Cool Energy

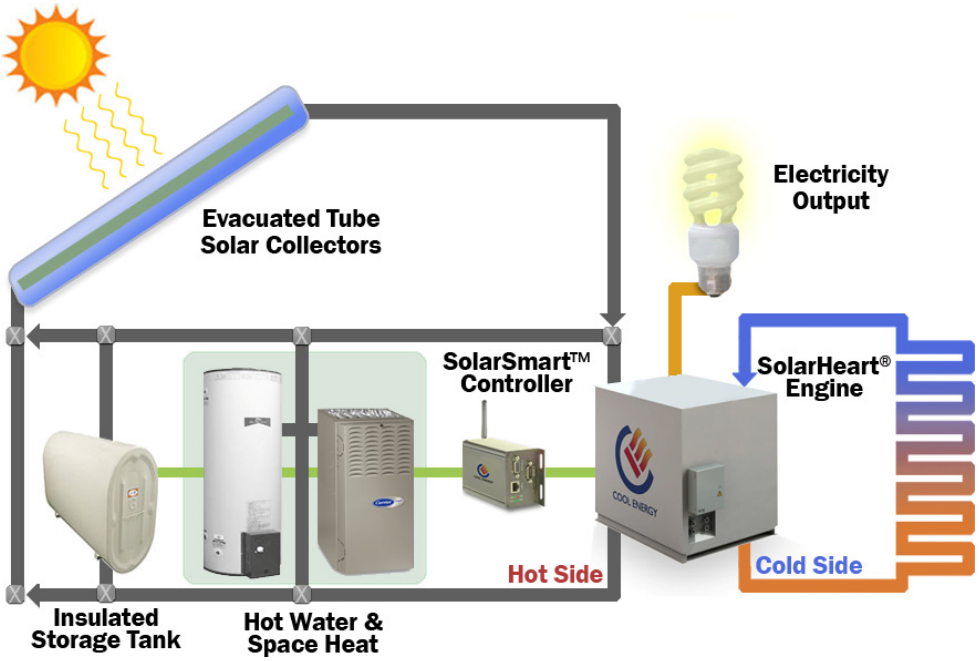
Frequently Asked Questions (FAQs)

November 12, 2009

COMPANY AND SOLUTION

1. **What is the Cool Energy solution?**
   Cool Energy has developed a combined heating & electrical power generation system called the **SolarFlow® System**, primarily for homes and small commercial buildings (up to 15,000 sp. Ft). This system is built around an innovative component called the **SolarHeart® Engine** which converts low-temperature heat to electricity.

2. **What are the components that make up this system?**
   Evacuated tube solar collectors (required in order to obtain 100-250C temperatures for summer electricity generation), a 200-400 gallon insulated storage tank, heat exchangers for current domestic hot water and space heating systems, SolarHeart® Engine, SolarSmart Controller™ (intelligent controller for weather forecast collection and system control), 2 pumps and necessary plumbing and valves.



3. **How can I obtain a system for my home/building?**
   Cool Energy will be selling the systems through certified dealers. These dealers will be trained in the operation, installation and maintenance of the system. Cool Energy will maintain a published list of the certified dealers on the website (www.coolenergyinc.com).

4. **When will the system be available?**
   General availability to the public through a certified Cool Energy dealer will be approximately July 2011. Cool Energy will be placing a limited number of pilot systems for qualified field trials between now and

April 2010. These pilot systems will require sponsorship.

5. **What is the cost of the system?**
   Depending on the size of the home/building, the heating requirements and the availability of roof space, the installed system will cost approximately $20,000 to $45,000 USD.

6. **Will this system qualify for credits or incentives?**
   Yes, the system will qualify for the United States federal tax credit of 30%. Many states, cities and municipalities have other incentives. For a detailed list of incentives in the U.S., please refer to http://www.dsireusa.org . Many provinces in Canada, and countries in Europe have electricity generation incentives or 'feed-in tariffs'.

7. **How much will this system save me on my energy bill?**
   For a typical home in New Jersey (colder climate with adequate solar radiance), the system can provide 80% of heat, 100% of hot water and 60% of electricity. The approximate annual savings are $3,000 USD (propane users), $2,000 USD (heating oil users) and $1,500 USD (natural gas users).

8. **Where are the best geographically locations for the SolarFlow® System?**
   The Cool Energy solution works best in colder climates that have enough sunny or partly sunny days to drive the system – Northern United States, Canada and Europe are our primary markets. In southern warmer climates such as Florida, Texas, California, etc. – photovoltaic technology may be a better solution as there is little requirement for space heat.

9. **What is the pay-back time period?**
   A larger home in New Jersey heated with propane, with a $40,000 system, minus federal and local incentives, will pay for itself in 7 years due to the savings in heat *and* electricity. Since photovoltaic systems only provide electricity, payback for the same house (and systems costing about the same) would be approximately 17 years.

10. **How much roof space will I need for this system?**
    The **SolarFlow® System** uses evacuated tubes and approximately 400-800 square feet of roof space will be required. These sizes are for an average home ranging in square footage from 2000 to 4000 square feet. Individual systems will be designed for each home to address the heating, hot water, and electrical usage patterns in the home, as well as taking into account the solar irradiance for the location.

TECHNOLOGY

1. **What is the Cool Energy technology?**
   The system is based on the SolarHeart Engine which is a Stirling Engine (Invented in the early 1800's by Robert Stirling). The Stirling engine is a heat engine that operates by expansion and compression of air or other gas (called the working fluid), at different temperature levels such that there is a net conversion of heat energy to mechanical work. The Cool Energy SolarHeart uses air as the working fluid, and is driven by relatively low temperatures (100°C-250°C). The mechanical work generated drives a generator (built inside the engine) that creates electrical power. The maximum power in the first model is 1500 Watts. If, for example, the system ran for 10 hours during a day, the total output would be 10hrs x 1.5 kW, or 15 kWh of electrical energy produced.

2. **200°C is too hot for water. What is the heat transfer fluid in the SolarFlow System?**

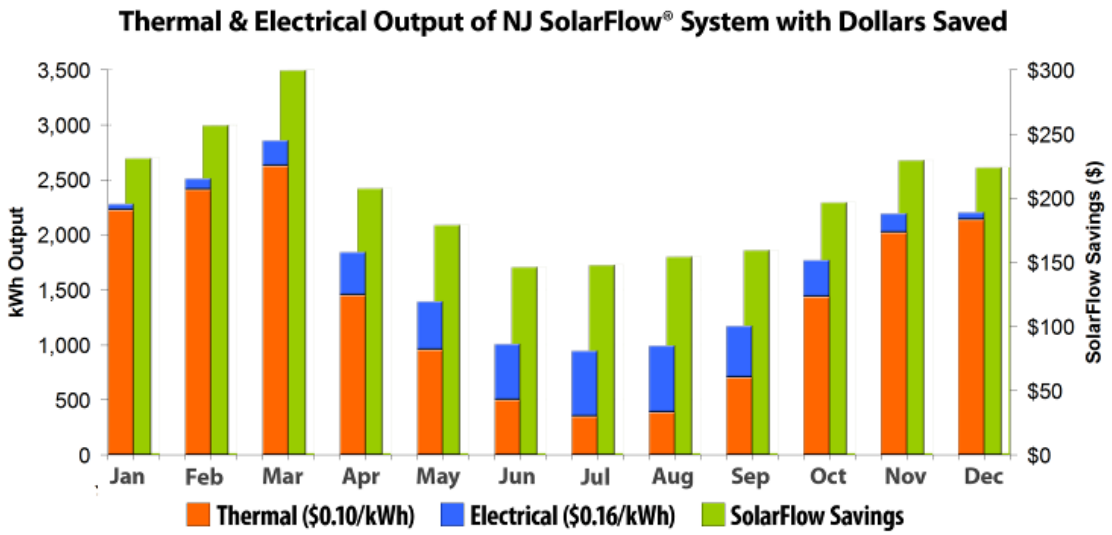
The SolarFlow System uses a mineral-oil based, food-safe and non-toxic heat transfer fluid which is rated to 340°C.

3. **Does the SolarHeart Engine make noise?**
   Because the SolarHeart operates at a low speed (approximately 400 rpm), has no internal explosions and is fully balanced the engine is extremely quiet and low in vibration.

4. **Is the SolarHeart reliable?**
   The SolarHeart Engine is designed for a 20 year maintenance-free life. There is no lubrication required as all bearings are sealed.

5. **Is the SolarHeart safe for operation within a home?**
   Yes, the SolarHeart engine operates at a low speed, and low pressure. There is no combustion and nothing is burned to created heat.

6. **How much heat and electricity can be generated?**
   The graph below shows the heat and power output for an average home in New Jersey. Heat is primarily used in the winter and electrical power in the summer. The SolarSmart Controller™ makes intelligent decisions on whether to create heat or electrical power depending on historical weather data, searching the internet for the weather forecast and user's settings on the thermostat.



BUSINESS

1. **What type of business is Cool Energy?**
   Cool Energy is a privately held corporation, based in Boulder, Colorado.

2. **How is Cool Energy funded?**
   To date, Cool Energy has been backed primarily by private angel investment and several SBIR/National Science Foundation grants, as well as a Colorado Governor's Energy Office grant. Cool Energy is currently raising its series A round of capital. If you have an interest in participation, please contact Glenn Booth, VP Marketing and Business Development at gbooth@coolenergyinc.com.