

Hollis Energy Committee

Town of Hollis

Venu Rao

March 13, 2019

<https://www.youtube.com/watch?v=2b3ttqYDwF0>



75% of the Atmosphere is only 0.08% of Earth's Diameter

The positive proof of global warming.



Hollis Energy Committee

Hollis Energy Committee (HEC) came into existence in September 2009

“To promote energy conservation and efficiency through sustainable energy practices throughout the Town of Hollis”

Hollis Energy Committee

Looking Back, HEC has made couple of smart moves in its early life

- 1. Set up EPA Portfolio Manager and have been updating it**
- 2. Conducted ASHREA Level III Energy Audits**

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Hollis Energy Committee made it their goal to convert all the municipal and school buildings in the the town to sustainable energy sources

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We are aware that to be 100% renewable, we look at three areas:

- 1. Hot water and space heating**
- 2. Electricity and**
- 3. Transportation**

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Hot Water and Space Heating

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Using ASHREA Level III Audit Documents:

- 1. Upgraded electrical fittings in all buildings and, with the help of NRPC, signed PPA and saving Tax payers \$120,000.00 a year**
- 2. When Heating and Hot water systems came to end of their life at Town Hall and Police Station, replaced them with Wood Pellet Burners**
- 3. Not only the acquisition cost was better, the fuel cost for those two builds was halved**
- 4. Most exciting part is, all the fuel dollars are staying local.**

Hollis Wood Pellet Heating System Police Station





**Hollis Police Station
Wood Pellet Silo
(13 Tons)**



**Hollis Town Hall
Wood Pellet Boiler**

Hollis Wood Pellet Heating System Town Hall



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Our Hollis School Board recognized the benefits and last year embarked on Renewable Energy project for both Primary and Upper Elementary Buildings

- Replaced the oil based heating systems with Air Source Heat Pumps**
- Installed 200KW PV Solar Panels to provide electricity for the ASHPs**

On Friday, October 27th, we threw the switch on for 200KW PV Solar System

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- **It is a matter time that Hollis-Brookline COOP School Board also will take up Renewable Energy Project seeing the benefits of Hollis School Board will be enjoying**
- **As the fossil fuel based systems come to the end of their lives in the rest of the municipal buildings, they will be replaced with renewable energy systems**
- **Thus, Hollis is on the path towards 100% renewable energies in hot water and space heating**

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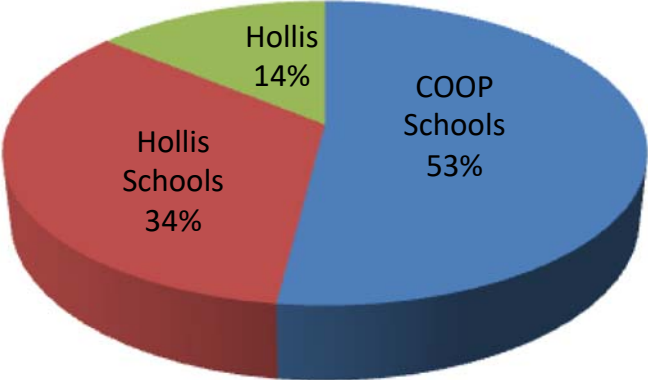
Electricity

Hollis Solar Project

Town Building		KWhs
1	Hollis Brookline High School	760,000
2	Hollis Brookline Middle School	383,460
3	Hollis Upper Elementary School	504,445
4	Hollis Primary School	256,360
5	SAU41 Admin.	26,082
6	Hollis Town Hall	26,490
7	Hollis Police Station	142,080
8	Hollis Fire Station	60,741
9	Hollis Engine House	669
10	Hollis Public Library	40,420
11	Hollis DPW	36,472
12	Hollis Clerk's Office	4,320
13	Hollis Transfer Station	8,680
14	Lawrence Barn	11,940
15	Stump Dump	2,482
16	Farley Building	1,800
Total KWH		2,266,441

**2014 Total
Consumption**
2.27 GWh

Usage Breakdown



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- **Every 100KW capacity PV System needs half an acre land.**
- **100KW PV System provides about 146MWh energy in an year (assumes 4 hrs/day average sunshine)**
- **To meet 2.3GWhs energy need, we need nineteen 100KW PV Systems – About nine acres and a half of land**
- **Hollis owns 30% (6,150 acres) of town land.**

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- **Now that the citizens of Hollis approved 200KW PV Solar System, as they see the continued benefits, they will be encouraged to have more and more of solar farms**
- **To make solar farms possible, we need to update and upgrade our town regulations for land management to facilitate PV Solar farms**

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Transportation

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- **Police Cruisers**
- **Trucks**
- **Heavy Equipments (Back Hoe, exavators, etc.,)**

Tesla pursuing police cruiser market with Model S: report



Simulation of Tesla Model S as a police cruiser

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Let us turn our attention to a related topic

- **When it comes to energy efficiencies and renewable energy policies, Massachusetts ranks #1, and our neighbors to the north are in top five. We rank 27 in the country.**
- **All the States around us have very aggressive policies regarding Electrical Vehicles (EVs).**
- **If we want tourist dollars to keep coming to our State, we need to become EV friendly state in a hurry.**
- **This will result in increase of EVs in our State & need for PV Solar systems in every home**

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- **Not every home is built for solar on the roof**
- **Ground based solar is expensive for home owners**
- **This calls for Community based PV Solar Farms for every one to benefit from solar energy**
- **At Hollis Energy Committee, we are planning to propose changes to PV Solar regulations and building codes to:**
 - **Encourage COOP PV Solar Farms**
 - **Encourage new home builders to consider renewable energy sources (PV Solar, Geo-Thermal, Air-Source Heat pumps, bio-fuel systems, and EV ready)**

Hollis Energy Committee

Hollis Energy Committee Web site:

<https://www.hollisnh.org/energy-committee>

Contact Hollis Energy Committee:

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Lessons Learnt

- **Remember that Energy Committee members are all volunteers**
- **Need patience and perseverance to develop a strong and dedicated Energy Committee Team**
- **If you stick to measuring your progress based on clock, you will be frustrated and may give up all together**
- **Let compass be your guide. Set the right direction and make sure you are moving in the right direction. Clock will follow**
- **Remember that Board of Selectmen, School Board Members and Budget committee members also want to help the town. Approach them as collaborators, not as advisories**

Lessons Learnt

- **Collect last two years energy data for every building in your town**
- **Create an account for your town on EPA Portfolio Manger and enter all the energy data. Keep the data current by entering new data every month (Nashua Regional Planning commission may help you with this)**
- **Look around and apply for grants to perform ASHREA Level III Energy Audits on the municipal and school buildings**
- **Develop an Energy Plan for your town**
- **Brief your stakeholders, such as Board of Selectmen, School Board Members, Budget Committee and SAU Administrators about your Energy Plan**