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Solar | Thermal | Wind

Solar Works Inc
Clean energy. Clear choice.

SolarWrights®
Earth Friendly Energy™

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Green Building circa 1000 A.D.

The First Americans lived with the Sun…

Cliff House Ruin

Mesa Verde NP

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Green Building Today

Today's Green Buildings use solar electric and solar thermal systems to offset majority of non-renewable fuel use.

50% building energy savings are possible with less than 10% increase in construction costs.

"Net Zero" houses are achievable and affordable

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The Solar Energy Resource

- In a single one hour period, the sun sends enough energy to our planet to meet all of our energy needs for an entire year.
- 100,000 kWh a year of solar energy falls on the average residential roof in the Northeast.
- There have been no rate increases for solar energy for the last 4 billion years. ☺

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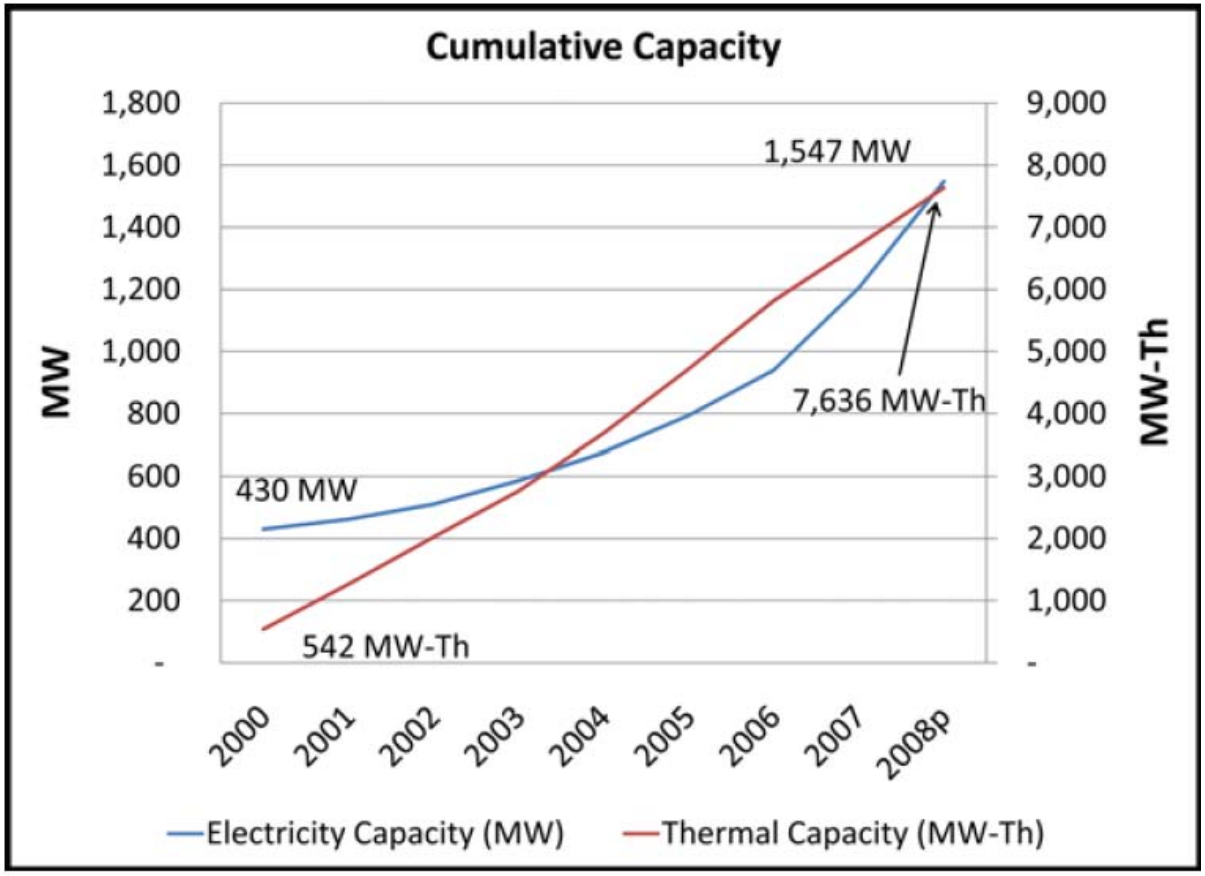
Trends: Solar Capacity Growth in U.S.



Source: Larry Sherwood (IREC), EIA, SEIA, Les Nelson, PV News

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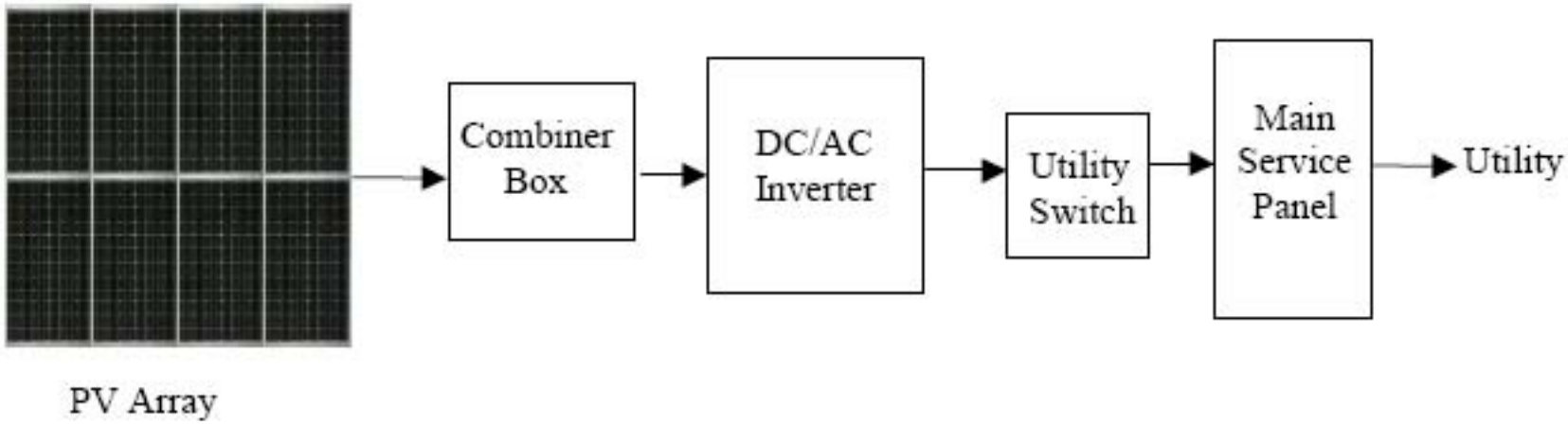
Kantor Net Metered PV System



10.8 kW PV array will produce an average of 12,800 kWh of electricity per year

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Grid-Connected PV Systems

- Grid - connected PV systems operate in parallel with electric utility service. Creating “hybrid house” which runs on both solar and utility electricity.
- Bi-directional interface allows AC power produced by PV system to either supply home electrical loads, or return power back to the grid when PV system exceeds home demand.
- Maintenance-free sealed batteries can be added to provide power to critical loads during utility outages.

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Ground Mount PV Array

48 SunPower high-efficiency modules 225-watt modules

Total array = 10.8 kW

Four 12-module pole mounts to be located in field behind house

Ground Mount example from Bridgewater, CT

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Sunny Boy Inverters

Two SMA “Sunny Boy” 5 kW inverters transform DC power from array into 240 VAC utility-grade power for house.

Inverters include GFI, disconnect switches, and LCD display

Efficiency = 95%

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PV Data Acquisition System (DAS)

- Simple Internet Monitoring via SMA WebBox
  - Access your system info – anytime, anywhere via web browser
- Easy Installation- No Software to Install
  - RS485 communication between inverters
  - WebBox connects via LAN
- Optimize System Performance
  - Automatic email alerts
  - Historical data - view performance over time
- Options Include
  - Solar radiation, module & ambient temp monitoring
  - Flash View for LCD display

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Kantor Solar Thermal System

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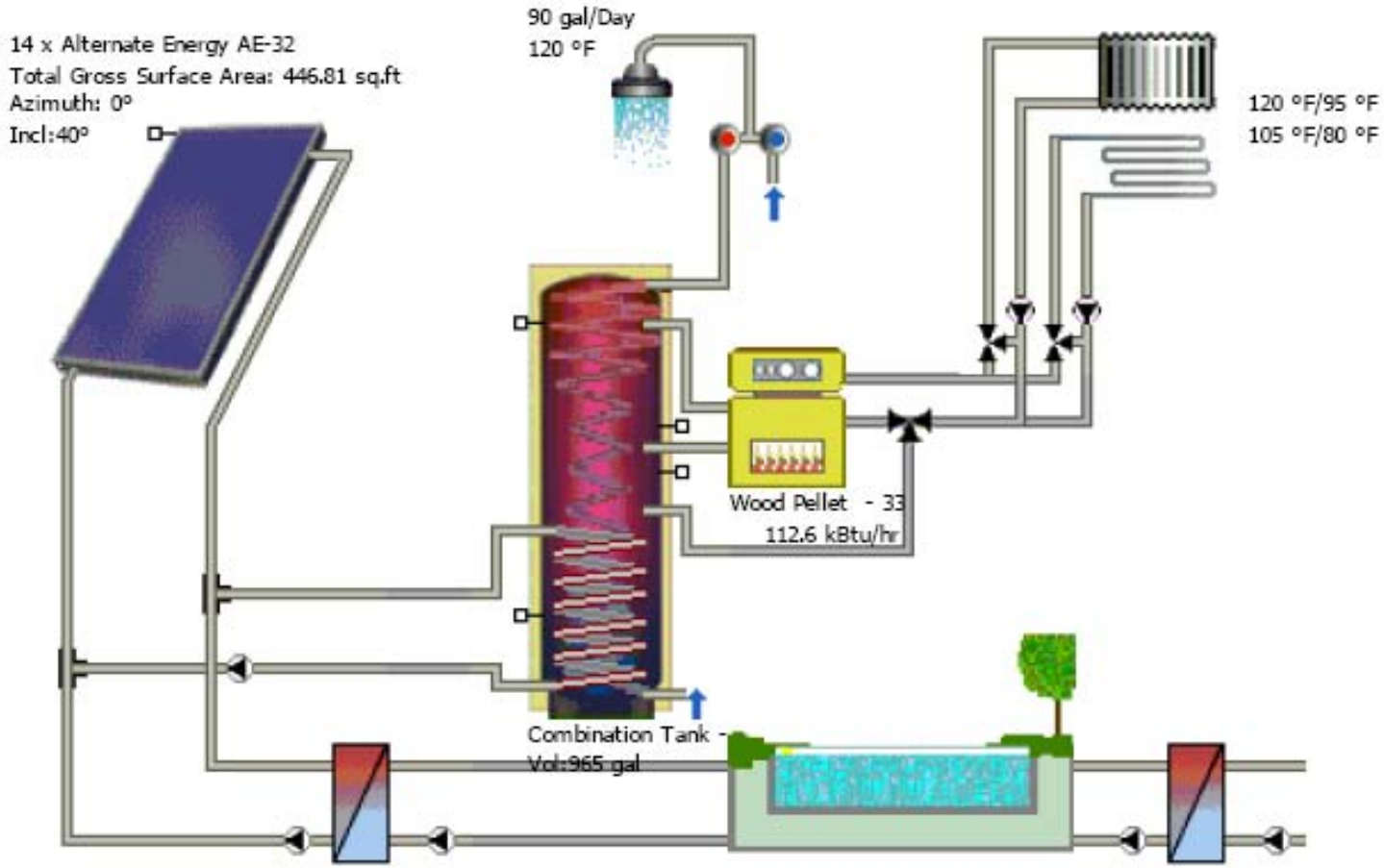
Solar/Wood Integrated System



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STSS Thermal Storage System

- Sizes up to 1,500 gallons
- Non-pressurized tank
- EPDM rubber lining
- Ships as 4 x 12 flat
- Copper coil heat exchangers

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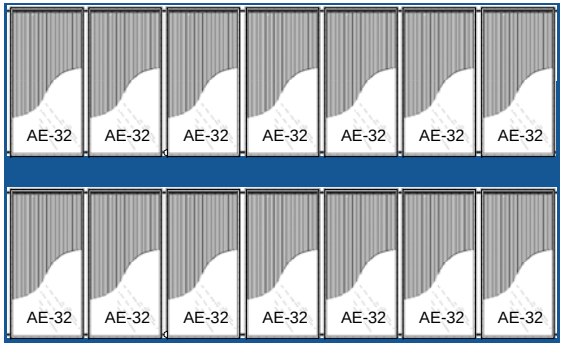
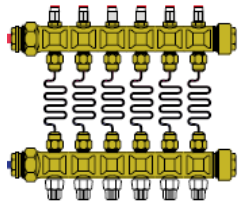
Thermal Staging Concept



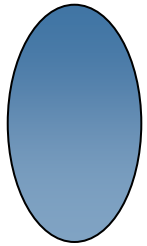
Solar Array: Primary Heat Source

DHW

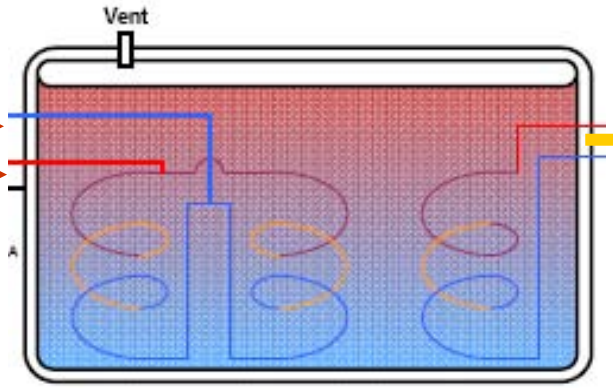
Heat



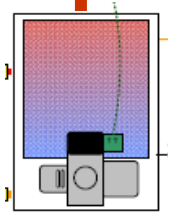
Pool



Pellet Boiler: Secondary Heat Source



STSS Storage Tank: 1,000 gallon Thermal "Flywheel"



Gas Boiler: Backup Heat Source

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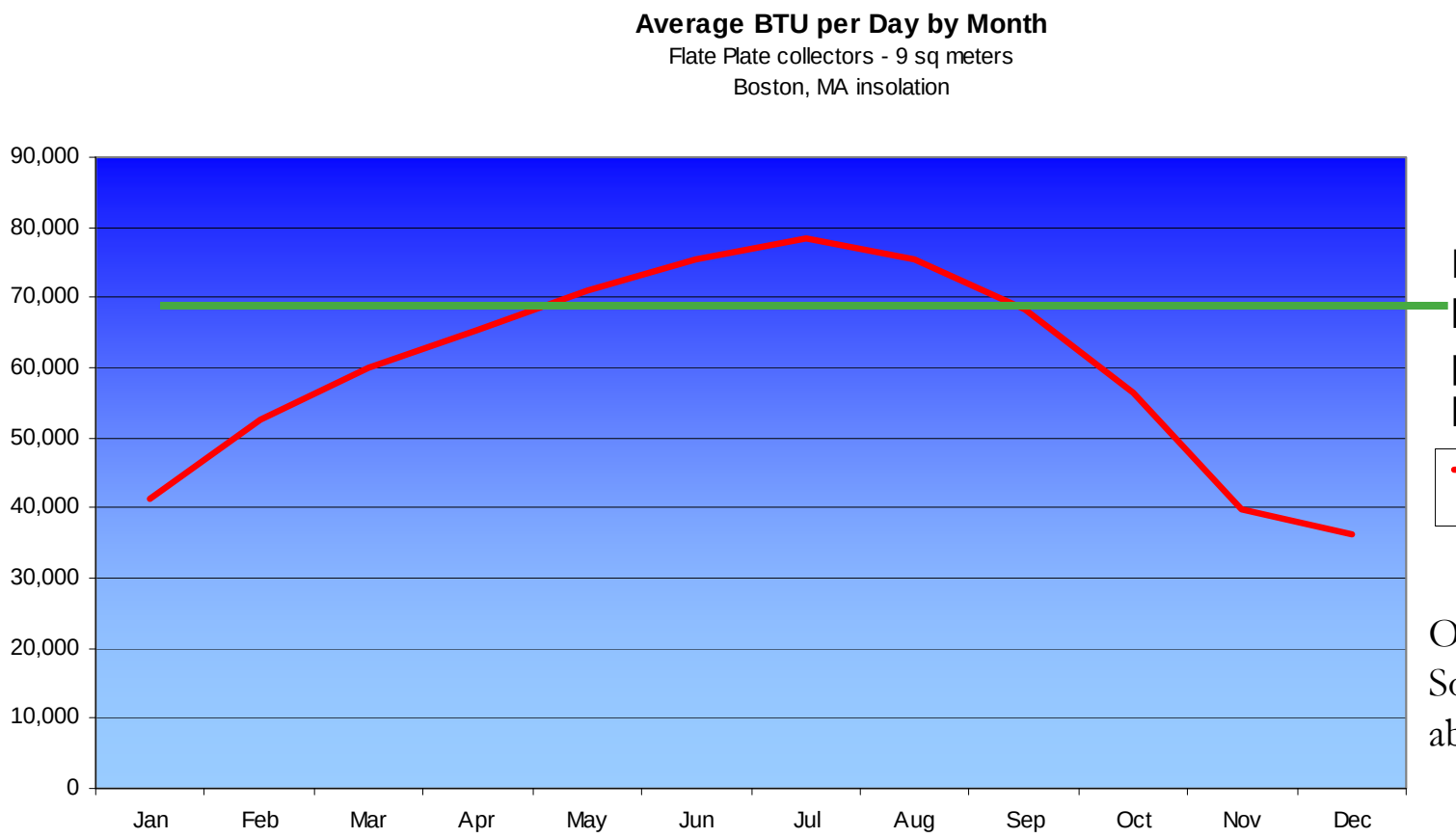
Solar Energy Profile in Northeast



Optimal Annual Solar Fraction -- about 65%

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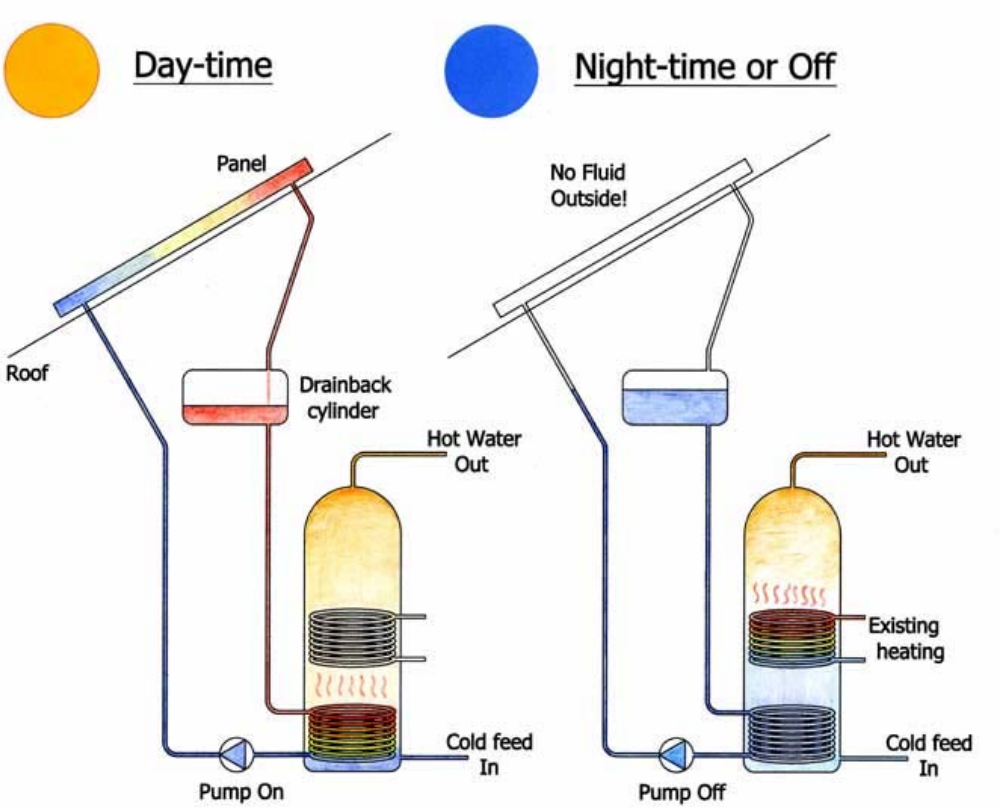
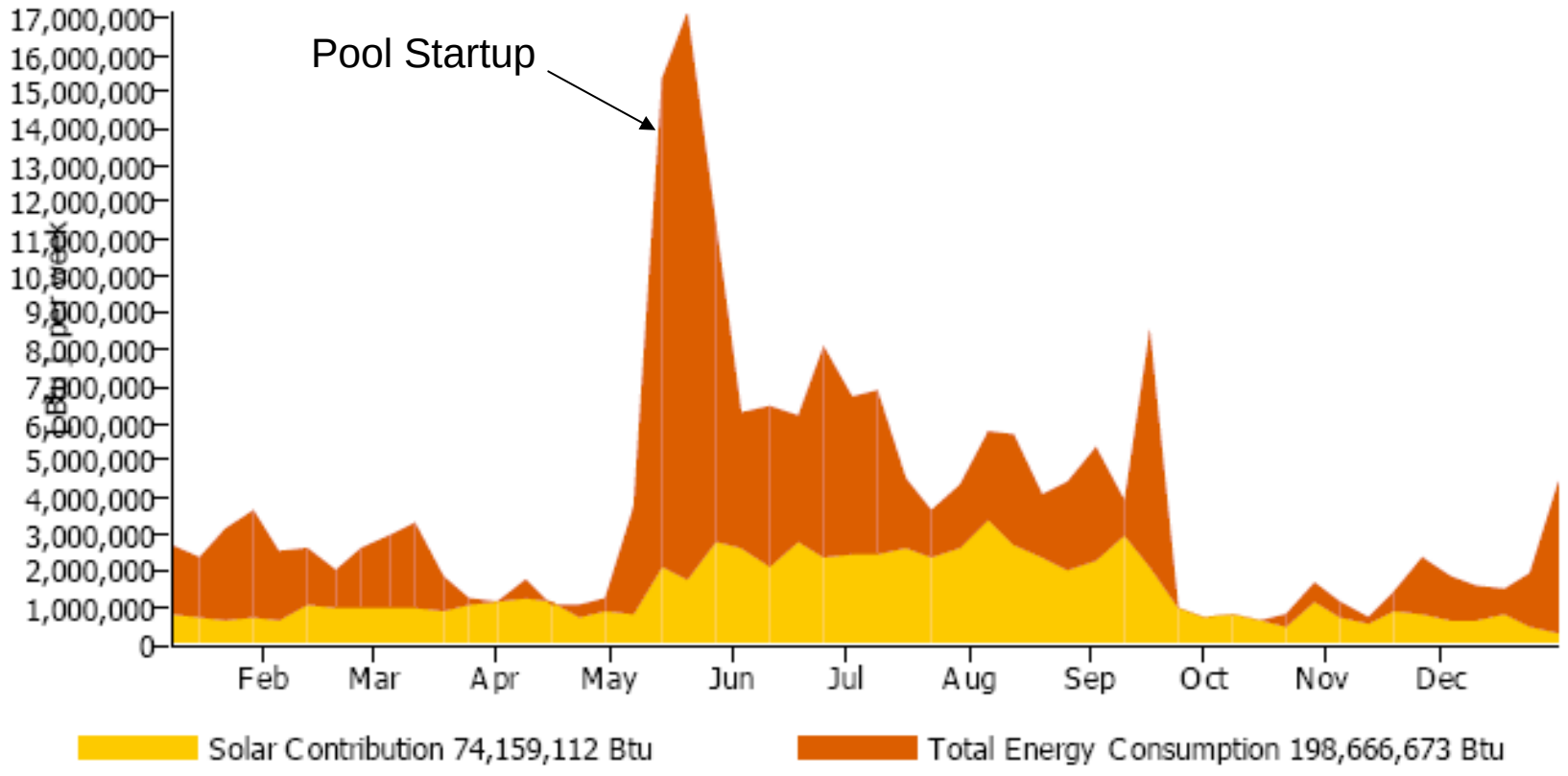
Drainback SHW Operation



Thermal Energy Profile



Evacuated Tube or Flat Plate?

Which is best depends on application, climate, and delivery temperature.

Flat Plate collectors perform better for DHW & Pool heat.

Thermomax System
Pentagon
Washington, DC

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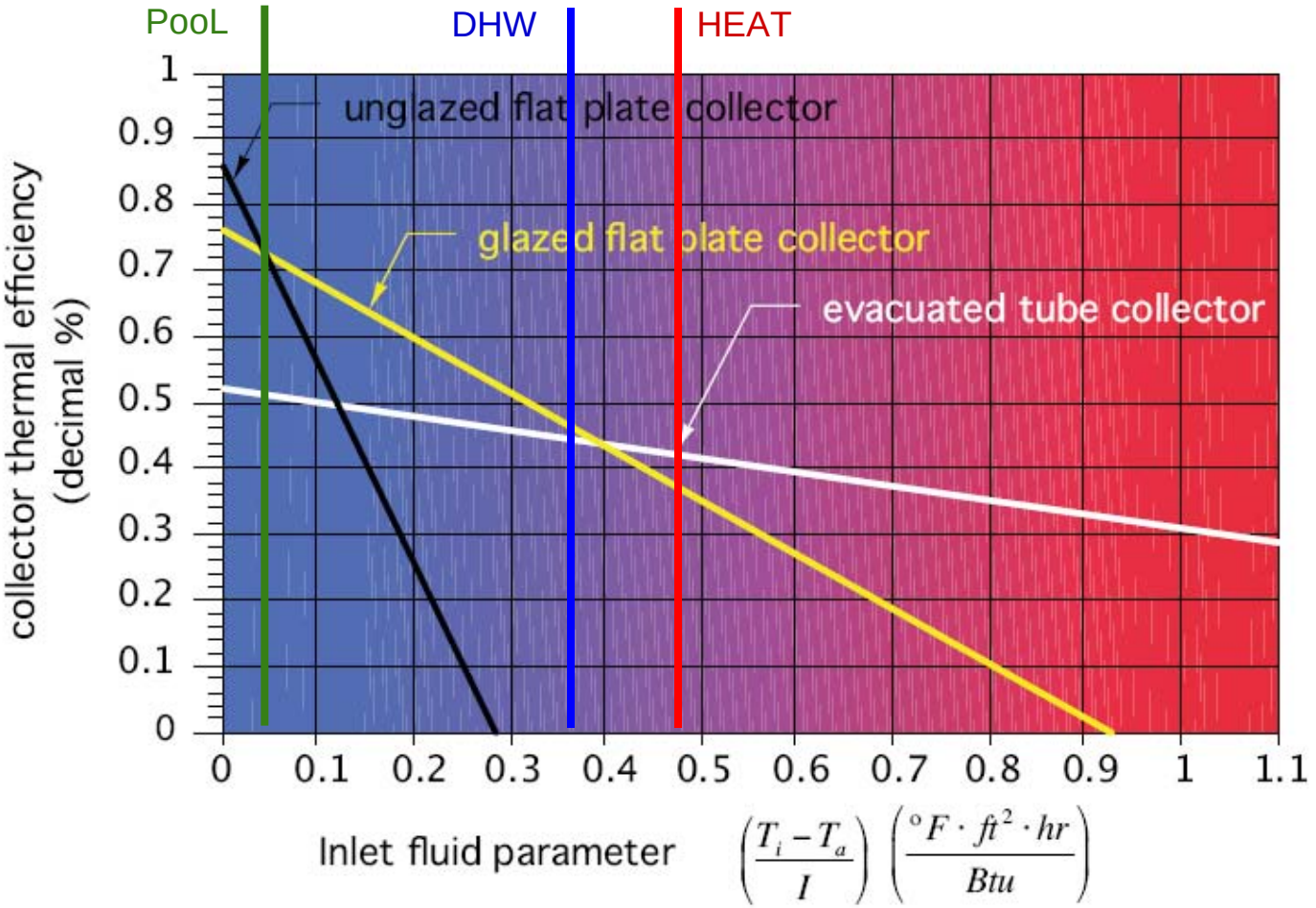
Efficiency in Perspective



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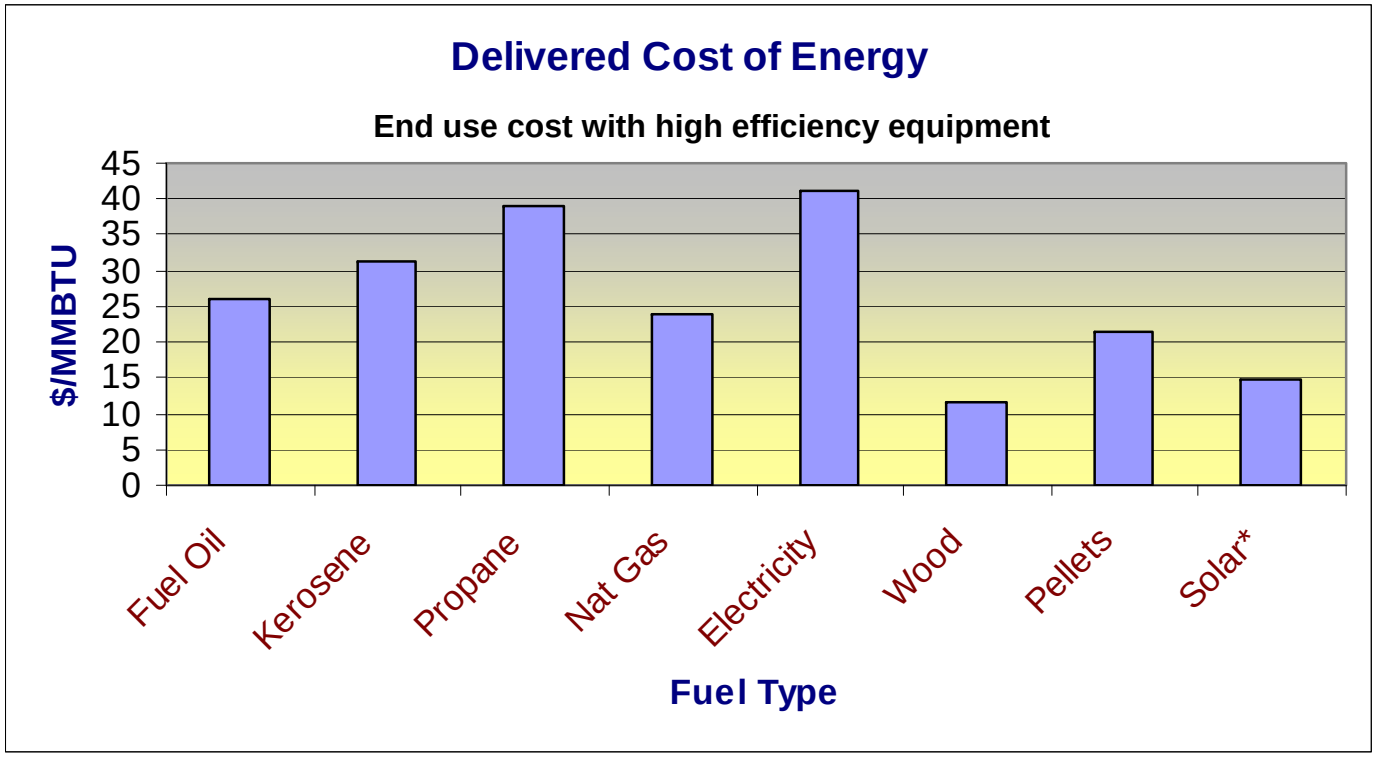
Solar & Wood are least cost energy sources



**Solar – 20-year annualized cost*

average fuel prices for Northeast- Jan 2009

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www.alterisinc.com

Leigh Seddon, V.P. Engineering
lseddon@alterisinc.com

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