

THE DAILY RECORD

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

IP FRONTIERS

Clean energy patents reach new high

The existence of intellectual property, in general, is an essential element of economic growth in a knowledge-based economy such as our own.

As a result, the number of patents issued annually by the U.S. Patent and Trademark often is cited as a measure of innovation and the effectiveness of research and development investments.

As with other technologies, issued patents in the clean energy sector are an indicator that efforts to develop new and non-obvious innovations have been successful, that the innovation had enough perceived value to justify the time and expense in procuring a patent, and that the economy is strong enough to support funds being dedicated the expense.

A review of recent trends in clean technology patents reveals that clean energy innovation has reached a new high:

Growth

The Clean Energy Patent Growth Index — published quarterly by Heslin Rothenberg Farley & Mesiti's Cleantech Group — provides an indication of the trends in innovative activity in the clean energy sector from 2002 to the present, on the state, federal and international levels, as well as insight into the leading patent owners and technologies in the clean energy sector.

Specifically, the index tracks issued U.S. patents for solar, wind, hybrid/ electric vehicles, fuel cells, hydroelectric, tidal/wave, geothermal, biomass/biofuel and other clean, renewable energy.

Despite the current economic crisis, results through the fourth quarter of 2008 reveal, surprisingly, that last year's index was at its highest level to date, reaching a total of 928 granted patents. A breakdown by sector shows fuel cells dominating the other renewable energy technologies in raw numbers. Although there was slight decline in fuel cell patents issued in the fourth quarter compared to the third, the total fuel cell patents issued in 2008 (530) exceeded the 2007 number.

Patents in wind, hydroelectric, tidal and geothermal also were up in 2008 over 2007, with hydroelectric and tidal patents reaching at all time highs. Although the number of solar patents issued was substantially higher in the fourth quarter of 2008 compared to the first three quarters, the total was slightly lower than in 2007.

Similarly, hybrid and biomass/biofuel patents were higher in the fourth quarter of 2008 compared to the first three quarters, but the total number issued actually declined from 2007.

Perhaps most surprising in view of the recent auto bailout, CEPGI results for 2008 reveal that automobile companies comprise five of the top 10 leaders in clean energy patents, with three more in the top 25. Indeed, while Honda claimed the highest number of patents overall in 2008 (as it has since 2002), it did so just barely, beating General Motors by a mere two patents.

Fuel Cell manufacturers Plug Power, Ballard and United Technologies also appear in the top 10. The remaining top 10 spots belong to General Electric, based primarily on the strength of its wind patents (with an assist from solar technologies) and solar manufacturer, Canon.

Quality of clean energy patents

Analyzing the quality of renewable or clean energy patents granted is another way to monitor important technological breakthroughs in the Clean Tech arena. One such system for rating patents is Ocean Tomo's proprietary PatentRatings System.

According to a recent article published by Ocean Tomo, PatentRatings data show that, as the number of green energy patents has increased, their average quality overall has declined in the past decade.

On the other hand, the data show that the number of relatively high quality patents, individually, has increased. As Ocean Tomo concludes, the apparent disparity could be attributed to more innovations in improvements to existing technologies as compared to innovations in revolutionary technologies (i.e. technology with highly improved new features, i.e. the invention of automobile or telephone). See Back to IP Basics with Green Energy Licensing, Law360, N.Y. (Jan. 9).

Government policy likely to boost clean energy

In connection with technology in general, IP has drawn a lot of attention from the Obama administration. Because government policy plays such a crucial role in the growth, protection and quality of IP, the new administration's focus on renewable energy and clean technologies, as well as its emphasis on technology and innovation, likely will result in a growth in clean energy IP. Perhaps most significantly, on Feb. 17, Obama signed into law the American Recovery and Reinvestment Act of 2009 (ARRA), which invests significantly on the federal, state and local levels through direct spending programs, tax incentives, loan guarantee and bond programs to support development of renewable energy

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and clean energy technologies.

The Act allocates about \$92 billion in clean technology, including \$32.8 billion in clean energy, \$26.86 billion in energy efficiency and \$18.95 billion in green transportation. Such substantial federal funding presents an opportunity for innovators and investors to pursue projects in renewable energy and clean transportation. Some key aspects in the ARRA that relate to clean technology and should result in further growth in innovation and IP in the renewable energy sector include:

- Hybrid technology — \$2 billion in new grants for projects involving the manufacture and development of advanced battery systems and components for hybrid vehicles; \$300 million to acquire motor vehicles with higher fuel economy, including hybrids, electric and commercially available plug-ins; and an investment tax credit (or grant in lieu of tax credit) for entities that invest in energy storage systems for use with electric or hybrid electric motor vehicles.

- Electric vehicles — An increased tax credit for entities that invest in new qualified plug-in electric vehicles or components designed specifically for use with such vehicles.

- Energy generation, storage and delivery technology — \$4.5 billion for the Smart Grid Investment Program to modernize the nation's energy delivery; and investment tax credits (or grants in lieu of credits) for investment in property designed to refine or blend renewable fuels or electric grids to support the transmission of intermittent sources of renewable energy, including storage.

- Energy efficiency — \$3.1 billion to the Department of Energy's State Energy Program, which provides grants to states for energy efficiency and renewable energy programs; \$500 million for the Green Jobs Act to train workers for careers in the energy efficiency and renewable energy industries; and \$3.2 billion in State Energy Efficiency and Conservation Block Grants to implement state energy efficiency and conservation programs.

- Green buildings — \$4.5 billion to convert federal facilities into High-Performance Green Buildings; \$3.6 billion for Department of Defense energy efficiency and modernization of facilities; \$5 billion for the Weatherization Assistance Program; and \$400 million to establish the Office of Federal High Performance Green Buildings.

- Fuel cells — An investment tax credit for entities investment in renewable energy sources, including fuel cells.

- Public transportation — \$8 billion for new high-speed passenger rail projects; and \$8.4 billion in additional funding for U.S. public transportation infrastructure projects.

- Biomass/biofuels — Extension of the production tax credit for biomass facilities; \$1.6 billion for clean energy bonds to finance biomass energy sources; \$800 million to support the

DOE's research, development and deployment of biomass technologies; and \$50 million for wood-to-energy grants promoting increased use of biomass.

- Carbon reduction — \$6 billion for guaranteed loans to support commercial initiatives lowering air pollutants and greenhouse gas emissions via the Technology and Loan Guarantee Program along with an investment tax credit for investment in renewable energy sources, including property designed to capture and sequester carbon dioxide emissions or otherwise reduce greenhouse gas emissions.

- Solar — repeals certain caps on tax credits previously imposed on solar-powered properties and includes an investment tax credit for investment in renewable energy sources, including solar.

- Geothermal — repeals certain caps on tax credits previously imposed on geothermal-powered properties and extends the production tax credit; includes an investment tax credit for investment in renewable energy sources, including geothermal; \$1.6 billion for clean energy bonds to finance geothermal energy sources; and \$400 million to support the DOE's research, development and deployment of geothermal technologies.

- Wind — repeals certain caps on investment tax credits previously imposed on small wind power and extends the production tax credit for wind facilities; includes an investment tax credit for investment in renewable energy sources, including wind; and \$1.6 billion for clean energy bonds to finance wind energy sources.

- Water and environment — \$19 billion for water infrastructure and environmental clean up.

In general, most in the renewable energy sector are excited about the new administration's focus on clean technologies and opportunities created through the ARRA. Many believe it is a step towards a more comprehensive renewable energy policy. The CEPGI, over the next few years, will prove to be a useful tool for determining whether increased federal funding in clean technologies will result in further growth in clean tech innovation, investments and intellectual property.

Based on the substantial influx of money into the green sector, one would expect the raw number of issued patents to increase dramatically. What is not clear, however, is how the current policy will affect the overall quality of renewable energy patents. That, in part, will be tied closely to whether Obama succeeds in his campaign promise to reform the U.S. patent system and give the USPTO the resources to improve patent quality and efficiency.

More on the CEPGI is online at www.cleanenergypatentgrowthindex.com.

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