CARRIAGE OF WINDMILL TURBINE BLADES

THE CONSTRUCTION OF OFFSHORE WINDMILL FARMS HAS BEEN A BOOMING MARKET OVER THE LAST DECADE AND IS EXPECTED TO GROW EVEN FURTHER IN THE YEARS TO COME AS MORE AND MORE COUNTRIES ARE SHIFTING TO GREEN ENERGY. THERE HAS, THEREFORE, BEEN AN INCREASED DEMAND FOR BULK CARRIERS AND GENERAL CARGO SHIPS TO TRANSPORT THE TURBINE BLADES FOR THE WINDMILLS. THESE TURBINE BLADES ARE AN EXPENSIVE CARGO AND CAN BE EASILY DAMAGED AND SO IT IS IMPORTANT THAT PARTICULAR CARE AND ATTENTION IS TAKEN WHEN TRANSPORTING THEM.

Jacob Damgaard
Associate Director, Loss Prevention Singapore
jdamgaard@tindallriley.com

P&I COVER

Before accepting these turbine blades as cargo, Members should contact the Club's underwriting department. The underwriters can then advise on potential liabilities and whether Members need additional cover.

CARGO SURVEYOR

In view of the high value of the cargo, it is recommended that a surveyor is appointed to help the crew when loading the blades and then making sure that they have been adequately secured/lashed. The surveyor should have experience in the loading and transportation of wind turbine blades, and should also be familiar with the required lifting gear, lashing arrangements and welding approval which are particular to the carriage of the turbine blades.

CARRIAGE OF WINDMILL TURBINE BLADES

TURBINE BLADES ARE AN EXPENSIVE CARGO AND CAN BE EASILY DAMAGED AND SO IT IS IMPORTANT THAT PARTICULAR CARE AND ATTENTION IS TAKEN WHEN TRANSPORTING THEM

CARGO OPERATIONS

The cargo operation must be supported by a thorough risk assessment and method statement, which should include drawings of the cargo arrangement. If there is a tandem lift using two cranes, then there must be a clear briefing and agreement about the signals and communication between the crane operators, the lifting foreman and other involved stakeholders.

The shipper should provide adequate information/documentation confirming the weight/strength of the cargo, including any lifting points or tools used. All equipment used during the loading/unloading and securing of the cargo should be of sufficient working load. Only experienced crane drivers familiar with the special characteristics associated with lifting wind turbine blades in tandem should be used for the loading/unloading of the blades. Care must be taken to make sure that the lifting gear is fitted correctly in order not to cause any additional bending stress to the blades while they are being lifted.

Throughout the entire operation, the stability of the ship must be closely monitored. For tandem lifting, this may be of particular concern, especially if using the ship's own cranes, as the cranes will turn at the same time and this can critically increase the heeling of the ship.

WEATHER

The expected weather conditions during loading and discharge of the windmill blades must be carefully monitored. As the blades are long and relatively lightweight, with an aerodynamic design, they can easily be affected by wind and can even rotate and be damaged. This risk can be reduced by using a tandem lift as this provides additional stability to the cargo while it is being lifted and lessens the risk of the blades starting to rotate.

STOWAGE – THINGS TO BE AWARE OF:

SECURING AND STOWAGE PLANS

A specific securing and stowage plan should be used as the basis for planning safe loading and stowage of the blades. The plan must include details of the footprint load. The plan should form the basis for the structural strength and stability calculations which are used to make sure that the ship remains within the applicable limits. It may be necessary to update the ship's stability calculation software to allow for the carriage of this particular cargo. This would require classification society approval. Before the cargo is loaded, the plan should also be carefully reviewed by the Member's surveyor (if appointed) and discussed and verified with the ship's master and also the shipper's representative. The condition of the blades must be checked carefully before loading, with any damage, even minor, recorded and reported.

CARGO SECURING MANUAL

The cargo needs to be stowed in accordance with the requirements of the Cargo Securing Manual (CSM) and The Code of Safe Practice for Cargo Stowage and Securing (CSS). The CSM should include all information necessary to calculate the lashing forces and what lashing equipment is required (Annex 13 of the CSS Code provides methods for calculating satisfactory securing arrangements when loading non-standard sized cargoes). The flag state or classification society might need to give their approval of the CSM as being suitable for the carriage of wind turbine blades.

ADDITIONAL STOWAGE EQUIPMENT

If specially designed frames or cradles are installed on board to accommodate the blades, they must be suitable for the size of blades being carried and must be properly installed and fixed/welded to the ship's structure in order to avoid any movement which may compromise the stability of the ship. Any dunnage must also be fit for purpose and appropriately fitted. Care must be taken to make sure that the deck cargo, including loading frames or cradles, are within the permitted loading strengths of the deck or hatch covers and also do not compromise the longitudinal strength and stability of the ship.

ADAPTATIONS TO THE SHIP

Any hot work must fully comply with Member's safety procedures and any requirements of the load port. If any changes are made these will need approval from the ship's classification society and/or flag state. Any additional lashing points may also be subject to class approval. If any hot work is done after the wind turbine blades have been loaded care must be taken to avoid any welding splatter coming into contact with the cargo.

REDUCED VISIBILITY

Carrying wind turbine blades on deck can reduce the visibility from the ship's bridge. The IMO's bridge visibility requirements are set out in the SOLAS Convention and any non-compliance with these will be a breach of a statutory requirement, which may prejudice Club cover. In certain cases exemptions have been granted requiring CCTV to be installed to compensate for the reduced visibility. If such an exemption is granted by the flag state, the deck officers need to be comfortable with and trained in the use of CCTV arrangements and any other specific flag state requirements. The ship must also have an emergency contingency plan in place for areas such as the Suez or Panama canal where local authorities may have additional requirements before they will allow the ship to transit with limited bridge visibility.

CARGO CARE DURING THE VOYAGE

As well as making sure the cargo is properly stowed before departure, Members must have their own procedures in place to ensure that the cargo securing is performed correctly and verified/checked throughout the voyage. It is recommended that the ship's staff maintain a log of all events relating to the loading/stowage, including keeping a photographic record of the condition of the blades and the securing arrangement. This should continue during the voyage to make sure that the cargo is being carried in compliance with the requirements of the CSM and any other company requirements that may require a level of safety over and above the CSM.

Lashing should be checked regularly during the voyage and any observed discrepancies be reported to the charterer for their further instructions. The master should log any concerns and preserve any photographic evidence. If any retightening of lashings during the voyage is needed, this can only be done when the weather permits and when the operation can be done safely as the upper loaded blades may not be easy accessible. The shipper should provide Members with thorough cargo care instructions to be conducted during the voyage to prevent any unintentional damage to the blades. However, this should not prevent the master from utilising his overriding authority as he deems necessary to ensure safety on board.