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Event Report

10th Annual Mitsui USA Symposium Panel: "Navigating the Wind and Solar Markets: International Perspectives on Industry Economics, Financing and Policy"

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On February 5, 2009, Columbia Business School's Center on Japanese Economy (CJEB) and Business copresented its 10th annual Mitsui USA Symposium in conjunction with the Mitsui USA Foundation. Hugh Patrick, the Robert D. Calkins Professor Emeritus of International Business and director of CJEB, moderated a panel discussion covering a range of current topics in the fastest-growing industry areas of the renewable-energy sector: wind and solar power. The panelists focused on trends in the global markets for these energy sources, challenges in the financing environment and the perspective of SunWize Technologies, Inc., a Mitsui & Co., Ltd.–owned solar-power-energy company operating in the United States. Geoffrey Heal, the Paul Garrett Professor of Public Policy and Business Responsibility, who is leading the new course New Developments in Energy Markets, also offered his policy perspective, developed over 30 years of involvement with the energy sector.

As the world anticipates major changes in United States energy policy, which are expected to include broad proactive support for renewable energy and formal reentry into global discussions on mitigating climate change, the event proved very timely. Geoffrey Heal's comments on the industry's "remarkable sensitivity to policy" captured the essence of each of the presentations, as well as the threshold upon which the country now finds itself: "Renewables are about to break into the prime time for the first time ever in the U.S."

Policy considerations are so influential in driving the energy sector that many of the global differences in implementation of wind and solar power can be explained by differences in

national policy. Germany, for instance, is far and away the world leader in solar photovoltaic (or solar PV, the traditional energy-conversion technology, which uses flat, silicon-based solar panels), with a share of the world market around 47 percent. This is due in large part to its massive feed-in tariff subsidies. These allow users of installed solar PV to place excess electricity back into the electric grid at a price fixed by the government. This price has been at or above market rates, with the intention of stimulating the creation of generating capacity and levels of business and consumer adoption, and has succeeded even in an area of the world that gets relatively little sunlight. The German government is slowly bringing the tariffs back down, hoping to continue a measured pace of growth.

In stark contrast, the early world leader in solar PV, Japan, has lost half its market share in recent years. Hajime Ito, president of the Japan External Trade Organization (JETRO) New York, demonstrated that this has resulted from the government's ending its incentive program in 2005 (Japan's world market share fell from 50.3 percent in 2004 to 24.6 percent in 2007).

It is not merely the existence of policy that is a driving force in the industry but also the stability of policy. As Professor Heal remarked, the coordination and predictability of U.S. policy "has been a mess." Tax credits, for example, have previously been set for short-term periods of several years and then either allowed to expire or renewed. In an industry that has high up-front capital costs, the profitability of a project relies on a long-term revenue horizon and cannot be assessed if the incentive structure is unknown—over the life of a typical solar project, the incentives cover nearly 60 percent of capital costs.

In the United States, this has led to inconsistency in investment levels. Wind projects have gotten the short end of the stick in such incentive expirations, compared to solar, and the wind industry has seen wild fluctuations in investment level as a function of policy. Although wind power is the cheaper of the two, for the foreseeable future it still relies on incentives to compete with traditional power sources. Wind power's production tax credits were renewed for only one year last October, while solar PV has an incentive policy in place until 2015. The result is that the wind-project pipeline for 2009 has stalled, because investors prefer to wait for legislative clarity.

Despite the benefit of solar PV policy to the market (which surpassed $20 billion globally last year), the U.S. share lags behind at approximately 8–10 percent. David Kalstas, executive vice president, distributed power group, for SunWize, a Mitsui USA subsidiary, says significant growth is expected in the coming years, with the United States likely to gain market share by growing faster than the expected global compound annual growth rate of 30–40 percent. The

bursting of the commodities bubble has favorably impacted the cost structure for solar PV, which in most of its various technologies relies on silicon feedstock in manufacturing a solar module.

Of course, the recession is having negative impacts. Because the tax credits only have an impact when taxable income is present, and because many investors now have less income to write off, the appetite for investment has weakened. Furthermore, the repricing of risk and associated higher cost of capital have disproportionate impact on projects with high capital costs. Mr. Kalstas noted that a 100 basis points increase in cost of capital requires an 8 percent reduction in the cost of a solar-PV module in order to be fully offset.

Christopher Stolarski, senior vice president of Mizuho Corporate Bank, Ltd., commented that an investment bubble in wind projects had formed and has since been pricked. "You need," he said, "a fully backed project and a very compelling story" now to get debt financing in place. According to Mr. Stolarski, who has many years experience in financing the wind industry, there is not a single U.S. bank providing term loans for wind projects. This is surprising considering the world-leading position of the United States in wind-power generation. Mr. Stolarski attributes this in part to the regulatory regime, which is aligned with capacity additions of only 500–1,000 megawatts of power a year. In contrast, the United States added nearly 3,000 megawatts last year. Banks are therefore doubly worried about lending—the uncertainties in the credit markets are compounded by the uncertainty in wind-project-related economics.

The panelists looked ahead to other measures that might contribute to the future growth of the solar-PV and wind markets. Among them, the fall in the cost of technologies is expected to allow solar and wind to reach—eventually—cost parity with traditional power sources now being distributed through the grid. As with such other industries as the personal computer and the cell phone, this is likely to lead to broader adoption. But Mr. Ito warned not to repeat Japan's mistake in approaching cell-phone design: we cannot risk creating excellent products that are not usable around the world. It is more important to make progress incrementally in ways that are broadly adoptable, even if a sacrifice in ultimate product quality is required.

Yet another current topic is setting a price for the environmental or social cost of releasing carbon dioxide into the atmosphere. The benefit of pricing carbon, according to Professor Heal, is that it is "technologically agnostic"—it reduces the competitive hurdle for all renewable technologies. As he teaches in his class, Heal noted that the United States has already succeeded in using a cap-and-trade system for sulfur dioxide in order to reduce acid rain. Such a system—already in place in the European Union for carbon-based emissions—might be coming down the road in the United States.

The event was cosponsored by the School's Energy Club, Green Business Club and Japanese Business Association, and it was one of the top-billed events of a new student-led initiative at the School, Clean Tech Month.

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