



FUELING THE ENERGY REVOLUTION

Corporate investors require strong patents to invest in technology

By **ANTHONY P. GANGEMI**

Most experts agree that solving the problem of climate change and/or reversing global warming will require a combination of conservation, recycling, and new technologies.

The International Energy Agency (IEA) continues to urgently call for sweeping global changes in transportation technology, energy sources that power factories, and the global economy overall. A global energy revolution will require innovation on the scale of the Industrial Revolution or the race to the moon.

In order to spur such innovation, a combination of public funding, government regulations, and private investment will be required.

On the federal level, public funding for green technology was included in the American Recovery and Reinvestment Act of 2009. Under the stimulus plan, the Department of Energy was appropriated more than \$30 billion to be allocated to projects focused on improving energy efficiency, promoting the use of renewable fuels, and addressing greenhouse gas emissions. The stimulus plan appropriates \$3.4 billion specifically to fossil energy research and development and allocates \$2 billion specifically to the manufacture of advanced batteries in the United States.

Connecticut has received almost \$20 million in stimulus funds from the Department of Energy for projects relating to improving energy efficiency and reducing emissions. In

addition, Governor M. Jodi Rell announced late last year the creation of the Connecticut Clean Tech Fund, which will provide public funding for green technology by investing in start-up companies “focused on innovations that conserve energy and resources, protect the environment or eliminate harmful waste.”

Historically, in the United States, investment in technology has largely been driven by the private sector. While public investment, such as that provided by the stimulus plan and the Connecticut Clean Tech Fund, is often made available to encourage research and development at the early stages of a new technology, private investment typically brings that technology to the market.

For example, while the early development of magnetic resonance imaging (MRI) was publicly funded in part, General Electric and others invested considerable resources in developing commercial MRI systems.

Similarly, while development of the cholesterol-fighting drug Lipitor was at least partially funded using public grants, Pfizer invested millions of dollars in clinical trials and its development as a commercial pharmaceutical. Because of the enormity and urgency of the challenge that global warming and climate change presents, a large infusion of capital from the private sector is required to adequately fund the type and volume of research and development necessary.

History Lesson

Increasing media focus, shifting political views, and fear by investors of not get-

ting in on the ground floor of something big, have served as the impetus for a first wave of the new global energy revolution. According to the Cleantech Group, which publishes data tracking the investment in and

development of environmentally friendly technologies, the overall annual investment by venture capitalists in such technologies has grown from more than \$1.7 billion in 2004 in North America, Europe, and Israel, to more than \$7 billion in 2007, \$8 billion in 2008, and around \$7 billion in 2009.

However, venture capitalists and other investors in the private sector have learned from the dot-com bubble of the 1990s and will not invest the capital necessary to sustain the momentum unless the prospects for an acceptable return on investment are promising.

According to Frank Marco, a partner at Wiggin and Dana who focuses on representing venture capital investors and emerging growth companies in financing transactions, many venture capitalists view a strong patent position as a prerequisite to investing in technology-based ventures. Without the ability to obtain robust and enforceable patents, it will likely not be possible to attract the necessary level of private investment to support the development and implementation of new clean energy technologies and products.

In addition to providing economic incen-



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tives to inventors, patents covering developing technologies encourage private investors such as venture capitalists and for-profit corporations to invest capital in risky inventive activities such as research and development of new clean energy technologies. Similar to the biotech/pharmaceutical industry, most investors will lose money. However, a few will profit greatly. The ability to obtain strong patent protection offers the possibility of rich returns that will attract investors.

In 2008, Connecticut ranked 17th in the U.S. and 25th in the world in granted patents. Bolstered by companies such as United Technologies Corporation, General Electric, and Duracell, Connecticut ranked in the top five states for patents related to clean technology and is well-positioned as the market for clean technologies emerges.

Abraham Lincoln, the only U.S. president to hold a patent, said, "the patent system added the fuel of interest to the fire of genius, in the discovery and production of new and useful things."

Legal Clarity

In addition to providing incentives to innovate, patents provide the necessary legal clarity for the transfer of technology from inventors to companies and ultimately, to

consumers.

Without the legal clarity provided by patents, there is no property to transfer, sell, or license so that other parties can invest in the further development of a new technology. Many technologies are never developed because they were not patented or they had a compromised patent position. Investors would not risk capital when competitors could freely copy any resulting products. Such legal clarity is also necessary to implement strategies for promoting widespread access to new climate change technologies such as patent pools.

Patents foster innovation by encouraging the diffusion of information. The diffusion of information allows other inventors to build upon known technology rather than re-invent the same technology. As a result, patents promote a vertical advancement of technology and minimize a horizontal spread of the same technology.

In addition, the patent process and publication requirements help prevent the possibility that important scientific advancements in the area of clean energy technologies will be held as trade secrets and not shared. While it is appreciated that a patent owner can elect to prevent the use of its patented technology, this typically does not occur due



to the prospect of financial gain through licensing or selling the patented product.

In addition, even where the use of patent technology is blocked by a patent owner, alternatives are typically developed through inventive efforts to design around the patented subject matter.

Reversing global warming and preventing sustained climate change will require a revolutionary-type movement in public policy, investment, and innovation. In order to achieve such a mass undertaking, the ability to obtain strong patent protection is critical to encouraging investment in the innovation of new clean energy technologies and in fueling the global energy revolution. ■