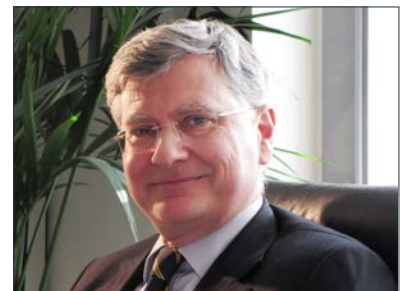


## MARSH INSIGHTS: GREEN AND GREENER NEWS

ISSUE 2, 2015

Welcome to the latest issue of Green and Greener News (GGN), Marsh's renewable energy newsletter. In this edition we report on trends and developments within the industry to support your business planning and risk management and mitigation decisions. Foreword by Mark Pollard, Global Leader for Renewable Energy



Every day, it seems, we read press reports about climate change, carbon emissions, and global warming. It has been this way for years – but in recent months the situation has changed somewhat. Until quite recently, the debate was dominated by anecdotal evidence, uncertain science, and media scaremongering. Opinions clashed; every theory had its challenger. The result being that we, the “general public”, didn't know what to believe: The science was beyond us and the information too confusing to be able to take a real view.

But now it's different. The Intergovernmental Panel on Climate Change's (IPCC) Fifth Assessment Report has altered public perception. The report itself is complicated – sometimes controversial – but it doesn't sit on the fence. World leaders have stood up, including the President of the United States, the Pope, and, more recently, the Islamic Declaration on Global Climate Change.

Hopes are set on the United Nations Climate Change Conference in Paris later this year, but questions remain. Will the developed world put its shoulder behind the push? Will the developing world find the assistance and the encouragement to join in?

All of this is good news for low-carbon power generation. Targets and expectations are soaring, and opportunities abound. It's an interesting time for risk managers too, with new technologies, new contractual and financing structures, and new ideas in new territories.

Regulators the world over are tasked with addressing the energy “trilemma” – creating mechanisms which balance three key requirements: power supply security, equitable pricing, and environmental optimisation. Challenges include the intermittent nature of solar power and wind power, and the technology and infrastructure required for large-scale storage.

Interesting times therefore await us. Marsh is committed to providing solutions, innovating, and serving the industry as opportunity turns into risk and risk turns into opportunity. We're also here to comment on trends and issues, share our point of view, and challenge conventional thinking. With this in mind, we hope you enjoy this issue of Green and Greener News.





# THE CHALLENGES FACING JAPAN'S BURGEONING OFFSHORE WIND INDUSTRY.

Following the Fukushima disaster in March 2011, Japan has looked to wind power in order to meet the country's need for a secure and sustainable power supply. However, before the implementation of a renewable energy strategy can begin in Japan, a number of issues need to be addressed, says Maarten Mulder, head of renewable energy at Canopus.

The tsunami that hit the Fukushima nuclear plant in March 2011 triggered the world's worst nuclear disaster since the 1986 meltdown of the Chernobyl plant in Ukraine. Events at Fukushima, with the evacuation of 300,000 people and the difficult and costly cleanup operation that followed, created a severe short term power generation shortfall as nuclear plants suspended operations, and a strong movement to reduce its reliance on nuclear power.

## CURRENT CHALLENGES

In the swift move away from nuclear power, electricity prices in Japan fluctuated greatly and the quantity of fossil fuels being imported leapt, leading to a significant increase in carbon dioxide (CO<sub>2</sub>) emissions. This prompted further questions about how Japan could meet the need for an independent, secure, affordable, and sustainable power supply.

## JAPAN'S VISION

Currently, fossil fuel imports into Japan are being reduced and there is a growing consensus that the nation's power should be generated by a combination of nuclear and sustainable power plants. Up until the Fukushima incident, sustainable electricity in Japan was primarily generated by hydroelectric power plants; however, these were only capable of producing around 10% of the national requirement and were running very close to capacity. At that time, the use of other sustainable energy sources such as geothermal, solar, and wind was negligible.

Building these assets to cater for a far larger proportion of Japan's overall energy needs will therefore require a transformation of the existing Japanese energy market. This transformation will need to follow a similar vein to "energiewende" (energy transition) in Germany, which has also been attempting to implement a renewable energy strategy to replace nuclear energy, and will be heavily dependent on offshore wind to meet its goals.

Japan's dramatically increased desire for sustainable energy also mirrors that of other countries, with a wide range of initiatives currently being implemented throughout Europe. The greatly-reduced cost of offshore wind energy now being achieved in Europe is also of interest to Japan. Unsurprisingly, several major Japanese financial and industrial powers are actively involved in bringing about this new energy market in Europe. Japanese investment and involvement in European offshore wind and grid activities is expected to pay off in the implementation of Japan's own offshore wind initiatives.

## FUTURE CHALLENGES

Before such large-scale projects can begin in Japan, a number of issues will need to be addressed. For example, the traditional energy sector will have to be deregulated and the high investment costs associated with offshore wind will have to be compensated by politically-supported, higher feed-in tariffs.

Furthermore, the Japanese national grid will require significant investment. This is partly due to the fact that the Japanese grid is separated into a 60 Hz western segment and a 50 Hz eastern segment, divided across nine autonomous regions that are only interconnected to a limited extent. It will be an exceptional challenge to transfer the energy from high-wind-low-demand regions in north Japan to low-wind-high-demand industrial regions in the south.

The Japanese offshore wind industry also faces other challenges. Offshore wind plants in Japan could potentially generate 600 GW of power, yet only a portion of this can be generated at sites that are suitable for seabed-founded installations. At all other sites the seabed is simply too deep (in excess of 50 metres). Fully-floating infrastructure comprising wind turbines, substations, and offshore high-voltage stations (OHVSs), including cabling – all fully-anchored – would have to be used at these sites.

Experience with floating wind turbines is currently limited to just a few sites around the world. While proven technologies can be used in the application of various components on floating installations, the fact remains that the challenges involved are enormous.

The conditions near Japanese waters, such as exposure to typhoons, tsunamis, and earthquakes, will determine the type of foundation (mono-pile, jacket, gravity-based, etc.), the appropriate floating body (spar-type, semi-sub, etc.), and the anchoring that will be required.

Japan therefore faces significant challenges in creating a fully-fledged offshore wind industry, and there are a number of open-ended issues that will need to be addressed in achieving that. Despite this, Japan has excellent offshore wind sites, an outstanding national industry to supply all of the componentry required, and the harbors and maritime service providers necessary to support the industry. With Japanese investors and manufacturers already involved in the European offshore wind industry, Japan is in a strong position to tackle these challenges and is ready to take the next steps relatively quickly.





# ENERGY EFFICIENCY INSURANCE

Despite a commitment by the European Union (EU) to a 20% energy saving by 2020, uncertainty surrounding the effectiveness of energy efficiency technologies means some lenders and investors remain nervous of such projects. In such instances, says *Paul Cullum, Product Development Manager at HSB Engineering Insurance*, energy efficiency insurance can give peace of mind and increase the attractiveness of energy efficiency projects.

The International Energy Agency has estimated the global energy efficiency market to be worth at least US\$310 billion a year and is therefore predicting that it will continue to grow<sup>1</sup>. The EU has committed to a 20% energy saving by 2020, and the proposed implementation of the Energy Act 2011 by the Department of Energy & Climate Change is scheduled to start in April 2018. Retrofitting buildings with energy efficiency measures is becoming an important topic of interest for property owners and occupiers.

Yet despite compelling economic arguments, uncertainty over the effectiveness of energy efficiency technologies means lenders and investors can be nervous of such projects. Faced with this issue, the insurance industry has been looking at ways to reduce uncertainty and increase the attractiveness of energy efficiency projects.

As the expected implementation of the 2011 Energy Act approaches, older, inefficient commercial building stock will become less attractive and require significant investment to ensure that new leases can be negotiated. Often, maximum results require the deployment of a full package of individual initiatives,

such as thermal window films, roof-mounted photovoltaic panels, LED lighting, more efficient boilers, and building management systems. The measures available to enhance energy efficiency represent many different technologies and approaches, and effective programs can achieve significant reductions in consumption – sometimes as much as 40%.

## The EU is committed to a 20% energy saving by 2020

The costs associated with energy efficiency projects can be substantial. They can be funded by the company or an external source of finance can be found. Banks and private equity funds can be uneasy about providing the required loans for energy efficiency projects as they do not necessarily understand the technical aspects of the risk, but see it strictly in terms of credit risk. Insurers, using specialist models, can deliver real value by presenting a realistic picture of projected performance and inherent risks.

Energy efficiency insurance is targeted mainly at energy services companies (ESCOs) as it protects them against a shortfall in the predicted savings, which they often guarantee, and the income derived from service fees and green energy incentives. Large-scale facility owners such as major companies or government institutions seeking to optimize their energy management are also finding this type of insurance attractive.

Available for periods of up to five years, energy efficiency insurance provides cover for three key areas:

- Physical damage – covers the equipment and materials being installed as part of an energy-saving project, including breakdown (replacement is on a new-for-old basis).
- Business interruption – covers loss of gross revenue and increased cost of working following an insured loss or damage.
- Asset performance – covers the annual shortfall in energy savings, caused by deficiencies in the design or implementation of energy-saving measures, compared to the amount of savings insured by the policy. Due to the technical nature of the energy-savings measures, this element of the cover requires that a project audit be undertaken.

Considering that in many European countries approximately half of buildings are more than 50 years old, the potential for improvements to reduce energy consumption and emissions is vast. With the EU committed to a 20% energy saving by 2020; the proposed implementation of the Energy Act 2011 in 2018; and financial institutions looking to invest in energy efficiency projects; the energy efficiency sector is set to grow substantially over the coming years.

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<sup>1</sup> International Energy Agency – Energy Efficiency Market Report 2014



## IS ICE A RISK TO A WIND FARM DEVELOPER/ OPERATOR IN SCANDINAVIA?

*Very few claims may have arisen as a result of ice damage; however, Scandinavian wind park owners need to implement risk-based engineering solutions to minimize its impact on the commercial operations of a system, says Anders Orebrandt, Marsh's Power and Energy Practice leader in Sweden.*

It is no surprise that Scandinavian winters can be very cold indeed, particularly in northern Scandinavia, where temperatures regularly drop to -35 degrees during the long winter (between October and April). Naturally, ice is a consideration when planning a new wind farm in this environment.

Having worked with the Swedish Wind Power Association and leading local and international insurance markets, and through analysis of our own research, we see that historically ice has not presented a problem. Very few claims have arisen as a result of ice damage and as a result ice does not feature high up on the insurance market's assessment of potential risks which may need to be managed to avoid potential losses.

For a wind park owner in northern Scandinavia - building sufficient downtime, perhaps up to 10% of generating revenue within their commercial financial model for lost production resulting from ice build-up, is an important commercial acknowledgement of operating in this type of environment.

The (SCADA) supervisory control and data acquisition systems are very important in identifying ice build-up by monitoring vibration levels in the system. If unusual vibrations are detected, the system will be automatically and remotely shut-down, and only re-started after on-site visual inspections have been satisfactorily completed. This does mean that systems can be closed down for long periods, often until the offending ice has melted.

There are a number of risk-based engineering solutions being utilized to minimize the level of downtime and impact on the commercial operations of a system. Many manufacturers have model operations with automatic de-icing on the leading blade edge, and it is also possible to install hot air blowers within the nacelle structure - both of which can be operated remotely or through the installation of sensors. Unfortunately, it is very difficult to retro-fit such systems, and is generally only commercially viable for new installations.

It is very important for developers to consider changing climatic conditions over the full finance/operating period and ensure they give due consideration to selecting the right winter model, which should not just be influenced by price in what is a competitive market. Developers should also work with their advisors to amend service and maintenance agreements so they that they will adequately respond to the climate where the wind turbines are to be located.





# WHY INSURANCE COST ARE RISING FOR BIOGAS POWER GENERATION PLANTS

Biogas generation has increased dramatically in the UK in recent years as farmers have realized there's money to be made from slurry. However, significant losses in the biogas industry have resulted in a rise in premium rates to insure the process, says *Alan Fitzpatrick, Power and Renewable Energy Risk Engineer at CNA*

The United Kingdom has approximately 7,000 dairy farmers producing more than 90 million metric tons of slurry per year. Traditionally, this slurry is recycled by putting it back on the farmers' fields.

Today's farmers have recognized that, by using the slurry with other feedstock through a production process called "biogas generation," methane can be produced either for exportation to the National Grid or to generate electricity and heat. The slurry and feedstock is put into a sealed concrete/steel tank, usually described as a digester or fermenter, containing live bacteria and no air. The bacteria feed on the feedstock and slurry-producing methane.

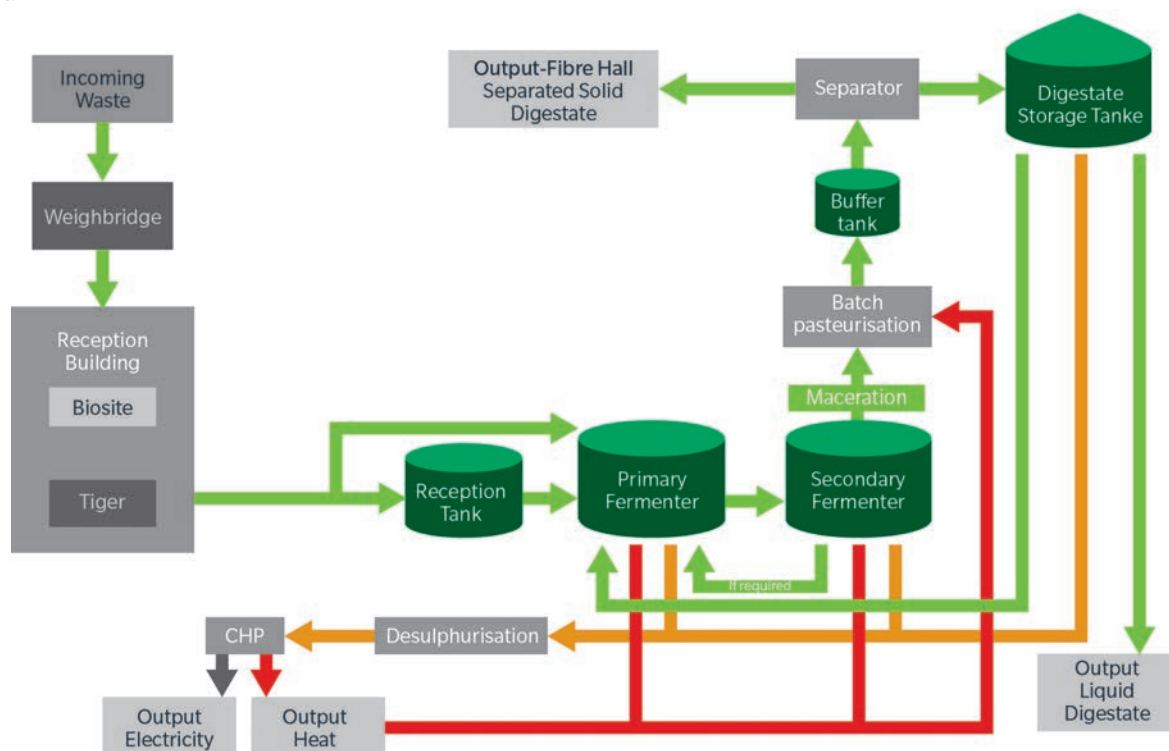
This production and sale of electricity and gas provides an income for the farmer, and subsidies are available from the UK Government for the generation of electricity and the production of heat.

Feedstock for use in the digester/fermenter can also come from other alternative sources; with the increased separation of household food waste from plastics and cardboard, food waste can now be used with garden waste.

The diagram below is an example of how the process works using food and garden waste. It shows two fermentation tanks; the use of a second tank enables greater methane output.

In addition to the generation of electricity and heat through this process using a gas engine, two by-products are created. The first is a liquid digestate which can be returned to the farmer as clean fertilizer, and the second is a solid digestate which, in theory, can be sold to the public as a low grade fertilizer compound.

So what are the issues insurance companies are experiencing?



## 1. DESIGN

Most owners of biogas sites are professionals in other spheres, so they depend on their chosen contractors to deliver a working plant. This is where difficulties can arise.

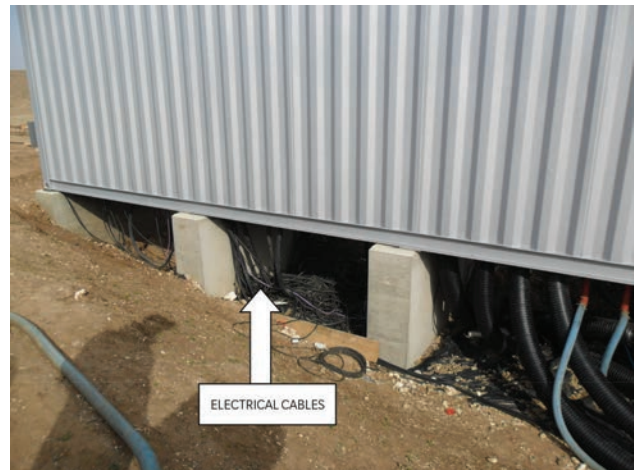
One of the biggest exposures of the process is the explosive nature of methane gas. From an insurance point of view, there should be good separation between each component of the process, including the generation plant so that if there is an explosion minimal damage is done to the overall installation. Unfortunately, there are many small sites with no clear separation between plant main components, and yet they are surrounded by vast open fields often owned by the same farmer or company. A number of serious explosions have occurred in Europe with all the main components on site destroyed.

An example is shown below:



This type of generation requires government subsidies for it to be profitable for the owner. Subsidies vary considerably depending upon the country in which the site is located. Currently, foreign contractors are tempted to enter the UK market, where a large number of construction projects are proposed. However, some selected contractors have been in undeclared financial difficulties, which have often resulted in poor build quality as the company has tried to cut costs. Sometimes a plant has been partially built when the main contractor has been declared bankrupt.

The picture above right shows an example of a bankrupt site with electrical cabling under the main control cabinets, which is far from desired practice.



## 2. CONSTRUCTION

Over time, there have been significant changes in the construction of digestate tanks. In the early days, tanks were of riveted construction with mastic internal sealing, but the industry experienced complete failure of this type of tank due to the corrosive nature of feedstock during conversion to biogas and digestate. Corrosion on rivets and riveted seams created leakage and, in some instances, complete failure of the tank. Sites were flooded with tank contents, with digestate leaching into water courses and electrical components completely destroyed.

Now tanks are either bolted or welded steel or constructed from concrete. They tend to be partially buried and have banded membranes with leakage alarms fitted.

The picture below shows a new installation tank being fitted out with insulation and membrane clearly visible.





Perhaps one of the largest claims recently made during construction was when a site was in the final stages of testing. Nitrogen was left in the digester tanks overnight as a purge gas prior to bacteria and feedstock being introduced into the tank. However, a differential was caused by a change in temperature from day to night creating a vacuum. This is not usually a problem because tanks are fitted with safety and vacuum valves but, unbeknown to the insurers, the main contractor had fitted a shut-off valve between the digester tank and the vacuum/safety valve to prevent nitrogen leakage.

The consequence of this was that the tanks were sucked in causing damage requiring major repairs which delayed construction by approximately 12 months.

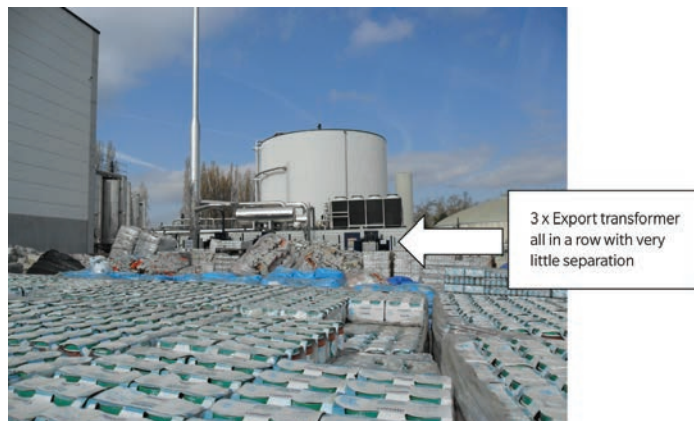
### 3. OPERATION

The range of skills held by plant operators varies considerably. This is often evident in the plant operation claims. To give some examples of poor engineering and management, two images are shown below.

The first shows the main gas line into the engine with its pipework supported by a wooden prop. This is the main gas line into the engine; the line was reported to have had a problem.



The second shows food waste and packaging adjacent to the main transformers for the site. An electrical failure in a transformer could, potentially, start a fire which could spread to, and destroy, the main buildings.



It is essential for any insurance company involved in this business to have policy terms which require:

#### A) COMPETENT SITE OPERATORS

The main contractor for the build should provide training for the site operators, which can be supplemented by off-site courses such as those provided by the Waste Management Industry Training and Advisory Board (WAMITAB).

#### B) OPERATIONS AND MAINTENANCE CONTRACTS

These must be in place for the site engine. The main engine manufacturers in the biogas business are Jenbacher (G.E.), Rolls Royce, and Caterpillar. Other engines in the market place, such as 2G, are derivatives of these. Typical engine contracts will give an availability of the engine of between 92% and 95%, with call out times within 24 hours.

As the cost of an engine contract is seen as expensive by some, insurers have experienced very expensive claims due to lack of competence as site owners attempt to maintain engines themselves. The engines require full professional engineers with the correct knowledge and skills to maintain them, as they are more complex than most farm machinery. Engineers should be from the manufacturer or their recommended agent.

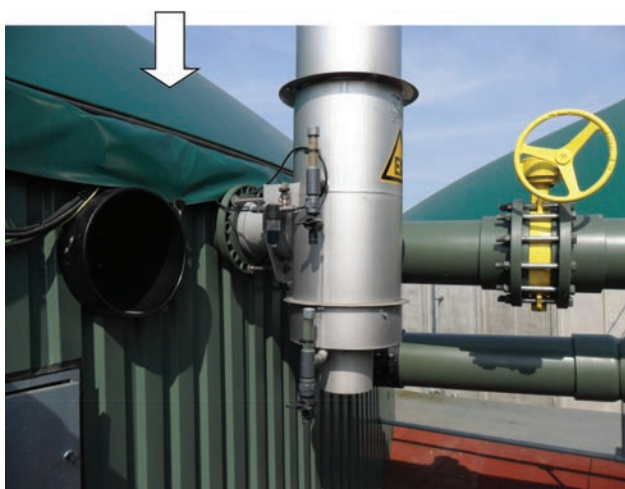
#### C) MANAGEMENT OF FEEDSTOCK IN THE BIOGAS PROCESS

Feedstock needs to be of the correct mix for effective production of biogas. If the mix is too rich, for example, with excess alcohol or fish stock, the bacteria get very excited and generate too much gas, causing foaming. If the mix is too lean, the bacteria die so very little gas is generated.

The industry manages the feedstock process through a combination of the design of the plant, careful input of the correct feedstock materials, and constant monitoring of the digestate tank.

Laboratory tests are regularly taken and most sites send samples to an outside specialist laboratory for monitoring. Feedback from the laboratory tests allows the input stock to be adjusted to prevent issues occurring. However, it is the experience of insurers that some owners look to maximize the output of biogas beyond the design of the plant so the feedstock becomes very rich, with excess foaming occurring on top of the liquid level. To counteract the foaming, a knock-down compound (silicone oil-based mixture) should be on site. This can be fed in on top of the foaming to reduce its effects. Some plant designs do not have an injection spray bar, so the foam has a tendency to block safety valves resulting in the over pressurization of the tank.

If this occurs and the tank has a soft double membrane (shown in green below) the membrane becomes stretched beyond its design.



If this type of incident occurs, the tank must be emptied with all valves cleaned and checked for operation. New membrane covers are required to be fitted and checked. If the Environment Agency becomes involved in this type of incident, it can take more than a year before a plant can be brought back into operation as the site owner has to prove competence and appropriate design of the plant and so on.

Insurers are now insisting that biogas plant owners have the knock-down kit which can be injected and also large discharge valves allowing emergency lowering of the digestate into a tank or trailer.

## CONCLUSION

As a consequence of the significant losses insurers have experienced in the biogas industry, insurance rates have risen and the excess period and money deductible before any claims can be made have been increased.

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# RENEWABLE ENERGY PROJECTS AND INTERNATIONAL PROJECT FINANCING: PERSPECTIVES FROM A LEADING SUSTAINABILITY CONSULTANCY

*Sarah Murfitt, lead partner for sustainable finance (EMEA) at Environmental Resources Management Ltd (ERM), shares some insights into the opportunities and challenges facing renewables developers looking to source finance for projects in emerging markets.*

FROM ERM'S PERSPECTIVE OF LOOKING AT THE ENVIRONMENTAL AND SOCIAL ASPECTS OF RENEWABLE ENERGY PROJECTS FOR FINANCING PARTIES AND SPONSORS, WHAT WOULD YOU SAY ARE SOME OF THE KEY CHALLENGES FOR DEVELOPERS LOOKING TO DEVELOP A "BANKABLE" PROJECT?

The term "bankable" is now commonly used and, put simply, means having a willing lender to provide finance. The term has also become synonymous with meeting the financing requirements of international financial institutions. Having a "bankable" project means being able to present a solid case for the project's feasibility (in terms of technical, financial, economic, social, environmental, legislative, and administrative factors) and being able to demonstrate that any risks or uncertainties have been reduced to an acceptable level. This definition includes sustainability issues and so mainstreaming environmental and social sustainability considerations into project development, improves its bankability.

At the outset, some developers can feel they are faced with a "sea" of differing environmental and social requirements. There are a range of financing parties in the market applying international financing requirements – some directly and

others indirectly – and using them as a benchmark. These include multilateral development banks, export credit agencies, commercial banks, private equity firms, and institutional investors. While the primary drivers for these institutions applying the international financing requirements may vary (ensuring positive development outcomes, achieving eco-efficiencies, reducing their reputational and investment risks etc.), they are all using the same framework to assess projects for financing. Parties often come together as large syndicates when financing projects, and so it is increasingly important for them to be aligned.

ERM's Sustainable Finance Group uses the term "International Financing Requirements" when referring to the financing requirements of multilateral financing institutions, equator principles financial institutions and export credit agencies. These include the:

- International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability.
- European Bank for Reconstruction and Development (EBRD) Performance Requirements.
- African Development Bank (AfDB) Integrated Safeguard System.
- Organization for Economic Co-operation and Development (OECD) Common Approaches.

The International Finance Corporation (IFC) updated its Performance Standards in 2012; the Equator Principles (which apply the IFC Performance Standards when projects are located in their list of Non-Designated Countries) were updated in 2013; the European Bank for Reconstruction and Development (EBRD) released its latest version of the Performance Requirements in 2014; and the World Bank is currently in the process of reviewing and updating its Safeguard Policies. This evolution is imperative in ensuring that financing requirements continue to respond to emerging issues and remain relevant for projects today; however, can be considered as onerous by developers who feel that the goal posts are shifting.

INTERNATIONAL FINANCING REQUIREMENTS, SUCH AS THE IFC PERFORMANCE STANDARDS, ARE NOT A PRESCRIPTIVE SET OF INSTRUCTIONS. DO YOU FEEL THAT THIS LEADS TO INCONSISTENCY IN THEIR APPLICATION?

International financing requirements have been developed so that they can be used globally, across all sectors. Variability in the scale and complexity of projects, as well as the host country context must to be carefully considered. As such, there needs to be flexibility, sound judgement, and discretion in how they are applied. There is, however, increasing convergence around the application of these environmental and social standards, and their application is broadening – this is demonstrated, for example, by the 80 financial institutions now adopting the Equator Principles, which apply the IFC Performance Standards. This expanding application should foster the consolidation of good international industry practice on how developers are expected to manage their environmental and social risks and impacts.

WHAT ARE THE KEY THEMES THAT YOU SEE EMERGING IN RECENT UPDATES TO THE INTERNATIONAL FINANCING REQUIREMENTS?

There are some common themes that have emerged in the latest updates. These include a focus on human rights; gender; free, prior and informed consent (FPIC) of indigenous people; climate change; and supply chain considerations. These are all areas that need to be given due attention.

Another overarching theme is the need to ensure that risks and impacts identified are appropriately “operationalized” – that is, that environmental and social performance is managed throughout the life of a project. Our experience of working in this area has demonstrated the importance of ensuring that the desired outcomes of the financing requirements are not lost in the “process” of assessing impacts. It is important that the requirements are not seen simply as part of the permitting process and are carried through into the operational phase. Financing parties are increasingly rigorous in their monitoring of projects to check that environmental and social commitments contained in loan documentation are being realized. Breaches can result in finance being withdrawn.

HOW DO YOU WORK WITH YOUR RENEWABLE ENERGY SECTOR CLIENTS TO ENSURE THAT THEY REMAIN OUTCOME-FOCUSSED?

At the outset, it is important that the framework within which key issues will be managed is well understood. This means focusing on a project’s environmental and social management system (ESIAs) from the start. Asking questions, such as:

- Is there a clear environmental and social policy in place for the project?
- What will the ESMS structure for this project look like?
- What is the capacity in-house to support the implementation of the ESMS and how will this change through the life of a project?

- Are additional staff or processes needed to build capacity in advance of operation?
- How will the environmental and social commitments (systems and procedures) be managed?
- Are third parties going to be involved in the project, and what will their responsibilities be around environmental and social aspects?
- How will risks be managed throughout the supply chain?
- What will the health and safety system for workers look like? How will stakeholders’ views be taken into consideration and managed throughout the life of the project?

By understanding these aspects early in the project development, sustainability issues can be embedded into the project design and implementation from the beginning. Early identification of environmental and social risks and impacts can lead to design optimization and/or early avoidance of risks associated with sustainability issues. There are plenty of examples of projects that have experienced cost over-runs, down-time, fines/penalties, defaulted loans, or reduced share price as a result of sustainability aspects that have not been appropriately assessed or understood. There is clear value in focussing on sustainability aspects early in project planning.

HOW DOES THIS ADVICE TRANSLATE INTO THE REPORTING THAT IS REQUIRED TO MEET INTERNATIONAL FINANCING REQUIREMENTS?

We would advise that reporting – as part of the environmental and social impact assessments (ESIAs) or due diligence – is proportionate; meaning that it is focused on what matters most and is accessible. It is important that material issues are not lost among the commentary. Financing parties want clarity about the key risks and impacts, and the actions in place to manage them. When developing the management and action plans, due consideration should be given to the capacity of those with responsibilities for environmental and social aspects; this is particularly important when there are third parties involved. Having a robust monitoring plan that can determine how well the project is performing against desired objectives is also fundamental. These are all critical elements of a dynamic environmental and social management system that draws on the established business management process of “plan, do, check, and act.”

DO YOU HAVE ANY FINAL, SUMMARY COMMENTS?

The standards that have emerged over the years are all focused on the operationalization of environmental and social risk management. With the management system for the project being planned from the outset, a tailored, proportionate, and operational assessment is more achievable – and the road to obtaining financing a potentially smoother one.





# 10 STEPS TO A BANKABLE INSURANCE SOLUTION FOR RENEWABLE PROJECTS

Although compliance with the insurance requirements of finance documentation is frequently a critical path item in the financing process, it is often dealt with as an afterthought. Barry Williams and Felipe Alviar-Baquero of INDECS Consulting Limited set out below 10 key points to ensure that an efficient and cost-effective bankable insurance program is arranged, which prevents the insurance requirements of lenders from impeding the overall project timeline.

1. Appoint a lenders' insurance advisor early in the project discussions.

The early appointment of an insurance advisor will assist in the identification and quick resolution of issues which could cause concerns to lenders. It also allows the project agreements, finance documents, and policy documentation to be prepared appropriately to address these issues. If the insurance brokers' and lenders' insurance advisors engage at an early stage in the development of the insurance strategy, the requirements of lenders can be included from the outset, and their expectations managed.

2. Communicate clear and realistic deadlines for signing and financial close.

The deadlines for signing the finance documents and for drawing down loan funds for renewable projects are generally driven by dates imposed by contractors or governments. Providing insurance advisors with clear and realistic deadlines enables them to ensure that the insurance program, and associated compliance reports, are finalized and evidenced within the timeframes required.

3. Encourage direct interaction between the insurance and legal advisors.

An early direct dialogue between the insurance and legal advisors of all parties will ensure that the legal and regulatory requirements are known at the start of the insurance program design. Financiers of renewable projects often have a strong preference to base project documentation on successful precedent transactions and follow terms and conditions that have been accepted previously. Early understanding of the precedent being used (and its specific context and location) will enable the lenders' insurance advisor to undertake a due diligence review of the documentation and understand the terms and conditions that the lenders require.

4. Provide the insurance advisors with direct access to the technical advisors.

Communication between the insurance advisors, the project engineers, and lenders' technical advisors is key to ensuring that there is a clear understanding of the project risks (including frequency and severity), which will influence the size and shape of the insurances that are required. If the insurance advisors are aware of the technical issues dictating the required limits, sub-limits, and indemnity periods, the marketing of the program can be planned appropriately from the start.

5. Ensure insurers and reinsurers are aware of lenders' additional documentation requirements.

A major hurdle in the insurance process for financed projects is the negotiation with the legal departments of the insurance and reinsurance carriers in relation to lenders' endorsements and assignment documentation. This documentation is part of the security structure required by lenders. If insurers and reinsurers are aware of the requirements, then this can be part of the placement discussion from the start. It is therefore important that the forms of documentation are agreed upon and circulated to all parties as soon as possible.

6. Understand the local legislation and practice in relation to insurance.

Lenders insist that every project must strictly comply with the prevailing local legal requirements. However, local practice will inevitably differ from country to country, with legislation imposing varying requirements for the placement of insurance with local insurance carriers. Accordingly, it is essential that lenders have a realistic understanding of what can be achieved when setting their requirements for rated insurance and reinsurance security, as these may have an impact on the security profile of the project.



7. Consider contractual risk transfer when designing the insurance program.

Insurance is only one part of a risk mitigation program. Risks can also be transferred to counterparties through the various project contracts that are entered by the project company with contractors and offtakers. Lenders may consider indemnities and provisions offering *force majeure* relief when assessing the levels of insurance they require to be arranged. It is therefore sensible for the insurance discussions and the negotiations of the project agreements to be run in parallel.

There is often pressure for construction insurance programs to be arranged by the contractors rather than the borrowers. However, this often introduces a number of hindrances to achieving an insurance program that is acceptable to lenders, so this would need to be factored into contract discussions.

8. Address lenders' requirements for terrorism insurance.

Lenders will typically require non-cancellable terrorism insurance cover based on the full replacement value of the project, unless they can be satisfied that a lower limit covers the worst case loss potential, or that market capacity has been exhausted. Borrowers may consider commissioning a probable maximum loss (PML) study, which could result in significant savings if a lower terrorism limit can be justified. The cost and time involved in undertaking such a study needs to be considered.

9. Highlight any governmental incentives which may need to be insured if they are not achieved.

The financial viability of renewable projects may be linked to various financial incentives offered by governments, which may be dependent on the delivery of a project in a given timeframe. It is possible that the failure to earn such preferential terms can be insured, therefore it is essential for the insurance advisors to understand the incentive structure early in the design of the project insurance program.

10. Remember that lenders are not the enemy.

Throughout the insurance due diligence process, the principal objective of lenders is to ensure that the risks of the project are adequately covered by reputable carriers, in line with prudent industry practice. In this regard, the views of the lender and the borrower are largely aligned. In our experience, the main disagreements lie in the interpretation of what constitutes appropriate and reasonable cover. An open dialogue between parties is always the best way to reach a mutually-acceptable solution.



# MARSH'S RENEWABLE ENERGY EXPERTISE

In today's world of volatile and diminishing traditional energy resources, the renewable energy industry is rising to the fore. As a world-leading insurance broker and strategic risk adviser, Marsh has developed a global network of renewable energy specialists to provide bespoke risk mitigation solutions for clients engaged in new or established renewable energy technologies.

## WHO WE WORK FOR

Marsh works with manufacturers, developers, contractors, operators, utilities, and financiers who generate energy through naturally-replenishable resources, including:

- Wind (onshore/offshore).
- Solar (PV, thin film, CSP, IGCC, BIPV, solar boost).
- Hydro.
- Biomass/biofuel/combined heat and power.
- Energy-from-waste.
- Geothermal (above/underground).
- Wave/tidal.
- CCS (carbon capture and storage).
- Energy efficiency/social or district heating.
- Energy/power sources using truly renewable energy sources.
- Other technologies supporting climate change mitigation/sustainability agenda, for example, osmotic.

## WHAT WE DO

Marsh supports a diverse range of project delivery, financing, and business models. We take a holistic approach to risk management, with services that include:

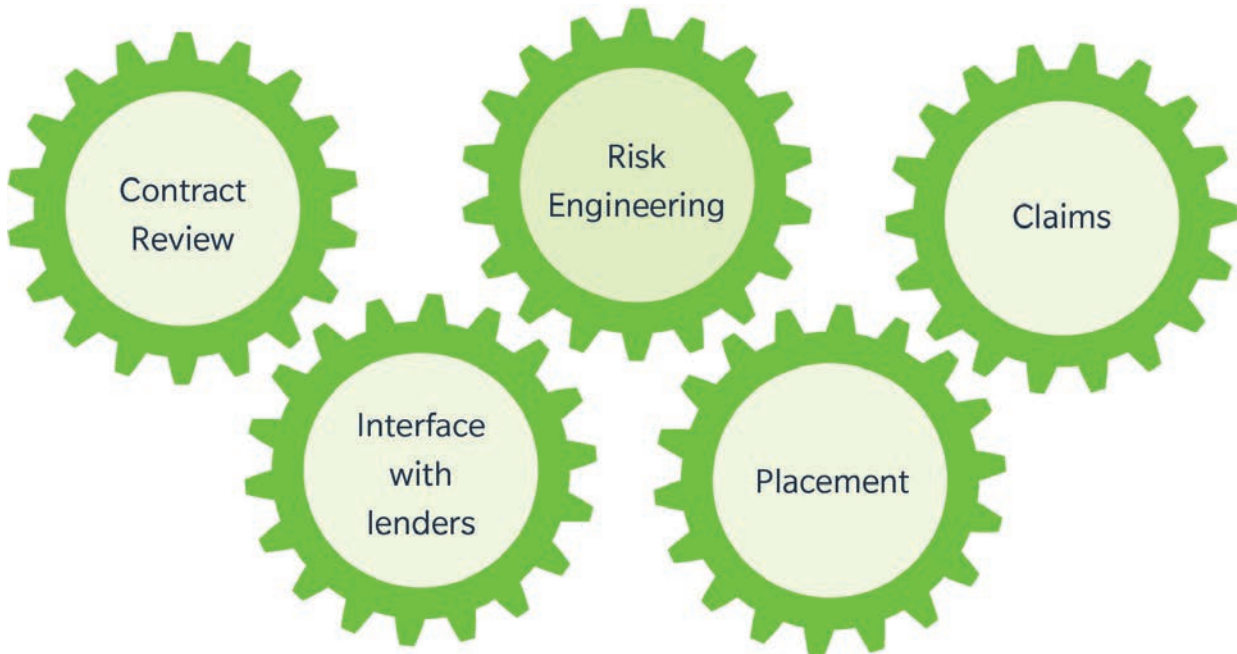
- Marine, construction, and operational risk programs.
- Professional indemnity, guarantees, and warranties.
- Risk-engineering and consulting services.
- Project sponsor advisory services, including contractual risk allocation and demonstrating project "bankability."
- Surety, construction, and performance bond execution services.
- Weather risk, including revenue volatility due to low resource.

Our deep understanding of renewable energy technology trends and challenges allows us to address specific risk issues you face. We also have expert knowledge in global renewable energy support mechanisms, and the implications these may have on risk allocation and insurance coverage.

Marsh has developed creative insurance solutions which, whether they are required on a project basis or for comprehensive programs, can be tailored to meet your specific needs. Our bespoke programs are designed on the following critical building blocks:

- Ensure that expenditure on risk management is aligned to corporate goals.
- Achieve the best balance between risk and reward.
- Reduce your cost of risk.
- Attain favorable terms from global markets.

## BUILDING BLOCKS OF YOUR BESPOKE PROGRAM



### CONTRACT REVIEW

For any renewable project, achieving project milestones on budget, on schedule, and in accordance with required performance and quality criteria depends on the accurate allocation of responsibilities between all contractual parties. There are many stakeholders with differing interests that need to be considered from the outset of a project. We have experience in advising on liability, insurance, and indemnity provisions within contracts to clearly establish these responsibilities.

### INTERFACE WITH LENDERS/ADVISERS

The accurate drafting of liability, indemnity, and insurance clauses in project contracts is extremely important. As an experienced broker and risk adviser, Marsh will assist you in this role, liaising with contract lawyers, banks, and other advisers in the process. This exercise has become increasingly complicated with the move towards a multi-contracting approach, but is one in which we are well versed.

### RISK ENGINEERING

We have one of the most renowned risk engineering teams in the energy brokerage industry, respected for the quality of risk assessment and improvement advice, and adaptability to new industry technologies. We involve our engineers early to help understand and offer solutions to the risks you face.

Additionally, by analyzing your risk profile with our proprietary benchmarking toolkit, we can help ensure the right level of cover.

### PLACEMENT

Our international client base has given us a vast depth of experience when dealing with international insurance markets, as well as the ability to benchmark our clients' performance against their industry peers.

### CLAIMS

Claims can and will happen but, with careful advance planning, companies can be prepared for the consequences. Marsh's Energy Practice is keenly aware of the importance of claims service and delivery to you. The infrastructure we have to handle renewable industry claims is evidence of our commitment to this goal.

### SEAMLESS ACCOUNT SERVICE

Marsh delivers seamless service and solutions across all disciplines involved in your bespoke program. This fundamental element ensures you are continually aware of your program's status and have Marsh experts on hand to resolve any developing issues.





For more information about renewable energy insurance and other solutions from Marsh, visit [marsh.com](http://marsh.com), or contact your local Marsh representative.

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