



**GLOBAL MARKETS INTERNATIONAL
UTILITY PRACTICE GROUP**

**RENEWABLE
ENERGY SOLUTIONS
WIND ENERGY**

Willis

CONTENTS

INTRODUCTION	2
KEY RISKS	4
MARKETS.....	5
PRINCIPAL COVERS	5
MATERIAL DAMAGE	5
FINANCIAL	5
LEGAL LIABILITY.....	5
ADDITIONAL COVERS.....	6
LEGAL LIABILITY.....	6
EMPLOYER'S LIABILITY/WORKMEN'S COMPENSATION	6
ENVIRONMENTAL IMPAIRMENT LIABILITY	7
GENERAL INFORMATION REQUIREMENTS	7
CONTACT DETAILS.....	8





INTRODUCTION

With the ever-increasing trend towards renewable energy, wind energy has become a major initiative for utility companies, independent producers and venture capitalists to name but a few. The technology is now considered well developed with a wide selection of manufacturers and unit types available on the market. It is important to have experience and technical knowledge in these areas to be able develop insurance solutions for these risks.

Willis has identified this sector as being very important and has established a dedicated working group of experts from around the company combining onshore and offshore expertise.

Whilst the onshore insurance market is mature the offshore insurance market is young and is an emerging section although a number of offshore insurance solutions have already been successfully delivered by Willis.

A number of wind insurance schemes exist that deliver a standard product, although the market is not restricted to such schemes.

There are significant players in the market and, with the expansion of wind energy in the last 18 months. they are actively looking for business in the sector. This has led to a more competitive environment and enables our insureds to benefit from greater competition.

WILLIS COMPETITIVE DIFFERENTIATORS

- Having a clear understanding of the wind energy industry.
- Having a specific industry practice group dedicated to the production, placement and servicing of wind energy business.
- Utilising our global resources, but delivering them locally through our network office.
- Integrating willis resources as a team rather than a collection of resources.
- Using best practices and common systems for consistent service while maintaining flexibility to meet your needs.
- Valuing and celebrating the importance of our people in delivering professional services that exceed your expectations.

WILLIS SPECIALISM IN THIS SECTOR

We have a significant resource available within the group for these risks beginning with the technical knowledge of some key members of staff which are aligned through our utility practice group.

Seamless policy for construction and operational phases: the key risks begin at the construction phase, including transit of the equipment to site, erection and testing, delay in start up and finally operational property damage and business interruption. Our preference is to provide a complete cover placed with the same panel of markets to avoid any gaps or overlaps between the different phases of the risk.

“Whilst the onshore insurance market is mature the offshore insurance market is young...”

Excellent relationships with offshore markets: the majority of wind farms are onshore at this point in time although a number of offshore risks are around. We are the brokers to a number of these offshore risks in the nordic region including the most recent offshore project to begin construction – Project Lilligrund in Sweden. We have placed these risks with offshore capacity and have knowledge of the special risk factors that exist. An offshore wind farm proposal form has been developed to help establish the key risk factors.

Agreed onshore proposal forms and wordings: for onshore risks, proposal forms and wordings have been developed and schemes can be agreed to accommodate the flow of small to medium sized operators but with bespoke solutions for larger entities.

Practical experience of wind farm management: we have an exclusive arrangement with an insurance professional and underwriter to develop and stay up to date with the wind energy market. This individual is a former wind farm risk manager of one of the largest wind farm operators in the USA and has key specialisms from project finance through to operation and insurance losses.

Willis is fully conversant with lenders' requirements on major projects: requirements can vary from merely a need to be named as insureds on key policies and have the benefit of waivers of subrogation to requests for a schedule of minimum insurance requirements and a host of controls, constraints and hold harmless agreements on such covers.

“Soil and geological surveys are a requisite for insurers when piling for tower constructions or laying cable.”





KEY RISKS

The following are some key risk areas which require particular attention:

START-UP DELAYS

Delay to the schedule date of commencement as a result of damage to equipment while in transit or installation damage.

CONSTRUCTION SITE ACCESS

Developments in remote or mountainous areas require careful preparation of roadways. For example, we can assess gradients and access routes to prevent accidents and delays during delivery of nacelles and blades.

CABLE LAYING

The method and preparation for laying cable around turbines and to sub-stations will influence cost and the level of cover. For instance, underwriters are cautious about protecting long stretches of overhead cable. Most is therefore laid underground in well-prepared trenches.

WIND FORCE DISRUPTION

During construction phase and repair work, the impact of high wind conditions requires careful evaluation. Clients need to ensure they adhere to the specific regulations relating to the use of cranes during high winds.

NATURAL CATASTROPHE

When tailoring protection, insurers need a thorough evaluation of the local topography. Willis wind team has experience of complex earthquake studies worldwide, producing thorough loss assessments and post-loss procedures to help wind farm clients minimise premiums.

GROUND AND SOIL CONDITIONS

Soil and geological surveys are a requisite for insurers when projects involve piling for tower constructions or laying of cables.

TECHNOLOGY

Whereas cover for machinery breakdown is standard, series type losses are often excluded (i.e., Identical failures on multiple units). Proposed turbines with limited operating experience may be considered as prototype. As a result, cover can be restricted, affecting a project's creditability and stakeholder investment. For risk transfer, we can help project owners demonstrate to investors and the markets that there is a robust risk management structure in place. We also help developers review manufacturers guarantees, sourcing cover to complement and avoid gaps in protection.

LIGHTNING DAMAGE

This is the most common exposure for operating turbines, so insurers require proof that blades and towers have lightning protection. Working with a major blade supplier, our team has measured and quantified blade strikes, helping develop actions to mitigate damage levels.

SUBSTATIONS AND POWER DELIVERY

Time element losses from the malfunction of the wind farm or substation down time can seem disproportionately high. Willis is helping clients reduce loss potentials by analysing transformer and generator down time and the replacement of parts. This research is already delivering beneficial and cost effective solutions.

MARKETS

CONSTRUCTION/ERECTION 'ALL RISKS' AND OPERATION

There are a number of professional and experienced leaders with the capability and credibility to quote lead terms for either a construction/erection 'all risks' or combined construction/erection 'all risks' and operational insurance programme, which will be supported to the required capacity with acceptable security for the projects.

The recognised first class lead markets are run by highly experienced and respected underwriters, engineers, and technical and administrative support staff.

These markets are essential to ensure completion of the insurance programme for the project at the most competitive price.

PRINCIPAL COVERS

The principal covers forming such an insurance programme are detailed below:

MATERIAL DAMAGE

Construction/erection 'all risks'

The cover will indemnify the insured, financiers, all contractors and sub-contractors and professional consultants in respect of all risks of loss, destruction or damage to the permanent or temporary works, materials, goods, plant machinery and equipment used in connection with the design, construction, erection, commissioning and testing of the project.

The cover to incept upon signature of the construction contract/commencement of work and end upon overall completion of the project.

Property 'all risks'

The cover will indemnify the insured and financiers in respect of all risks of loss, destruction or damage to the property and other assets owned by or the responsibility of the insured.

FINANCIAL

Advance loss of profits

The cover will indemnify the insured and financiers against additional costs, expenses, finance charges, loss of anticipated income following delay in completion as a result of loss, destruction or damage to property insured under the construction 'all risks' and transit (if effected by the insured) insurances.

BUSINESS INTERRUPTION

The cover will indemnify the insured and financiers against additional costs, expenses, finance charges, loss of income following interruption and/or disruption to the insured's business as a result of loss, destruction or damage to property insured under the property 'all risks'.

LEGAL LIABILITY

Public liability/products liability

The cover will indemnify the insured and financiers (and where appropriate all contractors and sub-contractors and professional consultants) against all sums for which they shall become legally liable (including claimants' costs and expenses) in respect of:

- Death or bodily injury to or disease contracted by any person;
- Loss of or damage to property;
- Interference to property or the enjoyment of use thereof by obstruction, trespass, loss of amenities, nuisance or any like cause;

Arising out of or in connection with the insured's projects and operations.





ADDITIONAL COVERS

In addition to the covers overleaf there are a number of other insurances available. These include the following:

MATERIAL DAMAGE

Construction plant and equipment

It is possible to extend the project insurance programme to include loss, destruction or damage to constructional plant and equipment, tools, personal effects of employees and temporary buildings and contents used during the project. Such items are normally the responsibility of the contractor and are either owned by him or hired-in specifically to undertake the works. We would not normally recommend that the insured include such items within the operator control insurance policy (ocip).

MARINE TRANSIT

The cover will indemnify the insured, financiers (if appropriate) and loss payee against all risks of physical loss, destruction or damage to materials, goods, plant and equipment intended for use in connection with the project whilst in ocean or land transit (including temporary off-site storage) within agreed territorial limits.

Transits are often for overseas sendings, air movements, tug and barge movements, road, rail and post. The cover is in force from the time the goods leave the manufacturers'/suppliers' premises until time of arrival at the project site including any storage during the normal course of transit. If any intentional storage coverage is required, this can be accommodated subject to material information being supplied.

The policy is normally designed to dovetail with construction 'all risks' insurance to ensure that there are no gaps in cover during the transit operations.

FINANCIAL

Marine consequential loss

If marine transit coverage were required, it would be necessary to combine it with cover for delay in start up against additional costs, expenses, finance charges, loss of anticipated

income following delay in completion as a result of loss, destruction or damage to items during transit.

An indemnity period representing the maximum probable delay to the epc contract as a result of damage to or loss of such items will need to be selected.

Environmental 'clean up' costs

Due diligence exercises often identify 'known liabilities' such as the need for contamination clean-up exercise or a capital investment programme.

The wind energy industry is very low risk and so insurance mechanisms can be designed to remove this by providing the funds to complete such works in the event of a cost overrun. The insurance can be combined with risk funding/financing options to remove timing uncertainties and make the most efficient use of capital funds.

LEGAL LIABILITY

Professional indemnity

Contractors and consultants normally provide professional indemnity insurance protection by way of annual renewable insurance programmes. Although there is an alternative way of procuring this cover, i.e., within a project specific programme covering all parties with a design responsibility, we would not recommend that insureds pursue this alternative.

We would, therefore, advise insureds to utilise the existing insurances of the contractor and consultants but require them to affect an agreed level of professional indemnity cover and maintain it for a specified period.

EMPLOYER'S LIABILITY/ WORKMEN'S COMPENSATION

Most owners and operators will need to cover their workforce who maintain the turbines.

ENVIRONMENTAL IMPAIRMENT LIABILITY

Environmental impairment liability provides indemnity for project liabilities associated with all phases of the project – covering pre-existing contamination and/or operational risks after completion of the construction phase.

Historical cover is typically provided for both third party damage claims (e.g., resulting from off-site pollution migration) and unknown clean-up costs. Policy periods in excess of twenty years can be arranged with limits in excess of £200 million.

ANCILLARY COVERAGES

Further products are available for loss of wind, carbon credits and tax credits.

GENERAL INFORMATION REQUIREMENTS

1. Location

- Surrounding exposures
- Access restrictions
- Special transportation requirements

2. Equipment

- Manufacturer, model number and exact arrangement of equipment
- Details of operating experience and a reference list of similar installations
- Lead times for key equipment, i.e., complete turbine generator unit, blade set, gearbox, generator and step up transformer

3. Site Layout

- Number of machines to be installed
- Distance between machines
- Access roads
- Communications and interconnection arrangements between units

4. Power Export Arrangements

- Details of the grid connection
- Lead time for export transformer (if applicable)

5. Business Interruption/Delay in Start Up

- Details of power sales arrangements
- Details of any power export bottlenecks, e.g., a single power export transformer or 'daisy chain' connection of machines

6. Maintenance Aspects

- Details of original equipment manufacturer support
- Availability of spare parts/parts held in stock
- Availability of suitable craneage/access equipment to allow major maintenance activity such as replacement of blade set

7. Protection Arrangements

- Details of fixed fire protection systems
- Details of protection against lightning strike
- Overspeed shutdown facilities

8. Property Costs

- Breakdown of replacement cost value/project costs
- Cost indications for major components e.g., complete wind turbine generator unit, blade set, gearbox, generator and step up transformer

9. Contingency Planning

- Details of arrangements in hand for replacement of major equipment such as a complete turbine generator set or main export transformer
- Details of arrangements for shutdown in the event of severe weather conditions such as high wind, ice storm etc.

“Further products are available for loss of wind, carbon credits and tax credits.”



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