Energy Alternatives in Upper Freehold Township

Presented to the
Upper Freehold Township
Environmental Advisory Committee
April 14, 2008

by

Walter Helfrecht
Resident

Order of Presentation

- Alternative Energy Sources that have applicability in New Jersey
- Alternative Energy Installations in Upper Freehold Township
- Getting the Word Out

Alternative Energy Sources

Alternative Energy Sources

- Solar
  - Passive & Active Space Heating
  - Photovoltaic (PV) Electrical Generation
  - Working Fluid Domestic Water Heating
  - Working Fluid / Direct Pool Water Heating

Alternative Energy Sources

- Fuel Cells
  - Electrical Generation
- Wind
  - Electrical Generation [not a big player in inland New Jersey]

Alternative Energy Sources

- BioMass
  - Ethanol (Liquid; type of alcohol added to gasoline for reduced emissions)
  - Methane (Natural Gas)

These fuels are produced from cellulosic materials such as grass clippings, shredded leaves, husks and stalks, grains, wood chips, etc.

Alternative Energy Sources

- BioDiesel
  - Conversion of waste food oils to clean-burning diesel-type fuel
  - By-product is Glycerin; used in soaps, cosmetics, and pharmaceuticals

Alternative Energy Installations

Alternative Energy Installations

- Table of Solar PV Installs

BPUAPP_ID	TYPE	SYS KW	LAST NAME	INSTALL ADDRESS	INSTALL CITY
BPU-1158	Residential	9.860	BRYSON	29 HUTCHINSON RD.	ALLENTOWN
BPU-3196	Commercial	9.975	DEY	86 HILL RD.	ALLENTOWN
BPU-0248	Residential	3.885	DOHERTY		ALLENTOWN
BPU-1316	Residential	9.620	GRUN		ALLENTOWN
BPU-1937	Residential	11.200	HETMAN		ALLENTOWN
BPU-2497	Residential	9.800	NOBLE	13 HUTCHINSON RD.	ALLENTOWN
BPU-1698	Residential	9.690	REED		ALLENTOWN

Alternative Energy Installations

- Table of Solar PV Installs (cont'd)

BPUAPP_ID	TYPE	SYS KW	LAST NAME	INSTALL ADDRESS	INSTALL CITY
BPU-2233	Residential	7.350	REILLY		ALLENTOWN
BPU-1892	Residential	10.320	ROBERTS		ALLENTOWN
BPU-2447	Residential	6.300	SHARP		ALLENTOWN
BPU-1026	Residential	3.800	STECHNA		ALLENTOWN
BPU-2669	Residential	9.450	TRUESDALE		ALLENTOWN
BPU-2475	Residential	6.400	BUNIAK		CREAM RIDGE
BPU-2056	Residential	6.000	BUSALACHI		CREAM RIDGE

Alternative Energy Installations

- Table of Solar PV Installs (cont'd)

BPUAPP_ID	TYPE	SYS KW	LAST NAME	INSTALL ADDRESS	INSTALL CITY
BPU-1434	Residential	14.790	INFANTE		CREAM RIDGE
BPU-0617	Commercial	11.040	MEIRS, III	20 HARVEY ROAD	CREAM RIDGE
BPU-0618	Commercial	38.640	MEIRS, III	20 HARVEY ROAD	CREAM RIDGE
BPU-3514	Residential	7.800	MURPHY KOSCO		CREAM RIDGE
BPU-1693	Residential	9.750	STEVENS		UPPER FREEHOLD TWP
BPU-3591	Residential	8.170	HELFRECHT	35 HUTCHINSON RD.	UPPER FREEHOLD TWP
BPU-2408	Residential	9.800	INFANTE		UPPER FREEHOLD TWP

Alternative Energy Installations

- UFRSD's New Middle School
  - Application made under the CORE Program for an approximately 64 KW system
  - Also considering inclusion of the design-in of a geothermal heating / cooling system

NOTE: Geothermal is viable in NJ, however, it requires continuous electrical support for pumps and heat concentration equipment in order to provide the desired seasonal comfort level. Therefore, this presentation does NOT include it as a primary alternative energy source.

Alternative Energy Installations

- Passive Heating & Cooling in UFT
  - 29 Hutchinson Rd
    - House built in 1970's.
    - Greenhouse captures E, S, and W sun
    - Doors to house slide open to allow this trapped heat into the living space; green plants process CO_2 via photosynthesis, generating O_2 which cleans the living space air.
    - In summer, house windows are opened along with doors to house and open high-location venting panes in greenhouse begin a chimney effect, bringing cooler air into the house to moderate heat build-up inside the residence.

Alternative Energy Installations

- Passive Heating & Cooling in UFT
  - 29 Hutchinson Rd (cont'd)
    - Uses wood-fired stove to provide main heat in the winter; small fans circulate heat to other parts of the house.
    - Wood-fired stove exhaust heat is reclaimed to the house.
    - Clothes dryer exhaust vent heat is reclaimed to the house during winter; by-passes to outdoors in warm weather.

Alternative Energy Installations

- Solar Domestic Water Heating in UFT
  - 35 Hutchinson Road
    - Installed when house was built (~1993)
    - Off-peak electric back-up for cloudy periods
    - “Working Fluid” is propylene glycol, a food-grade anti-freeze.
- Solar Working Fluid / Direct Pool Water Heating
  - 2 Hill Road
    - Installed 2007
    - Direct Heating of Swimming Pool water; extends season!
- Solar PV Electric Install in UFT
  - 35 Hutchinson Road
    - Website Link

Getting the Word Out

Getting the Word Out

- **Websites** are good
  - A sub-site on the UFTNJ.COM site
  - A stand-alone township-owned site with unique URL & linked on the UFTNJ.COM site
  - A privately-owned / shared site linked on the UFTNJ.COM site
- **Print media** is good, too
  - Local dailies & weeklies
  - Write a feature story about our township's interest in promoting alternative energy technology for new developments.

Getting the Word Out

- **Word-of-Mouth** creates a “buzz”
  - Yack it up in conversation with neighbors.
  - Discuss possibilities for new UFT businesses that are a part of the solution to curb foreign oil imports, thus making us truly energy independent.
  - Discuss possibilities to make sustainable agriculture in UFT part of the energy picture.

“Thank You”
for your invitation
to speak
on this subject
this evening!