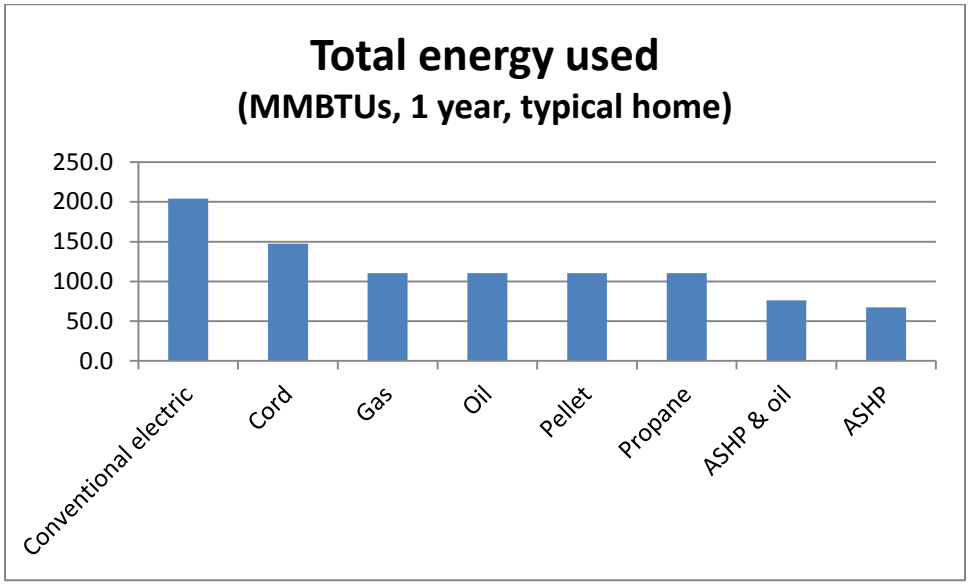
VPIRG Testimony on S.202
April 24th, 2014
Ben Walsh, Clean Energy Advocate (802) 223-5221 ext. 23, ben@vpirg.org

VPIRG supports S.202 as an important step towards Vermont's renewable energy (90% by 2050) and greenhouse gas reduction (50% by 2028, 75% by 2050) goals. Modern, cold-climate air source heat pumps are a key technology to reduce total energy use and help enable a transition of our heating sector to renewable fuels.

"Reducing the state's total energy demand will be an essential component of all technology pathways that achieve the State's greenhouse gas and renewable energy goals."

- Report to the Vermont General Assembly on Progress Toward a Total Energy Approach to Meeting the State's Greenhouse Gas and Renewable Energy Goals, Dec 15, 2013 (PSD)

A few ways of looking at Vermonters' options for home heating

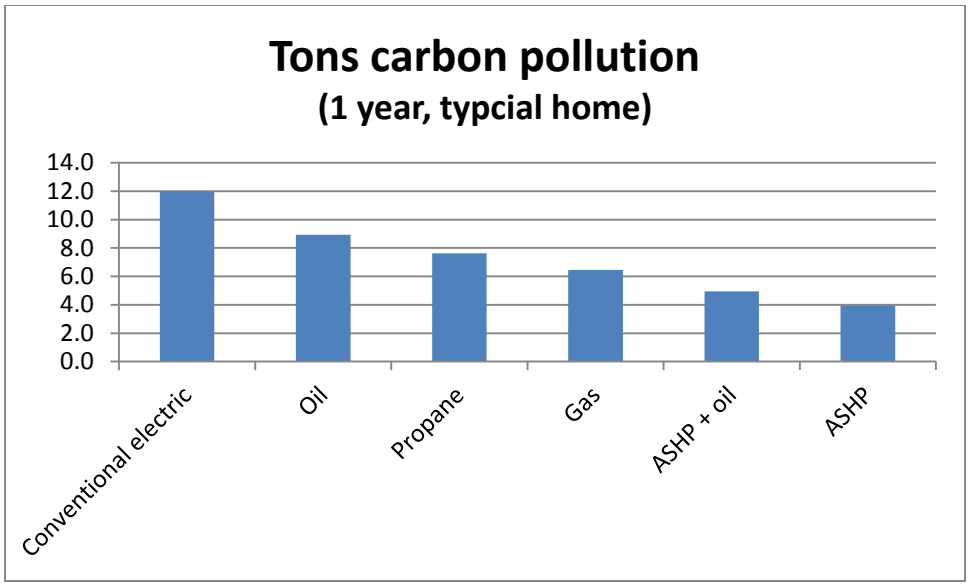


This data takes into account both energy lost in generation of electricity (roughly 55% on average in New England) and in transmission and distribution of electricity (approximately an additional 5% loss). Even taking those losses into account, air source heat pump use results in significantly less total energy use than in-home burning of fossil fuels or biomass. On-site renewable generation would further reduce total energy use.

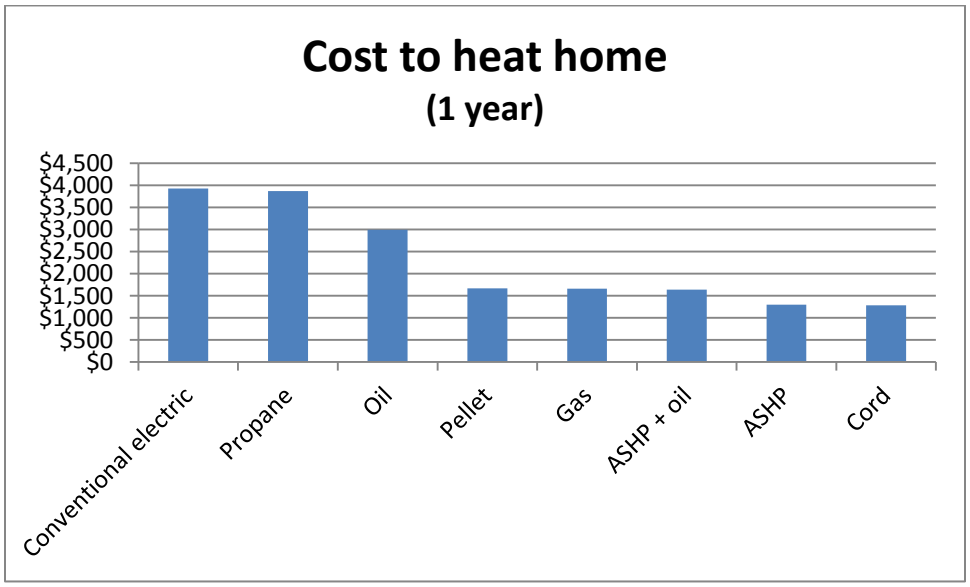
Put another way, air source heat pumps are an efficiency measure.

ISO-NE used for generation losses, EIA data for line losses.

All charts assume heating demand equivalent to 800 gallons of oil a year.
ASHP (air source heat pump) + oil scenarios assume 80% of heat provided by ASHP, 20% by oil.



Total carbon pollution for air source heat pumps is significantly lower than other heating options. This analysis assumes all electricity used emits GHGs at the ISO-NE marginal rate (i.e. electricity primarily from gas and oil); on-site renewable generation would effectively cut those emissions to zero.



Data from PSD Fuel Price Report.

Sources:
Fuel prices & equipment efficiency: VT Fuel Price Report (PSD)
"Typical" home heat use: Comprehensive Energy Plan / PSD
Power plant efficiency/generation losses (heat rate): http://www.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/eag/mtrls/2013/dec202013/draft_2012_emissions.pdf
Line losses: http://www.eia.gov/electricity/state/vermont/ (Table 10)
GHG emissions for fossil fuels: http://www.eia.gov/oiaf/1605/coefficients.html#tbl2
GHG for NE marginal generation: http://www.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/eag/mtrls/2013/dec202013/draft_2012_emissions.pdf