Brainstorm: Alternate Energy

Edited by Jason Lomberg, Technical Editor

What market segment would most benefit from a switch to alternative energy?

Clayton Pillion, Microchip Technology, www.microchip.com [1]

While alternative energy can benefit many markets, one market that is often overlooked is the HVAC (heating and air conditioning) market. For most households, the HVAC system consumes the vast majority of energy, making it an excellent candidate for using alternative energy. Heat waves place a tremendous strain on the grid as HVAC units are working overtime to keep their owners comfortable. This surge in demand forces utilities to initiate more costly methods of electricity generation, which impacts everyone's bills. If the utility is unable to supply enough power, rolling blackouts occur. Some utilities have implemented a demand response-type service, where they can temporarily delay the HVAC use on a house during peak load conditions (this is with the consumer's consent and in exchange for a monetary discount). However, consumers prefer to retain control, thus, a consumer-sided solution is always preferred.

HVAC systems are typically located on rooftops or in areas exposed to a great deal of sunlight, which is a natural fit for solar energy sources. Peak rates occur during the warmest portion of the day, making this an ideal solution. The solar panels are connected to an intelligent monitoring device that allows a compressor on the HVAC to draw power from both the solar cell and the grid. A panel would then output enough energy to supply a majority of the energy required by a single HVAC system. If additional power were required, it could be provided by the grid. Utilities would see lower peak demand, consumers could enjoy cooler temperatures without breaking the bank and, more importantly, this solution would not impact everyone's utility bills.

Vandana Lokeshwar, Newark, www.newark.com [2]

The key opportunities for alternative and renewable energy can be broadly classified into electricity, heating and transportation. The EIA reports that from 2007 to 2035, world renewable energy use for electricity generation will grow by an average of 3.0 percent per year, and the renewable share of world electricity generation will increase from 18 percent in 2007 to 23 percent by 2035. The increase in renewable electricity supply is primarily fueled by hydropower and wind power. Hydro-electric power, using the potential energy of rivers, is by far the best-established means of electricity generation from renewable sources. Countries like Norway and Iceland derive 99-100% of their electricity from renewable sources.

Key opportunities arise in continually improving the cost and efficiency of the technology to harness these renewable sources for generating electricity, thus reducing costs per peak kilowatt and making it beneficial for both industrial systems and residential applications. The smart grid for power generation and transmission and distribution with intelligent metering and monitoring are also benefitting from the alternative energy developments. The smart grid employs technologies involving wired and wireless communications, sensing and measurement and advanced control systems for monitoring, control, rapid diagnosis and precise solutions for fault situations. Power management and efficiency is being focused on at various levels – from generation and storage to consumption and application -- in almost every market segment. Backed by public policies and continued R&D efforts being implemented by nations across the globe, it comes as no surprise that this is one of the fastest growing segments today.

Rick Halstead, Wind-Sail, www.wind-sail.com [3]

Stating the obvious, people who currently have no power and without access to an electrical grid are those who will benefit most from renewable energy technologies. For very good business reasons, companies have built power stations and power grids that are cost effectively located in wealthy population centers where they can effectively amortize the capital cost over a large number of customers. Not incidentally this structure heavily favors monopolies by large organizations that can manage large capital expenditures.

Areas with low population density, without installed wires - typical of lesser developed nations - define a market for small, self contained power systems that may not be cost competitive on a KWHR basis with large utilities, but can be attractive if the total system cost is within the budget constraints of the buyer.

Source URL (retrieved on *07/23/2014 - 2:48am*):
http://www.ecnmag.com/articles/2010/08/brainstorm-alternate-energy?qt-video_of_the_day=0

Links:
[1] http://www.microchip.com
[2] http://www.newark.com/
[3] http://www.wind-sail.com/