

"In green, efficiency rules"

Russell W. Hanson

November 12-13, 2009

The Fifth Green Energy Conference Boston, MA Nov. 12-13, 2009 at Hynes Convention Center (<http://www.greenovationconference.com/>)

In the third floor of the Hynes Convention center technologists, venture financiers, students, and public servants gathered to discuss the state of the State in green energy. Many in attendance were professionals either working for energy and utilities establishment, developing new technologies in energy storage and supply, or looking for ways to get more involved in green and sustainable energy for themselves or their organizations.

A mix between private and public service providers and utilities and slow-moving energy behemoths mingled. Investor pitch sessions allowed companies at various stages of the ideation and execution process to present. Panels on wind, solar, and chemical technologies discussed issues in their respective industries. The political presence was heavy with Ian Bowles of the Executive Office of Energy and Environmental Affairs for the state of Massachusetts and governor Duval Patrick speaking.

A sector with significant representation at the 5th Green Energy Conference was smart grid. The smart grid market is very diffuse right now, with many companies working to gain market share, district by district. Home-based "smart grid" usually means setting up energy meters around the home communicating wirelessly with a central networked base station. The old analog dials that have to be checked monthly by the utilities are migrated to digital sensors and wireless transmission. GroundedPower and Digital Housekeeper were two companies in attendance with home smart-grid products.

In communities where these home smart grid technologies have been introduced, increasingly service providers are using social media and social network technology to allow a community to form around more efficient energy use and sustainability. Some users are incentivized to participate wanting to reduce their monthly bills, others want to reduce needless consumption, and some folks just want to compete with their neighbors. Obviously, a two bedroom apartment cannot compete on absolute terms with a much larger five-bedroom household, but energy users at the same level may have more meaningful battles for superior energy efficiency.

Geographically, there was significant representation from Massachusetts, Maine, New Hampshire, Western Europe, and Scandinavia. The Massachusetts Clean Energy Center itself had quite a few members in attendance or on panels. Denmark and Spain had some representation in wind turbine manufacturers and installation contractors. Denmark is known to have some of the finest wind research facilities in the world at the Technical University of Denmark.

A Norwegian company, WindSea (for a picture visit: http://www.windsea.no/resources/V/1573_3671x2362.jpg) and its representative Mr.

Arnøy described a long-term 7-8 year plan to manufacture and deploy floating, towable wind turbines. The WindSea turbine is a triangular structure with three rotating turbines at each vertex. A simple three-sided shape is known to give some stability in rough open waters. A helipad is also on the structure. To reduce the cost of deployment the turbine structure is able to be fully-assembled on dock. Cost is a very significant factor in this kind of venture and the operating costs and investment needed were projected in the \$8--12M range over the first few years of the company.

In New England, the Cape Wind project to install deep sea turbines off-shore in the North Atlantic off Cape Cod is well-known and receives significant press among any wind turbine projects in the northeast. The former governor of Maine, Angus King, representing Independence Wind gave a somewhat inspired speech invoking Spanish imperial history. Spain was a global superpower with an empire that included much of South and Central America. The basis of the wealth of its empire was the importation of silver. However, the Spanish empire fell, Mr. King argued, because of its dependence on an imported source of wealth. He continued by painting a picture of the possible future scenario of the United States as the empire that used to be: it prospered while energy imports were cheap, then fell precipitously when it could no longer afford to import its energy or fight wars to defend its energy imports.

In examining the many different approaches individuals and companies use to implement "clean energy" the clean energy movement is basically: reducing needless and wasteful energy consumption—essentially *efficiency*. Clearly, apart from rolling blackouts and prohibitive energy costs, for much of the last century, people, at least many Americans, have had access to cheap energy. Today people *do* have access to the energy they need be it gas, natural gas, or electricity. And, depending on whom you ask, the fossil fuel resources still remaining may supply the next hundreds of years of energy needs.

While the effects of reduced expenditures are immediate, the clean energy movement in its current form is relatively new and its basis essentially preemptive. In a dominating number of cases the reasons to implement these strategies are not due to immediate need, but government incentives. Environmentalists in particular tend to shun this idea that smart energy consumption is simply finding more efficient ways to use energy for current needs. For them, efficiency is simply a means to an end of a more environmentally-friendly human ecological footprint and the technologies developed along the way are part of that process.