Tuesday, August 18, 2009

THE DAILY RECORD

WESTERN NEW YORK'S SOURCE FOR LAW, REAL ESTATE, FINANCE AND GENERAL INTELLIGENCE SINCE 1908

IP FRONTIERS

Wind energy patents on the rise

As we reported March 17 in this column, a review of recent trends in clean technology patents reveals clean energy innovation has reached an all-time high.

Headlines lately seem to be filled with news regarding wind energy. A great deal of news coverage was generated by the federal government's implementation of a long-term, uncapped 30 percent tax credit for residential and commercial wind turbines. Additionally, due to the recent surge in market demand and a general push towards renewable energy, there have been local and regional attempts to reign in the uncontrolled expansion of wind energy.

By ALANA M. FUIERER
Daily Record Columnist

Recent headlines included Attorney General Andrew M. Cuomo's announcement that wind energy companies doing business in New York signed a Wind Industry Ethics Code.

The Town of Victor recently imposed a six-month moratorium on wind turbine development and, as reported in the Feb. 13 edition of *The Daily Record,* there has been an increase in the number of lawsuits and citizen group debates in small New York communities over wind turbine development.

The abundance of news related to wind energy is not surprising based on a recent the U.S. Department of Energy's "Wind Technologies Market Report," which states U.S. wind power capacity increased by 60 percent in 2008 — representing the fastest growing wind power market in the world.

Although wind generates only 2 percent of the nation's electricity supply, wind projects accounted for 42 percent of the new electric generating capacity in 2008. The report also concludes the U.S. leads the world in new wind capacity, capturing about 30 percent of the global market and taking the lead over Germany in cumulative wind capacity.

Perhaps most significantly, small wind turbines have grown immensely popular in the United States and New York State. (Small wind, or residential-scale, turbines are those with a capacity of 100 kW or less.) Recent technological advances in small wind turbines have made them more affordable — about $10,000-$12,000 or less, installed — and easier to use.

As reported by the American Wind Energy Association (AWEA), the U.S. market for small wind turbines grew 78 percent in 2008. Indeed, the United State commands roughly half of the global market share of small wind turbines, and New York and California are two of seven states with the highest sales percentages of residential-turbines.

These market trends in wind energy are mirrored by trends in innovation: In the past seven years, issued wind patents increased dramatically from a low of 42 to a high in 2008 of 155. Despite the economic downturn in 2008, the total number of wind patents granted by the U.S. Patent and Trademark Office increased in 2008 over 2007. Although wind patents fell in the first quarter of 2009 compared to fourth quarter of 2008, wind energy patents were on the rise again in the second quarter of 2009, and innovations in wind energy have outpaced solar energy.

A review of patent assignees indicates GE Wind and Aloys Wobben — the owner of Enercon GmbH of Germany — drive the vast majority of the U.S. patent activity in wind energy. From 2002 to 2008, GE Wind holds the most U.S. patents related to wind energy overall, which is consistent with the Department of Energy's report that GE Wind remains the top wind turbine manufacturer. Due to a steep increase in granted patents to U.S. assignees since 2002, assignees hold about 48 percent — almost half — of the global share of U.S. patents issued from 2002 to 2008, followed by Germany with 19 percent, and Japan and Denmark came in third with 7 percent.

New York assignees lead with 16 percent of the U.S. wind patents thanks to GE Wind, followed by California with 8 percent. Although Texas dominates all U.S. states in large-scale wind turbine projects, it is not one of the top states when it comes to innovation or small wind sales.

Issued patents often are cited as an indicator of innovation, however, there is an inherent lag caused by the time it takes for a patent application to be reviewed and granted — in some cases, three to five years. A review of published patent applications related to wind energy, therefore, can provide greater insight into what lies ahead. The number of patent applications filed and published since 2007 shows a very steep incline as compared to previous years. Of the total patent applications filed since 2002, almost half have yet to be granted. Although some of the pending applications never will be granted, based on the data one would expect the upward trend in wind-related patents to continue, and become even steeper.

A review of issued patents in the United States reveals seven general classifications of wind energy patents, including design and construction; grid/transmission/electrical conversion; soft-

Continued ...

Tuesday, August 18, 2009

THE DAILY RECORD

WESTERN NEW YORK'S SOURCE FOR LAW, REAL ESTATE, FINANCE AND GENERAL INTELLIGENCE SINCE 1908

Continued ...

ware and sensors/control devices-systems; materials; wind farms/management; protection from elements and wind powered applications. The design and construction category makes up more than half of all wind innovation, and can be further divided into four sub-groups: blade design; mechanical design; rotor design and other structural design.

Not surprisingly, some of the more interesting patents are to be found in the design and construction category, many of which are related to small wind. One such patent is the new Swift™ wind turbine, a quiet rooftop wind turbine, developed by a Scottish company Renewable Devices Swift Turbines Ltd. for use in densely populated areas (U.S. Patent No. 7,550,864). The design claims to solve a common problem with wind turbines, i.e. noise, by using a circular diffuser that rings the turbine blades. As it looks just like a weather vane, it also is aesthetically pleasing.

Some other interesting patent applications are pending as well: The "tree-hugger" wind turbine, a cylindrical wind turbine that is hollow and has no central hub, due to its cylindrical shape can be placed around a pre-existing feature such as a chimney stack, cellphone mast or even a tree trunk (Inter. Patent App. PCT/US2008/056105).

Also grabbing a few headlines is Google's patent application directed to a Water Based Data Center (US Pub. No. 2008/0209234). The application is directed to a sustainable, giant floating data center, located three to seven miles offshore, that can be powered and cooled either by wind turbines, ocean waves and/or currents.

Despite the global recession, the AWEA report predicts a 30-fold increase in the U.S. small wind market over the next five years. Although other predictions are more conservative, they, too, project market growth once the economy bounces back and federal stimulus policies begin to take effect. If the predictions are accurate, one also would expect technological innovations and patent growth to keep pace. What remains to be seen, however, is whether local and regional attempts to curtail the unchecked growth of wind turbines will restrict not only the market, but the incentive for innovation.

The Clean Energy Patent Growth Index tracks issued U.S. patents for the solar, wind, hybrid/electric vehicles, fuel cells, hydroelectric, tidal/wave, geothermal, biomass/biofuel and other clean, renewable energy sectors. The index is published quarterly by Heslin Rothenberg Farley & Mesiti's Cleantech Group. More information is available at www.cleanenergypatentgrowthindex.com.

Alana M. Fuierer is an associate with the law firm of Heslin Rothenberg Farley & Mesiti PC, with offices in Rochester and Albany. She can be reached at (518) 452-5600 or (585) 288-4832 or at amf@hrfmlaw.com.