



Andrew Perchlik

[andrew.perchlik@state.vt.us](mailto:andrew.perchlik@state.vt.us)

802-828-4017

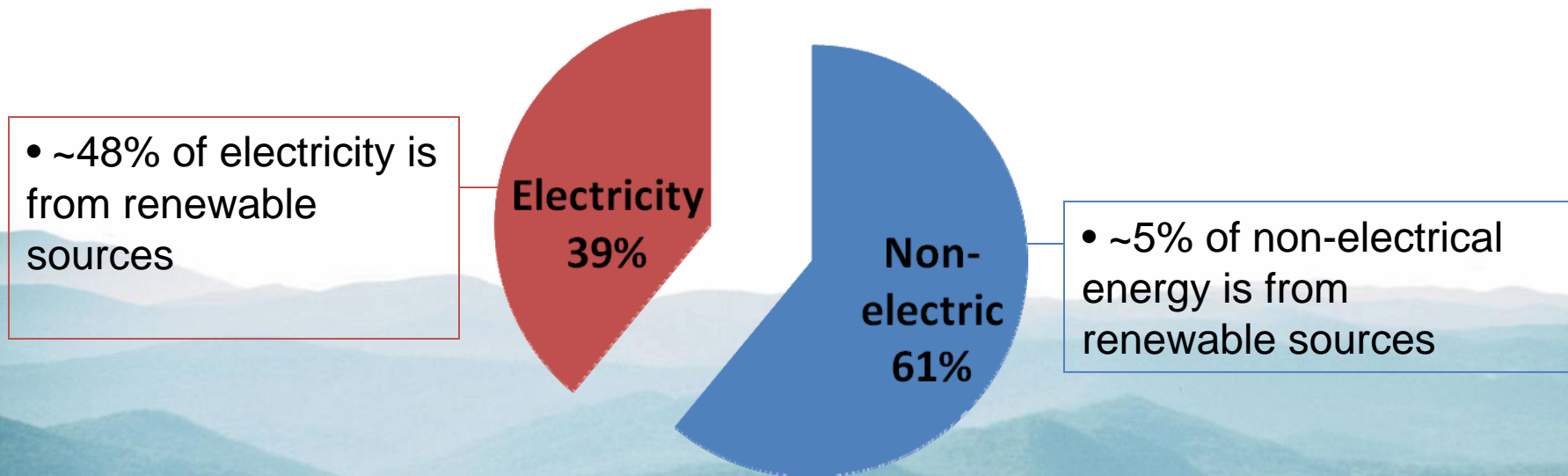
[www.publicservice.vermont.gov](http://www.publicservice.vermont.gov)



	Electricity	Thermal
<b>Biomass</b>		
Wood	Y	Y
Farm methane	Y	Y
Landfill methane	Y	Y
Biodiesel	-	Y
<b>Geothermal –heat pumps</b>	-	Y
<b>Hydro</b>	Y	-
<b>Solar</b>		
PV	Y	-
Thermal	-	Y
<b>Wind</b>	Y	-



# Percent of 2009 Total Energy Consumed

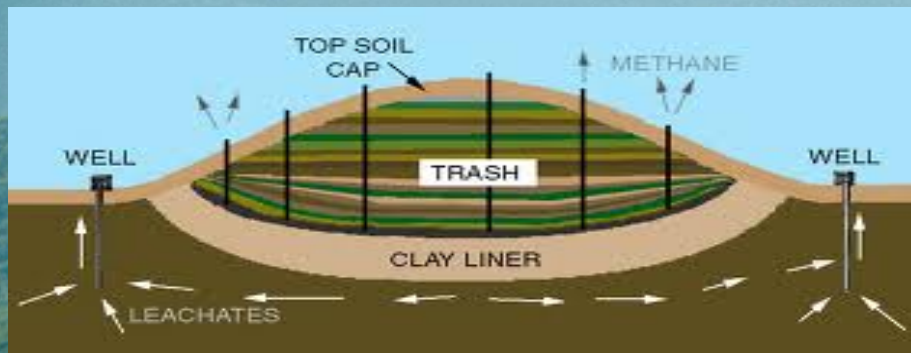


- ~ 23% of total energy is renewable energy

- Legislated goal is 25% from in-state renewable energy by 2025

- SPEED requirement of 5% growth in electric renewable energy by 2012 likely to be met

# Biomass



# Biomass

- ~6.5% of current electric load
- 81 MW of utility-scale generation
- CHP plants at several institutional and commercial sites
- Wood Heat
  - 43 schools, several colleges, many state buildings
  - 315,000 cords/yr used for residential heating
- Farm Methane
  - 9 farm digesters in operation (*~3MW*), more to come in 2011.

# Biomass -continued

- Biodiesel – Actions to promote locally grown seed-oil crops for thermal and/or off-road transportation (*farm*) uses are underway
- Landfill Methane (11.5MW)
  - Coventry (*8MW*), Moretown (*3.2MW*) and Brattleboro (*.3MW*)

# Geothermal Heat Pumps

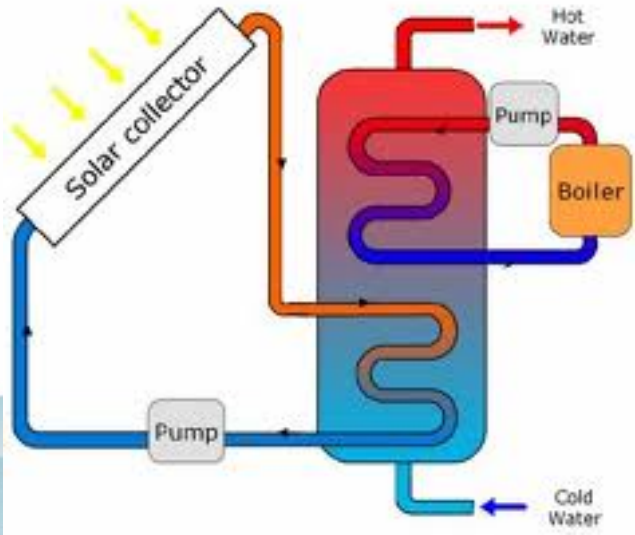
- <1% of thermal load
- Dozens of residential and commercial systems in operation for heating & cooling



## Examples:

- Bennington Office Bldg
- Champlain College
- NRG Systems

# Solar





# Solar

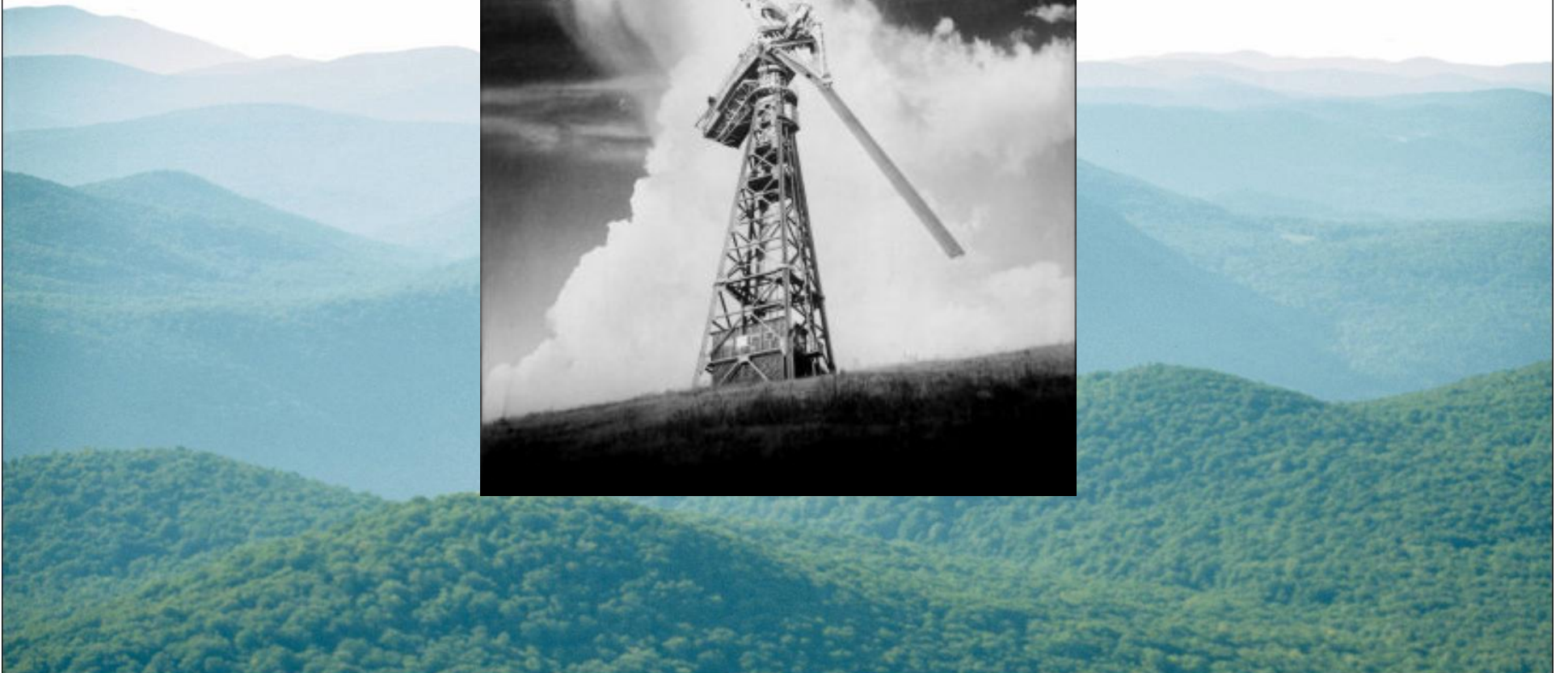
## PV:

- ~.1% of electric load
- 719 net metered PV systems = ~4MW
  - ~1MW additional by 2012.
- Utility-scale systems installed= 1MW
  - ~4.4MW to be installed in 2011.

## Thermal:

- ~500 solar thermal systems installed

# Wind



# Wind

**~.2% of load**

**Current Utility-Scale Plants:  
Searsburg= 6MW**

**CPGs Conditionally Granted for:  
Sheffield = 40MW  
Deerfield= 30MW  
Georgia Mtn= 11MW**

**In Permitting Process:  
Lowell = 63MW**

**145 net metered wind turbines = 1.4 MW**

**If everything above gets built wind power could produce ~6% of total electricity consumed.**



# Vermont's Renewable Energy Future

## Starting Questions on What Should it be?

- Should renewable energy (RE) be promoted?
  - If yes, what technologies? In what locations? What about cost/price compared to non-renewables?
  - Are there technologies that should be added to the list of RE? Should others be taken off?
- Should in-state RE be given preference to out of state RE? Small distributed RE vs. utility-scale centralized RE plants? RE electricity vs. RE thermal energy?

-We want to hear from you-