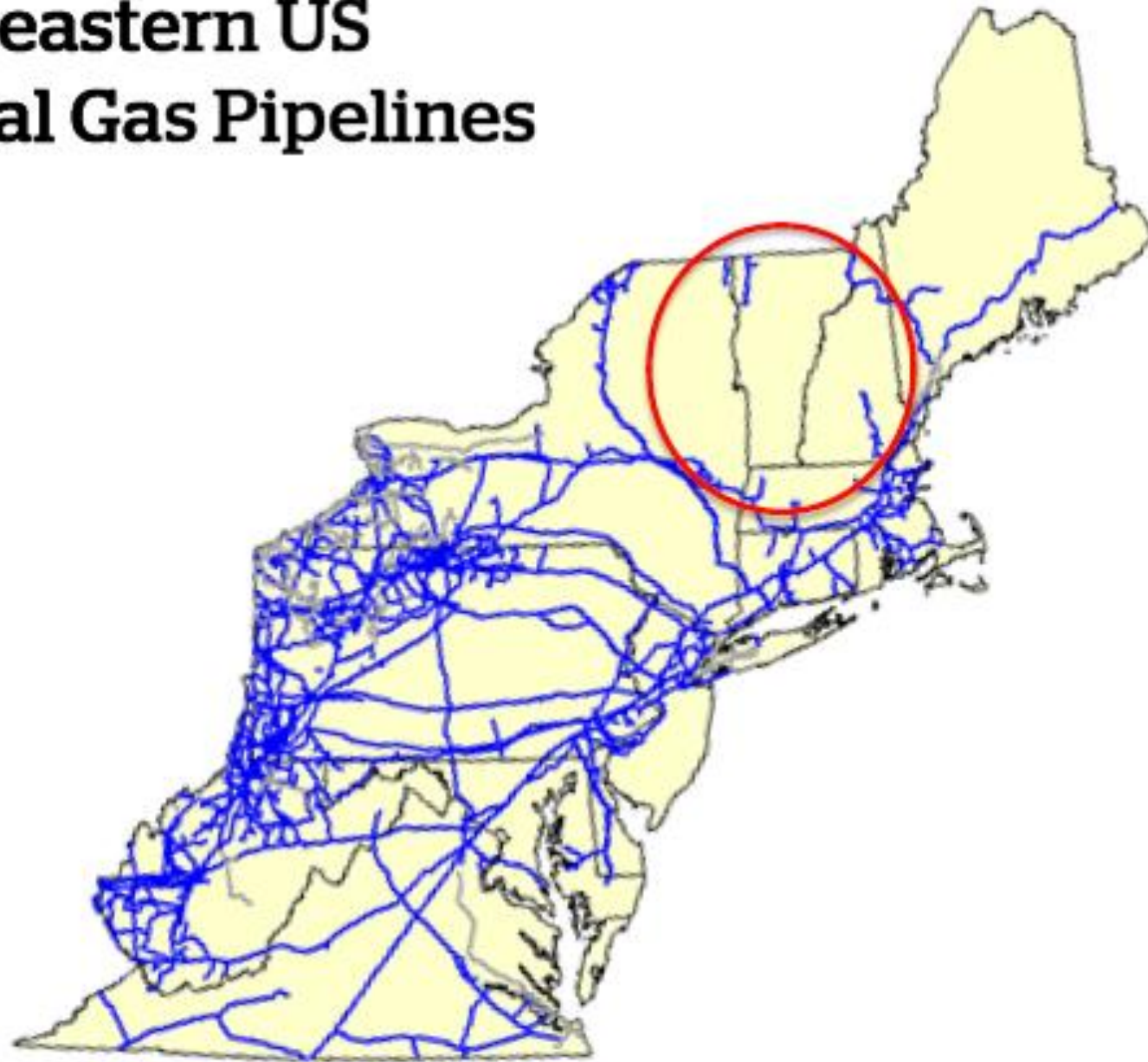
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1. Vermont's Energy Situation and Policy
2. Biomass
3. Cold Climate Heat Pumps
4. Efficiency Excellence Network – The Evolution of VT Fuel Dealers

Heating Oil Dependence in Northeastern US

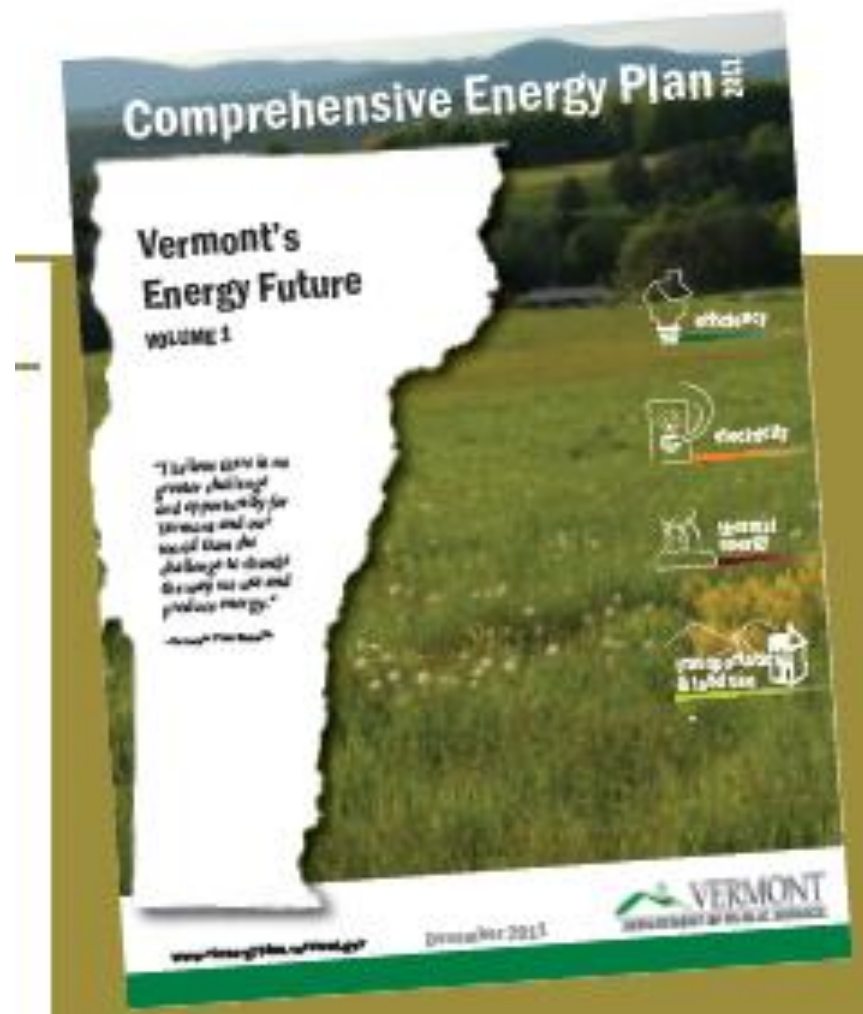
	Annual <u>Million</u> <u>Liters</u> of Heating Oil ¹	Population ²	Liters Oil/ Capita
Connecticut	2,131	3,500,000	609
Maine	1,356	1,300,000	1,043
Massachusetts	2,318	6,646,000	349
New Hampshire	1,054	1,320,000	798
New York	6,104	19,570,000	312
Pennsylvania	2,467	12,763,000	193
Rhode Island	611	1,050,000	582
Vermont	707	626,000	1,129
Total/Average	16,748	46,775,000	358

Northeastern US Natural Gas Pipelines



Vermont's Comprehensive Energy Plan

- **90% of our total energy from renewable sources by 2050**



Solar Farm : Shelburne, Vermont



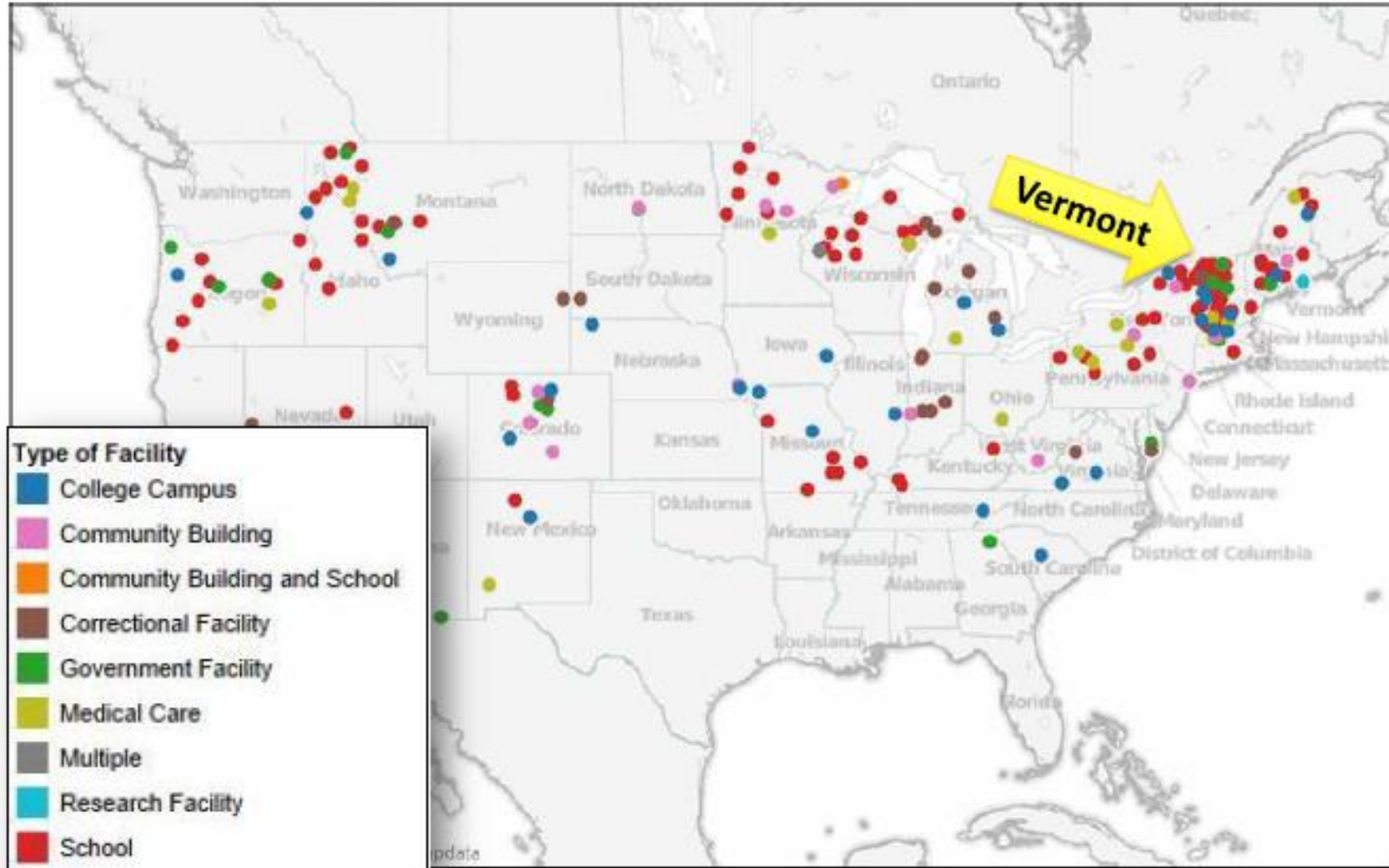
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Biomass: Vermont & Upper Austria

Vermont Wood Heat Stats

- ❑ Wood fuels account for 15% of Vermont's space heating demand today
- ❑ Vermonters currently use over 800,000 green tons of wood fuel to displace over 40 million gallons of heating oil annually – saving nearly \$150 million in avoided oil costs and investing over \$40 million into the local economy.
- ❑ 32% of Vermont children attend a school heated with wood
- ❑ 28% of under-graduate college students in Vermont attend a school with a biomass heating system.
- ❑ The City of Montpelier (in partnership with the State of Vermont) is developing the first district heating system in the state.
- ❑ Vermont has ambitious renewable energy goals BUT still leads the nation in the per capita consumption of heating oil (300gallons/person/yr) or 186 million gallons
- ❑ Vermont is 80% forested and we have the wood resources to displace another 26% of the remaining use of heating oil – the balance can be met with efficiency and other renewables.

Community-scale Wood Heating Systems in the US



Modern, Automated Biomass Heating Installations in Vermont

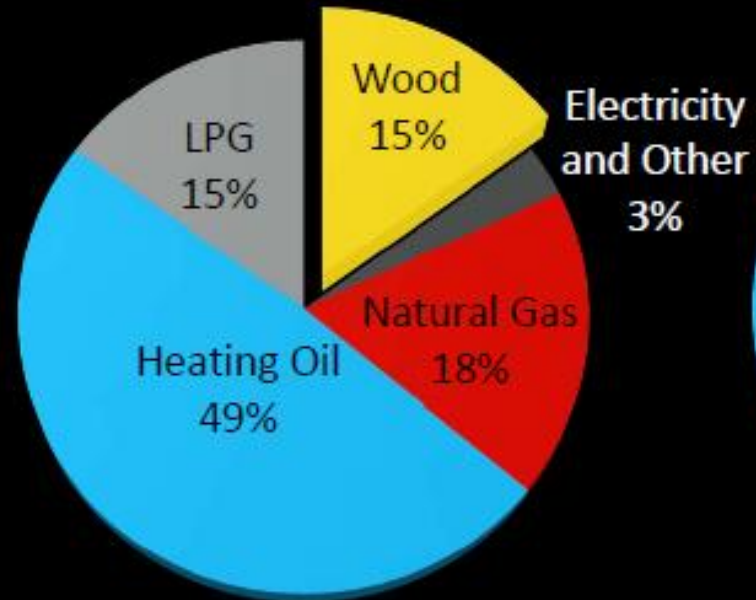
Building Type	Number of Installations
District Heating systems	1
Businesses	8
College Campuses	5
Low-Income Multi-Family Complexes	16
Public Buildings	13
Schools	46
Bulk Pellet Residential Boilers	120+
Total	208



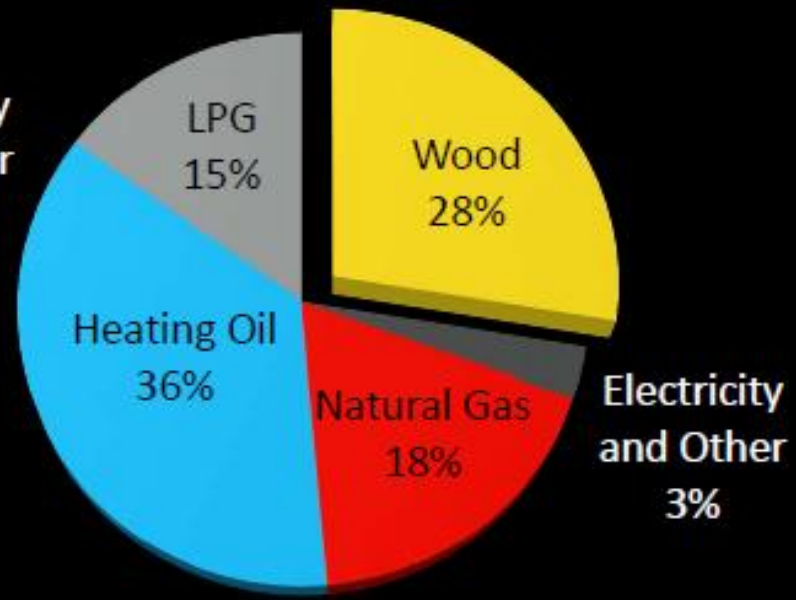
Opportunity for Biomass Heating Expansion in VT

Vermont's Additional Forest Resource Capacity = 900,000 Green Tons/Year

Heating Fuel 2011



Expanded Use of Wood Fuel



Source: VPIRG Clean Heat Report & EIA consumption data

Pneumatic Bulk Pellet Delivery



Upper Austria Wood Heat Stats

- ❑ 1.9 million population (about the size of CT)
- ❑ 1 of 9 states in Austria
- ❑ 33.4% of total energy came from renewable energy in 2010
- ❑ Biomass 14.6% of total energy and biomass thermal is 33% of total thermal
- ❑ Goal of 100% renewable energy space heating by 2030!
- ❑ Over 40,000 automated biomass boilers in residential commercial, and institutional buildings
- ❑ Over 300 small- medium scale biomass district heating plants owned/operated by farmer cooperatives who provide the fuel.
- ❑ A robust biomass equipment and service industry based in Upper Austria – creating 4,500+ jobs in the state.

Sources:

http://nebioheat.com/pdf/Biomass_heating_2010.pdf

http://nebioheat.com/pdf/Biomass_heating_2010.pdf

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Cold Climate Heat Pumps

Cold-Climate Heat Pumps



Cold-Climate Heat Pump Program Incentive Amounts

	DUCTLESS*	CENTRAL
First Indoor Unit	\$750	\$500/ton
Second Indoor Unit	\$500	\$500/ton
Integrated Controls	\$250	\$250
Integrated DHW System		\$500



Photo courtesy of Turtle Creek Builders, Waitsfield, VT

Heat Pumps & Energy Efficiency

- One of the top Home Performance contractors in VT
- Installed 100 ductless heat pumps along with efficiency jobs in 2013

HOME ABOUT US SERVICE TESTIMONIALS CONTACT US

Weatherization Works

Efficiency Vermont's 2010 & 2011 "Best of the Best" ENERGY STAR Award recipient.

Friends & Partners

We use only the best materials available. Here is some of our suppliers and partners.

- EFI
- Demilec
- RK Miles
- Efficiency Vermont
- La Valley Building Supply
- Mitsubishi Electric

Featured Solution

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Weatherization Works
Our 2014 Efficiency Vermont Award Winner. Our thank you to our staff.

Welcome!

Weatherization Works has been serving Vermont communities since 2005

An energy audit is a diagnostic analysis on your home or business and its efficiency. The audit consists of a series of tests that tell you exactly how inefficient your home is and how much money your losing each month due to these inefficiencies.

[We Install Cold Climate Heat Pump /Mini Split](#)

Testimonials

Our advertising is our happy customers. Here are just a few.

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WCAX interview

Bill gives some expert advice on cutting home heating costs.

[Watch Video](#)

Services We Supply

We supply a variety of services to help keep your home efficient.

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Fuel Dealers



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Jackman's Home Heating Supply Company

We offer Budget Plans and Pre-Buy Plans allowing our customers to budget costs for their total Energy needs. We deliver within the Five Town area of Bristol, Lincoln, New Haven, Monkton, and Starksboro in Addison County, Vermont. We are also now servicing the areas of Middlebury, Hinesburg, and Ripton Vermont. Details on our plans...

Jackman's Products & Services:

- #2 Fuel (Home Heating Oil)
- Kerosene
- LP Gas
- Wood Pellets(LG & Currans)
- Bio Heat
- Coal
- On and Off Road Diesel - retail pumps at our office in Bristol, VT!
- Installation of Heating systems, Gas Hot Water Heaters and L.P. room heaters
- Furnace Service
- Hot Water Tank installation and service
- Firewood
- Pellet Stoves
- Generac Generator Dealer
- Mulch
- Eco Logs
- Animal Bedding Pellets

Furnace Failure? If your furnace system fails during the winter, we have the ability and equipment to provide you with temporary heat.

New customer? [Click here](#) to fill out a Credit Application prior to service or deliveries.

Winter Storms- Please check all exhaust vents, air intakes and fill-pipes, after winter storms dump snow. It can save you a no heat call, or possible health hazards like carbon monoxide poisoning.

Solar Panels

We now offer solar panels for domestic hot water. The panels that we offer can make up 51 gallons a day per panel for hot water. Its a drain back system so that eliminates the use of glycol, which makes it a more hassle free system. for more info give us a call at the office, 802-453-2381 .



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■ AC Equipment

■ AC Service Agreement



Cooling

[View Air Conditioning Equipment](#) | [Free Estimate](#)

High Efficiency Air Conditioning tax credit is 10% of cost up to \$500 or a specific amount from \$50 - \$300... [MORE](#)



Need an AC Tune-Up? Tune Up Includes:

- Check refrigerant levels
- Clean or replace air filters
- Clean evaporator coil
- Check and oil blower motors
- Clean condenser



Request/Schedule your tune up appointment below or call [800-326-8763](tel:800-326-8763)



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ENERGY CHECK-UPS

BUY WOOD PELLETS



Vermont Heating Services:

Furnaces

Boilers

Pellet Stoves, Furnaces and Boilers

Heat Pumps

Oil Tanks

The Co-op Guardian Plan

Natural Gas Conversions

Space Heaters

Water Heaters

Heating FAQs

Vermont Heat Pump Service

Our new Mitsubishi heat pumps will keep your home warm in winter and cool in summer - and cut your oil bills by at least 40%. They work like a refrigerator in reverse. Coupled to your furnace or boiler, these heaters work down to sub-zero temperatures in the winter to bring the heat from outside to warm your home. In the summer, they send heat back outside to keep your home cool and comfortable. This technology is catching on fast:

- Heat pumps are much more efficient than window air conditioners and traditional furnaces.
- Operating costs are about 50% lower than oil or propane furnaces.
- The equipment comes with a filter system for cleaner, healthier air inside your home.
- Our heat pumps are whisper quiet.
- 10% discount for current Co-op Guardian Plan members.*
- **Ask us about 0% financing.**



We are now installing Mitsubishi and Fujitsu heat pumps. For more information, including a free estimate, send an email to [Wayne Thompson](#), our service manager.

* Not available with any other offer. 10% discount available only for members with [Co-op Guardian Plans](#) active at the time of initial inquiry.

People are talking about heat pumps

I'm very happy with my Fujitsu heat pump. It keeps my house warm and comfortable. I checked its performance recently and found that I used \$2 worth of electricity to save about \$11 of heating oil."



SERVICE AREAS

Enter ZIP code below to learn if we service your area:

ZIP Code

SUBMIT



KEEP IN TOUCH!



BECOME A MEMBER

ENERGY CHECK-UPS

BUY WOOD PELLETS



Vermont Heating Services:

Furnaces

Boilers

Pellet Stoves, Furnaces and Boilers

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Wood Pellet Stove Repair

Heat Pumps

Oil Tanks

The Co-op Guardian Plan

Natural Gas Conversions

Space Heaters

Water Heaters

Heating FAQs



SERVICE AREAS

Enter ZIP code below to learn if we service your area:

Vermont Wood Pellet Stoves & Furnaces

Our Selection of Vermont Wood Pellet Stoves & Furnaces



Napoleon NPI 45 Fireplace Insert

[click for more information](#)



Napoleon NPS 45 Pellet Stove

[click for more information](#)



Pellergy PB-3550 Wood Pellet Burner System

[click for more information](#)



NewMac Pellet Burner

[click for more information](#)

More and more Vermonters are using wood pellet stoves & furnaces to heat their homes. Here's why:

Wood Pellets Offer Excellent Alternative to Oil, Natural Gas, Propane or Kerosene

Many Vermonters install pellet stoves to reduce their dependence on oil, propane or natural gas and because pellet prices are relatively stable, when compared to those other fuels. Winters in Vermont can be brutally cold so efficient home heating is a high priority concern. If oil or propane prices skyrocket in the dead of winter, homeowners with pellet stoves are able to stay warm without breaking the bank.



Call (802) 860-4090 Now for Pellet Stove, Furnace or Boiler Service

Efficiency Excellence Network

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- Efficiency Vermont's Efficiency Excellence Network (EEN) is designed to encourage contractors and distributors to identify and promote energy efficiency equipment and opportunities in their work.
- Benefits:
 - ▣ Marketing and promotion of EEN contractors by Efficiency Vermont;
 - ▣ Marketing resources, including:
 - ▣ A business listing on EfficiencyVermont.com;
 - ▣ Marketing materials; and
 - ▣ Cooperative advertising opportunities.
 - ▣ In-network training and support;
 - ▣ Leads and referrals from Efficiency Vermont.









Efficiency Excellence Network

The Efficiency Excellence Network (EEN) is designed to encourage fuel dealers and heating, ventilation & air conditioning (HVAC) contractors to identify energy efficiency opportunities and to partner with Home Performance with ENERGY STAR® contractors to complete energy efficiency projects. The EEN makes it easier for home owners to save money on their energy bills as participating members have been trained to discover energy saving opportunities and can help guide homeowners towards making improvements.

Your Zipcode I want a(n)

Efficiency Vermont does not endorse any particular partner in promoting this service. Efficiency Vermont neither expressly nor implicitly warrants the performance of any partner. Contact your contractor or supplier for details regarding equipment warranties.

NAME	SERVICES	MILES
Energy Co-op of Vermont 73 Prim Rd Colchester, VT 05446 www.ecvt.net 	Services: Ductless Heat Pump Installer Efficiency Excellence Network (EEN) Heating/Cooling Contractor HVAC Contractor Natural Gas Certified Oil Certified Written Reports	Distance: no zipcode entered Map It
Champlain Valley Plumbing & Heating (CVHP) 125 Monkton Rd Bristol, VT 05443 (802) 453-2325 	Services: Efficiency Excellence Network (EEN) Heating/Cooling Contractor LP Certified Oil Certified	Distance: no zipcode entered Map It

Jackman's Inc 32 Pine St Bristol, VT 05443 (802) 453-2381 www.jackmansinc.com 	Services: Ductless Heat Pump Installer Efficiency Excellence Network (EEN) Heating/Cooling Contractor HVAC Contractor Licensed Plumber LP Certified Natural Gas Certified	Distance: 47.7 miles Map It
Champlain Valley Plumbing & Heating (CVHP) 125 Monkton Rd Bristol, VT 05443 (802) 453-2325 	Services: Efficiency Excellence Network (EEN) Heating/Cooling Contractor LP Certified Oil Certified	Distance: 48.2 miles Map It
Dead River Company 1 Putney Road Brattleboro, VT 05301 (802) 254-6095 http://www.deadriverv.com/ 	Services: Ductless Heat Pump Installer Efficiency Excellence Network (EEN) Heating/Cooling Contractor LP Certified Oil Certified	Distance: 57.6 miles Map It
Bourne's Energy 72 Lower Main St. Morrisville, VT 05661 (800) 326-8763 http://www.bournes.net 	Services: Efficiency Excellence Network (EEN) Heating/Cooling Contractor Licensed Plumber LP Certified Oil Certified	Distance: 62.1 miles Map It

Q&A

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