

International Energy Investment Opportunities for US Companies

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to the

U.S. Export-Import Bank:

Environmental Technologies and Renewable Energy Conference

October 16, 2007

Overview

For the next 20 minutes I'm going to give you an overview of the opportunities for investment in renewable energy in international markets. By renewable energy, I mean wind, solar, geothermal and biomass electric generation, as well as biofuels and even energy efficiency. The geographic regions in which I see the greatest opportunity are Asia and Latin America, especially China, Brazil and India.

I hope to also provide you with some insight into the role of the U.S. Export-Import Bank in financing such renewable energy projects. Additionally, we'll review some of the ingredients that make for a potentially successful project. Lastly, there are some trends that I want you to watch for as you assess the economic landscape during your investment consideration. Awareness of these trends will help you determine when and where to get in and what to watch for while you're involved.

Let's start with California's commitment to renewable energy

You likely are familiar with California's commitment to renewable energy. This is a great story and it's right in our own backyard. A few years ago, the state passed a law requiring the utilities to buy up to 20% of the electric energy from renewable resources by 2017. Governor Schwarzenegger signed an executive order that upped the ante to 20% by 2010, and a target of 30% by 2020. Last year, the state enacted the Million Roofs Bill and the California Public Utilities Commission passed the California Solar Initiative—a \$3.5 billion program to build 3,000MW of solar energy with retail customers. Why the attention? High energy costs, uncertain energy security, and global climate change. So far these programs are resulting in a boom in new investment in renewable energy—over 50 long term contracts signed with the utilities for brand new projects; and hundreds of retail solar projects being installed. California is and will continue to be a leader in this area.

But what about the challenge of the installed base?

California has a large installed base—about 40,000MW of capacity and a demand growing about 1-2% per year. We're simply not geared up to transition into renewable energy quickly—what we are effectively doing is filling the growth in demand with renewables.

In the developing world, the situation is quite different. The existing energy infrastructure is small and being overwhelmed by rapid economic growth in places like China, India and Brazil. They are energy hungry—and also facing the same issues as California—high prices, energy security and global warming. Essentially, these countries are positioned to use new technologies to leapfrog over the old (or non-existent) energy infrastructure. Hence the opportunity for renewable energy is that much greater. It's like what happened in telecommunications—without a large installed land line system, many countries in the developing world jumped quickly to cellular technology. These countries are positioned to do the same exact leap over an old energy technology and into renewable energy.

Scale is what creates the opportunity here

How big is this industry? Let me offer a few statistics: last year about \$71 billion was invested in the renewable energy sector (this counts venture capital, public offerings, M&A and private financings). That was up 43% from the prior year. To give some perspective, this is about a third of total global investment in power generation—even though the installed base of renewables is only about 1-2% of the global total installed capacity. Renewable energy companies employ about 400,000 people globally—not huge, but again adding significant numbers year on year. Installed capacity also runs at a

high growth rate—25-30% per year for wind and solar, for example. Most of the investment has been in OECD countries (US and Europe), but the fastest growing segment is in countries such as Brazil, China and India. With their huge populations and growing demand for power, Asia and Latin America afford investment opportunities for renewable energy technology that are enormous and getting larger every day. These countries will use the most efficient energy source for the region—be it solar, wind, biofuel or geothermal—and most likely a combination of all four depending on location.

Let's talk about renewable energy opportunities by region. First, in Asia there's the 800-pound gorilla: China

Where is China on renewable energy today? It is the world's largest producer of renewable energy (this includes large scale hydro), with 25% of its total energy capacity. It is the world's third largest manufacturer of bioethanol. China has the world's fifth largest installed wind capacity at 2,600MW, and is targeting to grow to 30,000MW by 2020—this is an extraordinary level of investment. China currently has 80% of the world's capacity for solar water heating. China has very little installed photo-voltaic (PV) capacity. This is changing as Chinese companies invest heavily in the PV sector (four have gone public in the past year). Experts

predict that by 2020 China will become a net exporter of every element of the photo-voltaic value chain.

However, China also has a high dependence on coal, a high growth rate of demand for energy, and severe environmental problems. While they are likely to continue to invest heavily in coal and other fossil fuel technologies, they have little choice but to move more to renewable energy resources. To facilitate development of renewable energy projects, the Renewable Energy Law was made effective in 2006 providing for greater transparency in procurement, mandated grid connection and tax credit and price support for certain renewables. The overall target is to increase renewables capacity from 10,000MW to 140,000MW by 2020.

Next comes India

India is similar to China—big population, high growth in demand for energy (9% per annum), and high dependency on coal. They will represent *one third* of global energy demand by 2050 (surpassing China along the way). To address in part the challenge of high growth, energy security and environmental concerns, India passed the 2003 Electricity Act mandating the promotion of renewables. The goal is to increase renewable energy sources from the current 5% of total energy production to 25% by 2030. They also established the Indian Renewable Energy

Development Agency with \$226 million US—about 5.8 billion rupees—to fund energy efficiency and energy conservation projects. The government has demonstrated a strong political commitment to improve the country's energy independence and its environmental record. India's president has set specific, time sensitive renewable energy targets for the big four—hydro, wind, solar and bioenergy, offering new regulatory incentives for power producers and government development programs. So what has happened? India is among the fastest growing markets for wind power generators. Currently it ranks 4th in wind power generation capacity worldwide, and ranked first last year in M&A activity in the renewable space as Indian companies purchased wind and solar manufacturers in Europe and elsewhere. They are also pursuing bioenergy (fuel and power).

What about the remainder of Asia?

- Japan, South Korea, Taiwan, Pakistan and the Philippines are other countries to consider.
- Wind energy seems to be the most aggressively pursued renewable energy source here.
- Japan is currently the 3rd largest wind power generator in the Asia-Pacific region. It is approaching the saturation point for onshore wind generation facilities. This

slow-down is caused by objections to project locations and a lack of political willpower to support renewable wind energy. Still, offshore projects present substantial investment opportunities.

The smaller markets for renewable energy in the Asia-Pacific region are Pakistan, Taiwan and the Philippines. There, only sporadic development opportunities exist. Most are on a relatively small scale.

Next in line comes Latin America

With the exception of Brazil, most Latin American countries are just beginning to change to renewable energy resources. Bolivia, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Nicaragua, Mexico, Panama and Venezuela all now have ministries and governmental agencies charged with targeting and developing renewable energy resources. Most of these projects are off-grid—meaning they're usually socially-oriented, poverty alleviation programs.

Larger commercial, on-grid projects are less prevalent in this region. Central America is a prime building area for geothermal power plants. Currently geothermal power stations provide 12% of total electricity capacity for Costa Rica, El Salvador, Guatemala and Nicaragua. Only Costa Rica, Argentina and Mexico have on-grid, renewable energy projects. A number of countries, including Mexico and Argentina have small wind power installations with plans on the boards for larger installations.

What about Brazil?

Brazil is the world's largest bioethanol producer and user. About 44% of its energy production comes from renewable sources. Last year \$1.4 billion in asset financing was put in place for Brazilian ethanol projects. Brazil has attracted the attention of some high-profile private investors. In March the Brazilian Renewable Energy Company raised \$200 million from a group that included former World Bank President James Wolfensohn, venture capitalist Vinod Khosla and AOL founder Steve Case. The company plans to build a series of bioethanol plants in Sao Paulo. Expected annual output is about 1 billion gallons. Ultimately the company aims to raise \$2 billion in project financing. Brazil will soon produce more bioethanol than it can use. That's intentional. The country has the US ethanol market squarely in its sights. President Bush has initiated a biofuels understanding between the two countries. Ultimately, this could reduce or even eliminate the \$.54/gallon US import tariff on ethanol.

However, Brazil isn't just about ethanol. Renewable electric energy is slowly gaining some lift. The government recently eliminated its 60% tariff on imported wind equipment. The sole domestic supplier was unable to meet internal demand. Foreign investors such as Iberdrola and Acciona are showing interest in Brazilian wind projects. In addition, Brazil aims to accelerate development of 1,200MW of wind projects through the Proinfa program of feed in tariffs and is expected to put an additional 6,000MW of wind projects under a similar feed in tariff scheme.

Let's turn now to the drivers that make for a successful investment

There are a number of key considerations for a successful energy project development.

First, the regulatory regime for support of renewable energy is critical. This can take the form of mandated purchases, tariff relief, feed in tariffs, tax breaks or other incentives. Several countries have some of these elements, including China, India and Brazil.

Be sure of the political stability of the climate in which you're investing. Polaris Geothermal learned this lesson the hard way. They saw half of their total market capitalization evaporate as the newly elected Sandinista government of Daniel Ortega took steps to question the validity of Polaris' concession in Nicaragua. Regardless of how this turns out, the value of the company is now in serious question.

Second, consider the integrity of the legal system, which can play a part in the entire investment decision process. Dispute resolution and fair hearings are something we're used to in the US. Not every country interested in renewable energy has our standards of fair play.

Third, be quite aware of the length of permit time. Some countries allow permitting to drag on and on—all the while investors receive no return. Consistency of permitting policy plays a large part in the timing as well. Investors can wade thru the

permit process for years only to find a new regime has changed the requirements and they must restart the entire process.

Fourth, look at the power grid or other energy infrastructure. It's one thing to invest in energy production, build the facility then get it licensed and operational. It sometimes can be quite another thing to connect to the power grid so your output can be profitably sold.

Fifth, consider the credit of the buyer of the project's output. In the electric sector, the purchasers almost universally are government owned. They may or may not be well run or financially bankable. This has been an issue for example with the Indian state electricity boards.

Lastly, be certain that you as an outsider are not prohibited or discouraged from making a direct investment in the country. Some countries—like China—may not officially prohibit foreign investment, but practically speaking, it can sometimes be very difficult. Given the quasi-governmental nature of investments in energy, and the long term nature of the investments, you should not underestimate the importance of interaction with the host government.

I'm often asked to identify potential opportunities

The opportunities vary by region, but in general, the renewable sector offers the opportunities to sell or invest in energy production equipment, construction services,

resource management or assessment services, operating services, energy efficiency goods and services.

In China, focus in particular on solar power generation—both the facilities and the equipment and wind energy facilities and the equipment. China has targeted a ten-fold increase in wind energy capacity. They don't have the current means to achieve this goal. That requires outside assistance thru investment.

To me, the most interesting investment play in India is in the offshore wind arena. With over 7,000 miles of coastline and the dry land obstacles preventing project approval, offshore projects should benefit. The current Indian manufacturers do not produce for the offshore market.

Certainly, bioethanol made from sugar cane is the most obvious investment in renewable energy for Brazil. However, don't forget about wind power. Investment in wind facilities is just beginning to attract some very savvy foreign players. They know what they're doing and they're testing the Brazilian market.

Future trends in renewable energy investment

Let's wrap this up with some observations on future trends in the industry:

1. Renewable energy investment, and in particular investment in energy production facilities, will increase dramatically over the next 30years.

2. This will be technology leapfrog similar to what we saw in cellular telecom.
3. We'll continue seeing industrial technology in China, Latin America and Greater Asia catch up to that of the G8. This will increase demand for clean, renewable energy among these nations.
4. While all renewable energy technologies will grow, look particularly for wind and solar to dominate as costs of production fall and environmental concerns in the developing world gain more prominence
5. We will eventually see the business of renewable energy moving from a niche category in overall energy capacity to take its place as a significant business in these countries.
6. Finally, I anticipate global interest in alternative, less carbon intensive energy sources to increase. We just saw this with the stand the Nobel Prize Committee took in bestowing its most prestigious award on Al Gore for his environmental work. This was more of a message to the world and a political statement than anything else.

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Thank you for the privilege of addressing you today. If you wish to speak with me further about Milbank's work in representing clients in energy and other industries, kindly give me your card and I will call you.

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