

Emerging green

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China has one of the fastest growing renewable energy markets on the planet, fuelled by wind primarily, with solar thrown in. It has an impressive manufacturing base in turbine supply, with the largest array of brands of any market. The solar component supply business is pretty dynamic as well. China has good intended regulation, and it works for the large part but it doesn't make it easy for international financiers.

Financing opportunities in manufacturing exist in solar due to the high investment cost for poly-silicon and module production facilities. The opposite is true in wind because assembly plants are not capital intensive at all. Given that most wind turbine suppliers are more like assemblers, they do not need high cost plant.

China's wind product is sold almost exclusively in the domestic market, while its solar modules are all sold overseas. This is due to regulation both in and outside China. Wind power capacity is incentivised and solar is not.

Solar manufacturing

Significant growth in overseas solar power capacity makes manufacturing attractive in China, especially with subsidised electricity for the facilities and lower labour costs. The solar market is growing at 30+% globally. European and US banks are potentially good partners for Chinese solar companies because they often understand the markets for the product as they are close to their home territory. The main risk for Chinese solar countries, and investors around the world who have bought into the IPOs, is one of over-supply at some point in the future.

The noticeable difference between the risk profile of Chinese solar manufacturing and many other renewable energy supply businesses is that most others have strong home markets. If you look at the global equipment supply business, renewable energy manufacturing has almost always sprung up to meet local demand, as is the case with China wind. For example, it is not a coincidence that GE Wind has a 50% market share in the US wind sector, or that Suzlon enjoys the same in India.

In contrast, China's solar supply business is nearly 100% dependent on overseas regulation. However, the market growth rates are undeniable, and arguably renewable energy has reached the point globally where it is here to stay. So many large and influential companies are now present in the sector that critical mass has probably been achieved, meaning that growth will continue.

Japan and South Korea generation

Neither Japan nor South Korea have indigenous energy sources. Both support wind and solar, and Japan has a manufacturing base in these two segments while South Korea doesn't – yet.

South Korea has entered only recently into the game, but has an excellent regulatory regime making it as attractive as any established European market. South Korea buys solar power for around \$600/MWh. However, local banks and institutions are able to provide the required liquidity for these modestly sized markets.

Numerous South Korean firms are looking into manufacturing and given their track record in other industries, they are well placed theoretically, although the learning curve would be steep and need to be more than jogged up.

Japan's manufacturing base for solar is exposed to the same regulatory risk as China. But Japan has a robust domestic market making it similar in profile to the majority of companies from a regulatory risk standpoint.

India is the fourth largest wind market and it has a manufacturing base to supply it. Latterly, through acquisition on the back of a soaring stock market and good operating profitability, Indian firms have begun to form part of the supply chain internationally. Suzlon's acquisition of Hansen, and Sterling's acquisition of WinWind are good examples.

Indian renewables debt

In India, as with China, local financiers are providing the financing for projects. International banks weren't helped by the central bank's introduction of rules effectively preventing US dollar loans above \$20 million for projects utilising locally produced equipment. This has now been relaxed to \$100 million which again makes foreign currency funding interesting for Indian projects because wind deals tend to be around that size unless portfolios are being financed.

Latterly some international developers have been seen entering the market but at this stage they are acquiring projects from local developers and/or turbine suppliers who possess the land banks. It remains to be seen whether they will become developers in the traditional sense.

Small-scale run of the river hydro is also growing in India and numerous funds are looking to access this market. The risk profile is similar to wind although developers typically have more natural resource data making it a decent opportunity albeit on the small side. Solar is seen as too expensive for the economy to bear, particularly as renewable energy is seen as a vehicle for introducing power generation to points closer to rural loads.

The rest of Asia contributes relatively little to the wind, solar and run of river hydro markets with some minor exceptions. Less than \$300 million was invested in wind in Asia outside India and China during 2007. Opportunities exist in some South East Asian countries, such as Indonesia for geothermal, but these have long lead times and are not particularly numerous.

Bio-mass

The main interesting market in the rest of Asia is bio-mass. Bio-mass is not covered in this article however because it is too fragmented to describe in less than a volume. The massive variety in feed-stocks means bio-mass has its risks. Standard Chartered Bank has an advantage here essential to success of a bio-mass strategy and that is its agricultural team. Successful bio-mass projects require a good understanding of the critical feedstock variables.

The rest of South Asia has no renewable energy power generation market although the countries do have the same potential as the very successful Indian market. The monsoon regime actually creates a relatively predictable wind resource, although with the added risk that a very large part of the annual production is produced during this period making the assessment thereof important.

Pakistan, through the Alternative Energy Development Board is making strides to develop the market domestically. This is very exciting because with load shedding occurring on a regular basis, wind, with its relatively short development lead times, can provide a material contribution to increasing capacity within the near term. The political troubles in the country have caused the pricing for debt to rise and fossil fuels are also rising, meaning on a relative basis it still looks like a good idea.

MENA

North Africa is beginning to see some activity in wind but remains a small market. The fundamentals are actually good and it is expected activity will steadily increase as fossil fuel prices remain high making wind power production cheaper, even with the high turbine costs seen. Turbines cost up to double what they did five years ago on a per MW basis. Morocco has a modest established market and Turkey has recently undertaken an RFP for thousands of MWs which could come on line during the next two or three years. South of the desert is just that when it comes to renewable energy. With the exception of run of river hydro which carries long lead times (the Bujagali project took a decade to get going), renewable energy is not expected to be a big market in the near term.

The Middle East has not really embraced the renewable energy markets, focussing instead on it's cheap available fossil fuel sources, water and other infrastructure projects. This is changing with the likes of Abu Dhabi pledging to spend \$15 billion in the sector. That is not to say the Middle Eastern countries are not doing anything in the space. They have been large private equity investors. It's just that Middle Eastern countries have not installed capacity themselves. Solar is the obvious opportunity and it is expected that more will be seen in the future.

Financing renewable energy power generation projects in the markets described is theoretically the same as anywhere else from an analysis perspective. In some of the markets, the growth is there, which transcribes into opportunity. In most markets local banks are very interested in participating. The challenge comes not from that but from the approach.

Financing issues

When you look at renewable energy power generation projects, natural resource assessment is essential. It is my opinion that the level of resource assessment is still not up to international standards. To be fair, this comment applies mainly to wind where the tendency is still to make do with the available wind speed data rather than actively obtain the requisite data set. Solar is measured largely by satellite and therefore has numerous data available, and hydro typically has years of information.

But wind, where investors are keen to make investments in the short term, typically do not look at the natural resource risk closely. And local banks, driven by relationships, go along with it. Local banks also typically do not have the experience in the sector to question in detail the resource risk and hence don't. For European and North American banks with large portfolios, this represents a challenge. They have typically prepared papers internally explaining how the borrowing base is created, and then find projects in the markets being discussed fail to meet those standards. It is changing however and the momentum is in the right direction. It's just not quite there yet in all cases.

Another consideration is the security package. Standard Chartered came across a wind deal example in China where it appeared part of the security package could be lost in a default. The developer assured us it was only crude wording and that the intent was not so. However you can't ignore it. Local banks appeared not to be worried and therefore the transaction proceeded on that basis. This provides another example of the challenges for international project finance banks, many of which find it difficult to make do with a less than perfect model.

Local currency funding can be a real differentiating factor. Since Standard Chartered Bank acquired Korea First Bank, our local currency capability has made project finance much easier and cheaper for the client, particularly where the client is not using the product often.

International banks have significant expertise in the sector these days, and this, somewhat counter-intuitively, makes it more difficult to do business in project finance within a renewable energy market that is still immature and nascent.

However, on the positive side, the market is growing at a fast rate and as investors continue to build their portfolios and become increasingly professional in their developments, the market seems set for continued increases in opportunities. Refinancing in a couple of years could also provide good pickings. Being choosy is key and not being afraid to pass a deal that does not meet the criteria. This way the balance sheet is protected for future business but also the market will be quicker be forced to evolve to meet the required standards for international liquidity.

Footnote:

1 For the purposes of this article, Asia is divided into, China, Japan, South Korea, South Asia and the rest of Asia. South Asia is split into India and the rest of South Asia. Africa is chopped into North and Sub-Saharan, and the Middle East remains whole.

About the author

Shane Bush is Head of Renewables at Standard Chartered Bank which has an unparalleled network in emerging renewables – notably Asia, Africa and the Middle East. The team provides funding and advisory solutions across corporate and project finance, winning Project Finance "deal of the year" in 2007 for it's work with Aga Khan and Sithe Energy, and Dongyang, who developed the 250MW Bujagali run of river hydro and 20MW Sinan solar projects in Uganda

and South Korea respectively.

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