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PV PROJECTS – THE CURRENT CLIMATE FOR INVESTMENT

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At the risk of spoiling the suspense: the resume of this article will be that photovoltaic projects currently offer a great opportunity despite a number of problems and recent hiccups in the market that will be outlined below. In fact, it can be assumed that photovoltaic (PV) very soon will overtake wind as the most attractive and promising renewable energy technology for investment. This statement may be surprising. After all, few PV projects on the planet are competitive yet in terms of grid parity, where a kWh of PV-generated electricity would cost the same to make as a kWh generated by traditional resources such as coal. The South-Western US, Southern Italy and Spain may see grid parity within the next few years, but, generally speaking, PV projects still have to rely on generous government incentives for support.

Yet even in the absence of competitiveness, or rather because of such lack, incentives will continue as governments all over the world acknowledge the need to increase the share of renewable energy and see PV as an important, or even indispensible, part of the goal.

Not surprisingly, the market has grown at an annual rate of 30 per cent over the past 15 years and growth is expected to continue on a large scale. Substantial investment is needed to finance this growth, and the ambitious plans of governments: an ideal climate for investors.

Almost all PV technologies are nowadays accepted by banks, while at the same time the efficiency of modules has steadily increased over the last few years and can be expected to increase even further, leading to higher returns. Investment into this growing market will be channelled by considerations such as costs, demand and availability of debt finance.

Costs

Falling module prices are a major factor contributing to the recent success of PV projects. Module prices have decreased by an average of four per cent per year for the last 15 years, the last two years seeing a combined drop of about 40 per cent. Total investment costs have fallen less steeply as the price of other overheads such as cable, inverters and administrative costs remain steady. Still, overall investment costs have come down, since module costs typically represent up to 40 - 50 per cent of total PV system costs: while until recently PV investors paid between €6m and €7m per MW, the figure today is closer to €4m.

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The main triggers for falling module prices are twofold. The recent abundance of silicon – ending a years-long bottleneck on the PV market – may be the most significant factor. After all, the price for the silicon wafer contributes about 45 per cent of the costs of a silicon-based cell. Competition is also up, with newcomers entering the market and price wars ensuing. Where Sharp Solar ruled the roost, companies such as First Solar have taken the lead, and manufacturers are cropping up particularly in China, such as Suntech Power, Yingli Solar and Trina Solar. Asia is expected to contribute more than 80 per cent of silicon-based modules by 2012. European manufacturers fear these new manufacturers are exporting their goods at below market price to grab market share. Such price wars are taking their toll on some European manufacturers but are unlikely to undermine the sector as a whole. In any event it is fair to say that the PV module market is about to turn into a buyer's market – a complete change from just a few years ago, and price for silicon-based modules are expected to be halved by 2015!

Off-take prices

Beside installation costs, the most important factors for investors and debt providers to consider are how much the market will pay for PV-generated electricity. Despite falling prices PV projects in most parts of the world are still far away from being competitive with other sources, whether traditional or renewable. In Germany, for example, it costs close to 30 Euro-cents to generate a kWh of PV electricity, compared to wind, which can be as cheap as 7 cents per kWh to generate. Yet Germany is the country with the largest share of operating PV projects.

The reason for this success, as it is in countries like Spain or Italy, is that the state essentially guarantees, or rather ensures, the off-take itself as well as the price. It could be argued that this uncompetitive behaviour and consequent need to rely on state support actually defeats the sustainability of PV projects. However, in fact, the opposite appears to be true: given governments' commitment to the sector, PV projects have enjoyed economic success and stability and will continue to do so.

Even the UK, not famed for its sunshine, has adopted a feed-in tariff for PV projects of up to 5 MW. If used to its maximum capacity, PV projects could generate a significant amount of electricity. It remains to be seen what the effect of that feed-in tariff will be, but PV projects in southern England may be as successful as those in central Germany, which shares the same latitude.

Feed-in tariffs provide a luxurious situation for projects, with a guaranteed price for the electricity they make. This has spurred huge growth in countries where the system is applied. It has also led to objections by consumer groups and politicians who argue – not always without cause – that feed-in tariffs are higher than necessary for the sector's growth and hand project owners disproportionate bonuses. Germany's new coalition government originally promised it would bring down tariffs regardless of industry warnings that this would sound the death knell for PV in Germany. Forced by the industry to back down, Berlin eventually announced only mild reductions, leaving the industry basically unscathed.

Financing

The PV market with all its advantages and appeal is, of course, not immune to the current financial crises. Debt for PV projects is not as easy to be had as it was a few years ago. Numerous banks are still interested in PV projects and willing to lend, but it is definitely a seller's market insofar as the banks can pick and choose.

Growing sophistication among developers and engineering, procurement and construction (EPC) contractors helps attract these banks. Gone are the days when companies simply used EPC agreements from wind projects and replaced the word "wind" with "PV", and banks have welcomed this improvement.

Other potholes in the PV sector have become familiar enough for lenders to accept. Among these are issues such as down-payment and transfer of title, issues that are specific to the PV market. Manufacturers still demand heavy down-payments upon ordering and often these payments go to Asia from where PV elements are shipped to Europe – all with the consequent questions of risk, transfer of title, etc.

One recent trend that may make life easier for investors is that module manufacturers are increasingly presenting themselves as integrated turn-key service providers much like wind turbine manufacturers, branching out into construction and installation as well as providing the hardware. This trend could solve interface problems between, project owners, module manufacturers and EPC providers as it renders the necessity for the EPC provider to buy the modules on its own account, or for the project owner to buy them and hand them over to the EPC provider and all the ensuing legal problems unnecessary.

Local market development

PV markets worldwide have developed in a number of different ways. In Europe Germany, formerly the champion of PV projects, seems back on track after some doubt about the future of its feed-in tariff. Similarly the PV market in Spain, which enjoyed significant growth until 2008, is on a path to recovery. Italy appears to be Europe's new champion of solar projects, with substantial interest and development activity but with a continuing question mark over permits.

Interest in PV development is also growing in Central Europe, notably Romania and Bulgaria, though trust in these markets must yet be established. Bulgaria's market neared a complete standstill following reports reprinted across the specialised press that the government might be considering a moratorium on the country's generous feed-in tariff. Most investors left the country following these reports.

The US market is a huge source of growth, especially in the south-west and California. In some US states the market is fuelled by generous renewable portfolio standards (RPS), which require the utilities to source a substantial segment of their electricity from PV. One notable example is New Jersey – a state not usually noted for its sunlight – whose PV market has enjoyed unprecedented growth thanks the state's RPS.

Another market currently attracting interest is South Africa, which has published generous tariffs for solar power. Whether or not this market will take off depends on the government's next steps, as it tackles rid expansion and access, but it is a country on which developers and investors are keeping a careful eye. ■

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