

# Renewable energy projects: Risk and insurance elements



A parabolic trough power plant similar to the ones used in Masdar City (Photo: Hauke Dressler)



Although the risk exposures faced by renewable energy plants are similar to those of other construction projects, the sector has unique needs arising from the untested nature of its technology and operational structure. **Mr James Green**, Head of Renewable Energy at Jardine Lloyd Thompson Limited, elaborates.

Investing in renewable energy generation is one of the means by which individuals, corporates and governments can prove themselves to be conscientious global citizens. An action today that is seen to conserve resources and make use of nature's sustainable gifts, particularly by those economies with a traditional abundance of dependence on fossil fuels, will be commended the world over.

In light of this fact, there is growing evidence of a commitment to renewable energy generation in the Middle East, with construction either under way or in the planning stages on a wide variety of projects, while legislation to enable infrastructure and incentives is also being drafted and proposed by governments throughout the region.

Examples of these include positive noises on national energy strategy recently from Jordan, whose minister of Planning and International Cooperation, Mr Jafar Hassan, reiterated the Kingdom's determination to adopt renewable energy sources as a means of securing the country's energy independence.

In Saudi Arabia, a project was launched by the King Abdulaziz City for Science and Technology in early 2010 to develop solar-powered desalination plants which will produce 30,000 cubic metres of water per day, meeting the needs of over 100,000 people.

However, by far the most ambitious renewable project and comfortably one of the largest the world has seen to date can be found in the UAE at Masdar City in Abu Dhabi. At the core of this US\$15 billion development is the Shams 1 CSP demonstration project which uses parabolic trough technology to concentrate the energy of the sun

from curved mirrors onto liquid-filled tubes. Masdar City is also testing the possibility of using geothermal energy to generate a proportion of its needs, using established oil-well drilling techniques to harness high temperatures up to 4km below ground.

Unfortunately, there have been some well-publicised delays in the latter project, and a climate of scepticism has emerged about Middle Eastern economies' dependence on fossil fuels for power generation as opposed to export. This has led to a perception that the region may be in danger of falling behind. The belief is regrettable because it is in spite of the stated aims by governments from Qatar through Saudi Arabia and across to Morocco, many of which have promised to generate between 5%-20% of their energy needs from renewable sources by 2020.

Of course, not all renewable power generation projects are of the scale and ambition of Masdar City, and enthusiasm does exist for the Middle East's potential as a credible generator of renewable energy, particularly in relation to wind and solar.

## Risk and insurance enabler

Historically, anybody wishing to build a renewable plant has often had to raise money through project finance. To do so off balance sheet in this way, you must demonstrate that whatever you are building is going to work, generating enough energy to pay the loan back.

It is in such circumstances that an industry still in its infancy requires solutions to encourage development. Viewing renewable projects from a risk and insurance perspective can provide a vital component in the process and a means

of incentivising those involved.

Policymakers, developers and investors interested in renewable energy in the MENA or GCC region need their insurer(s) to provide solutions that smooth the process and protect hugely valuable physical and financial assets. But how do they source the correct and genuine expertise needed to understand the exposures unique to this market?

**Renewable risk and insurance characteristics**

There are numerous aspects to renewable energy construction projects that are common to enterprises in all walks of life; they are prone to many of the same exposures that we are used to dealing with every day, whether as householders or major industrial owners. However, the sector owes almost all of its differences to the prototypical – whether actual or perceived – nature of its technology and operational structure. In a number of cases, the scalability of a project from demo to commercial size can present a number of issues.

There are technological difficulties as far as insurance is concerned, simply because, in many instances, these are new and often untested pieces of hardware. This being the case, it is not the role of insurance to fund research and development costs. Technology which works well in very carefully controlled environments can sometimes be subject to unforeseen risks when it is put into the front line.

From a risk management perspective, the large amounts of research and development costs can make it more difficult to value renewable energy projects as a going concern. This created some uncertainty as to their reinstatement value because understanding the asset over a lengthy time period can become more unpredictable. Indeed, experts involved in power generation from solar plants using photovoltaic cells in the Gulf have learned that a combination of sand and humidity can cause a cake of dust that, if not managed correctly, would almost entirely block the sunlight. It is conceivable that without a risk management plan to mitigate this natural hazard, a renewable energy project would render largely irrelevant the fact that average solar radiation in the MENA region is twice that of continental Europe.

A number of significant unknown factors must be overcome in order to manage the risks involved in construction of renewable energy installations. Some technologies have proven themselves suitably mature. For example, within the onshore wind power generation industry, one of the beneficial developments that has been made to mitigate risk in this sector is in the production, manufacture and availability of blades. Building good supply chain resilience into a risk management programme for a renewable energy construction project must be considered carefully in order to achieve a sensible premium for developers.

In the construction phase, just as much as with operational risks, once a component part fails, can it be restocked quickly in order to avoid lost revenues through delay? This is particularly important as failure to build in time may result in government incentives going back to the treasury of that particular nation.

Meanwhile, construction and testing carry a significant risk of contractor liability; this is likely to cause a significant amount of difficulty in the coming years as projects grow in size, number and complexity. Developers’ aims are to a certain extent at the mercy of the supporting market’s ability to keep pace with demand. For example, if a contracting


sector in the Middle East has few providers that can promise the kind of experience needed to reassure investors that their assets are being well-serviced, there is a chance this could represent a significant risk from a physical or business interruption standpoint.

**Experience and data**

In theory, if you have a renewable energy project that is utilising unproven technology, then with an experienced broker, you can still get the project off the ground. However, as the examples above explain, insurers that initially assess a development’s risk profile will have a large number of questions that need to be answered. It is vital that those insurers get comfortable with the project and understand the technology, so that they can offer the cover that the lenders or developers require.

For the established property damage risk factors, the Middle East is in no worse a position than the rest of the renewable market globally. Indeed, it has some advantages as catastrophe exposures are generally lower for example. If a project needs straightforward risk transfer of a construction or operational property programme where there is a known risk factor with no business interruption exposure, then insurers should find themselves treated in a very similar vein to other commercial property damage covers. This is despite the fact that there are not the same levels of historical loss data specific to renewable projects available.

Outside of these traditional exposures, innovative warranty and performance risk solutions do exist for various renewable technologies. The specific benefits of such solutions are that they can offer guaranteed output and therefore increased certainty of cash flow, an essential component when financing a project. It should be noted however, that these niche types of coverage typically cost significantly more than traditional types of insurance and involve a complex underwriting process.

As renewable energy has developed around the world, the ability of insureds and their brokers to liaise and partner with insurers has been central to the industry’s success. Without a deep understanding of the needs of the insured, projects can fall at the first hurdle as financiers take a step back. The partnership between the key stakeholders, working together to develop tailored green energy insurance and risk management solutions, is therefore essential to the continued growth of this industry. 



Artist’s impression of Masdar City, located near Abu Dhabi