

ENERGY SOURCES

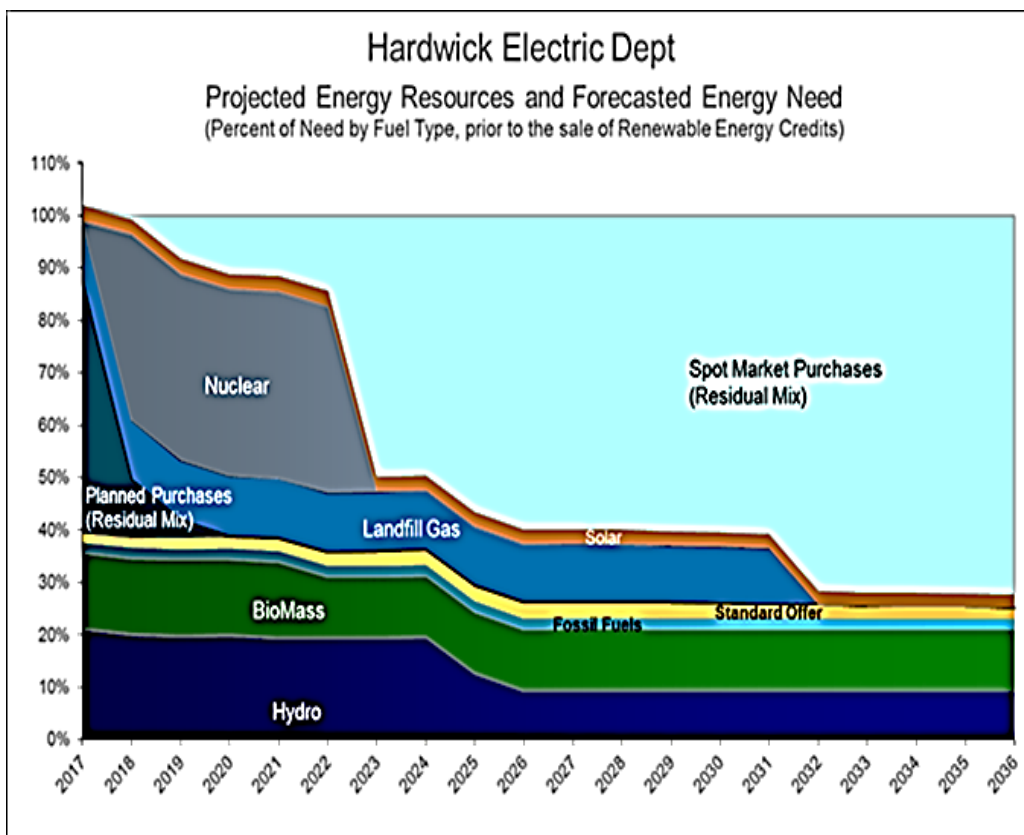
Energy plans are generally grouped into three areas: electricity, heating, and transportation.

Electricity

Electricity can be generated from a variety of sources including hydro, nuclear, and fossil fuels (coal, oil, and natural gas). Other potential sources of electricity include solar, wind, biomass (wood burning), and methane recovery (from landfills and farms).

Hardwick Electric Department (HED) serves 4300 customers in 11 towns with 350 miles of

transmission lines. It owns a hydro-electric generating facility in Wolcott and receives part of its electric power from this facility; otherwise there is no commercial generation in the Town of Hardwick. The remainder of needed power is purchased from various regional and statewide entities



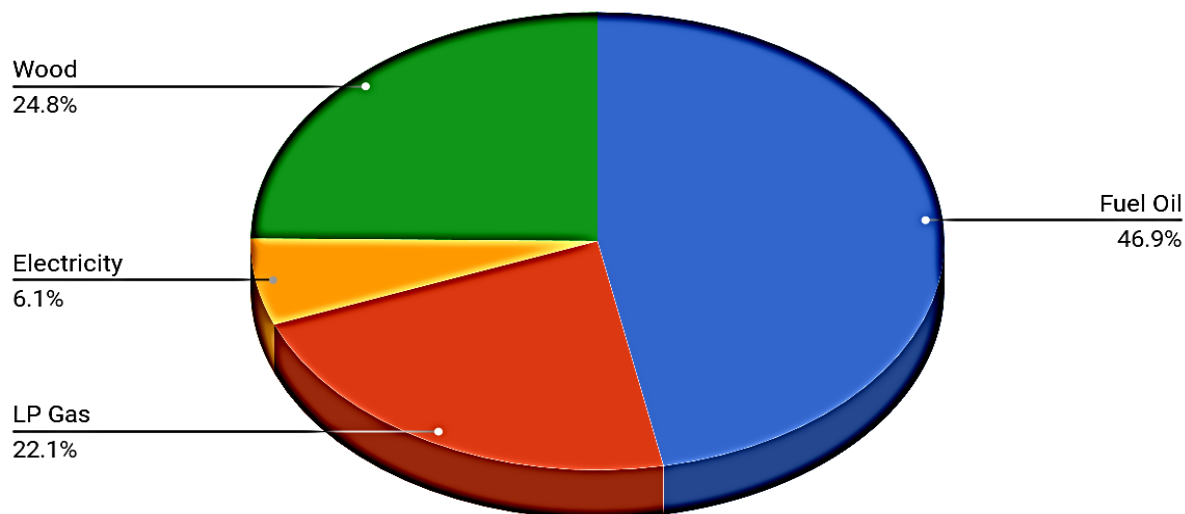
producing power from hydro, natural gas (Massachusetts Municipal Wholesale Electric Company), solar and biomass (McNeil wood burning facility in Burlington and Vermont 'Electric Power Producers Inc.). See chart at left.

There is a possibility of developing a micro-generating station at the site of a dam in Mackville. Old dams in East Hardwick and Nichols Pond offer less potential as future micro-generating sites.

The development of home and community-scale renewable energy is encouraged by the Hardwick Electric Department. There are numerous home related solar arrays in the town and a few windmills that take part in a net metering program. Under examination and on the drawing board are plans for a 1.5 megawatt solar PV power generating facility in a sand pit owned by the town. This facility would produce about 4% of HED's projected future power needs. The Hardwick area is not seen presently as having potential for large scale wind power development.

Heating

The heating of homes and businesses comprises an important sector of energy planning in northern Vermont. The most important source of heat in Hardwick is fuel oil. Wood is the most used renewable source for heating, both as cordwood and as pellets. Its prominence as a primary or secondary source of heat supports a need for local forest management and public education of energy conservation methods. The following chart from the 2015 American Community Survey 5-Year Averages summarizes current use of heating fuels in Hardwick.



Transportation

Walking and biking presently provide a minor role in transportation. Plans are in development to expand these non-motorized modes of transportation. The bulk of energy needs for transportation are provided by fossil fuels. There is a need for the development of public transportation, especially between Hardwick and nearby communities in Vermont.

Energy Consumers

Municipal Facilities and Services

Presently the Town of Hardwick spends a significant part of its budget on the energy needs of schools, public buildings, and the town highway department. There are efforts to upgrade vehicles, equipment, and buildings to provide more efficient use of energy.

Residential, Commercial, and Industrial

The Town of Hardwick has voted to become a Clean Energy Assessment District, which allows residential properties to participate in the Property-Assessed Clean Energy (PACE) program. The PACE program is a way of financing energy efficient home improvements by borrowing money and tying the payments to the property rather than the owner. PACE financing payments can be transferred to a new homeowner at any time, even before the assessment has been paid off. Transferability helps to ensure that investments will serve current property owners in the short term, and provide future residents with lower energy bills and improved comfort. Projects may include, but are not limited to whole home air sealing and insulation, window retrofits, heating system upgrades, water heater replacements, pellet boilers, and renewable installations such as solar, wind and geothermal. PACE also improves the housing stock of the town, contributes to the town's energy goals, and promotes job growth in the field of energy efficiency. Currently, the PACE program, administered by Efficiency Vermont, is on hold.

Goals, Policies, & Recommendations

GOALS

- To increase the proportion of locally-generated energy from renewable sources, whether for heating, electricity, or transportation.
- To promote energy efficiency and conservation in the design, construction, and use of municipal, commercial, industrial, and residential structures.

POLICIES

- Hardwick supports its residents in using wind and solar to generate electricity locally provided scenic and aesthetic concerns are met.
- Hardwick encourages the development of home and community-scale renewable energy.

ACTIONS & RECOMMENDATIONS FOR IMPLEMENTATION

- The Select Board and School Board should continue to realize energy savings through energy audits of all municipal buildings and the use of life cycle costing practices that incorporate long-term energy savings in the fiscal analysis of facility construction and equipment purchases.
- The town should consider establishing a new energy reserve fund that will help cover the

cost and leverage other funds for planned improvement projects to improve energy efficiency.

- The Select Board should participate in Section 248 hearings that relate to projects within the Town to review applications and assure that the requirements as set forth in the Town Plan are met.