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POWER & UTILITIES

Legal Guideline for Offshore Project Contracts

Contents

Introduction

Germany's offshore wind industry and its related legal framework have reached a certain level of maturity, yet many contract issues remain unresolved in project practice.

This guidance provides an overview of standard contract issues in offshore projects within a commercial and technical context and also from the perspective of practitioners. Moreover, it includes some less well-explored contractual issues, such as the integration of Fédération Internationale des Ingénieurs Conseils (FIDIC – International Federation of Consulting Engineers) Contracts into German law, aspects of certification or operation, and the maintenance phase. However, the issues covered here are subjective, with some topics omitted from this report.

Contractual topics

Grid connection and feeding into the grid

Legal framework for grid connection

On 28 December 2012, amendments to the German Energy Act (Energiewirtschaftsgesetz, EnWG) brought about substantial modifications to grid connection provisions for offshore wind farms in Germany. Sections 17b – 17d of the amended EnWG require transmission system operators (TSOs) to draw up an offshore grid development plan. This sets out key milestones and obligations, including completion dates, for installing grid connections to offshore wind farms.

The offshore grid development plan must be prepared by a competent German TSO and will become binding on the TSO once approved by the Federal Grid Agency. Typically, it comes into force and effect once transferred into a federal plan of demand (Bundesbedarfsplan).

The programme for constructing grid connections for offshore wind farms is set out in the offshore grid development plan. The establishment of deadlines and the procedure for completing offshore grid connections are described in detail in Section 17d EnWG. The TSO must publish the expected completion date, which becomes binding 30 months prior to that date. At this point, the offshore wind farm operator is entitled to demand connection to the offshore grid and achieve the electrical capacity awarded by the Federal Grid Agency.

The offshore grid development plan includes the "Start Offshore Grid" and the "Additional Offshore Grid". All grid connections that have already been completed, or which will be built subject to valid grid connection approval, are part of the Start Offshore Grid. The grid development plan is currently in the draft stage and may undergo further amendment prior to going into effect.

According to Section 118, paragraph 12 of the amended EnWG, the pre-28 December EnWG continues to apply for offshore wind farms that were granted either unconditional or conditional grid connection approval prior to 29 August 2012.

Where approval for connection to the grid was conditional, the wind farm operator had to demonstrate compliance with the unconditional approval terms for grid connection by 1 September 2012. These requirements were stipulated in a Federal Grid Agency position paper on grid connection obligations, dated October 2009.

Clause 2.4.2 in the position paper stipulates that the competent grid operator is obliged, in principle, to issue an unconditional grid connection commitment once the wind farm meets all the grid connection criteria. These criteria include:

- a permit, required under public law, for installation of offshore turbines,
- a plausible construction schedule,
- soil investigations carried out in all locations,
- binding financing commitments or preliminary agreements regarding purchase orders for the principal wind turbine components.

If all the criteria are fulfilled, the TSO is obliged to connect the wind farm to the grid, in accordance with Section 17 paragraph 2a of the pre-28 December 2012 EnWG. The grid connection must be established once the offshore turbines achieve operational readiness.

Conversely, where unconditional grid connection approval was issued prior to 29 August 2012, the wind farm operator must have turbines ready for operation within 18 months of the binding completion date of the offshore grid connection. If the operator fails to comply, the Federal Grid Agency is entitled (but not obliged) to allocate the feed-in-capacity to other offshore wind turbines, in accordance with Section 17d of EnWG.

Grid connection costs are imposed on TSOs, with Sections 17a – 17d of the EnWG superseding Section 13 of the German Renewable Energy Act (Erneuerbare-Energien-Gesetz, EEG). The general grid connection provisions in Section 5 of the EEG also apply, in principle, to offshore wind farms. Pursuant to Section 5, paragraph 1, sentence 1 of the EEG, grid operators are legally obliged to connect plants for the generation of electricity from renewable energy sources without delay and must prioritise the network connection to the grid. In line with Section 4, paragraph 1 of the EEG, fulfilling this obligation is not necessarily dependent on a contract. Though the grid operator may not require the conclusion of a grid connection agreement, it is permitted to conclude such voluntarily.

The wind farm operator has the right to compensation for delayed grid completion. Where an offshore wind turbine is ready to operate, but is prevented from feeding-in the electricity for more than ten consecutive days due to technical grid outages or grid maintenance activities, the operator may seek compensation from the 11th day on for lost revenues at 90 percent of the remuneration the operator would have otherwise received, in accordance with Section 17e paragraph 1 and 3 EnWG. Compensation is payable irrespective of whether the interruption is caused negligently by the TSO or not.

Compensation is also payable where completion of the grid is delayed by more than ten days. Entitlement to compensation is not affected if the foundations and offshore substation are complete but the turbine has not been installed in order to mitigate potential damage. The wind farm operator must reimburse the compensation where the turbines are not installed nor made ready for operation within a reasonable period set by the Federal Grid Agency. If the delay is caused wilfully by the TSO, the wind farm operator may be compensated for 100 percent of the operator's lost revenues. On 16 July 2013, the Federal Grid Agency issued draft guidance on the calculation of compensation and its apportionment to grid costs.

The wind farm operator must inform the TSO whether the losses due to the delayed completion of the grid connection shall be compensated under Section 17e EnWG or whether the initial feed-in-tariff shall be extended as provided under Section 31 paragraph 3 of the EEG.

The TSO's liability to wind farm operators for negligent property damage is limited to Euro 100 million per single event.

Electricity feed-in

In accordance with Section 8, paragraph 1, sentence 1 of the EEG, grid operators are obliged to accept all electricity generated by the turbines that is offered to them and to transfer and distribute it. Subject to the conditions described in Section 11 of the EEG, the grid operator is entitled to undertake feed-in management to control the amount of electricity fed into the grid by the turbines. Conversely, however, the wind farm operator is entitled to compensation, limited to 95 percent of lost proceeds, for electricity not fed into the grid, as described in Section 12, paragraph 1, sentence 1 of the EEG. The limit does not apply if the loss of proceeds exceeds 1 percent of annual revenue.

Electricity taken off by the grid operator must be remunerated, as described in Section 31 of the EEG, at a tariff of 3.5 cents per kWh (basic payments). Initially, however, a 15 cents per kWh (higher initial payment) tariff is granted for twelve years from commissioning the respective offshore turbine. The duration of initial payments is extended by 0.5 months for every full nautical mile beyond twelve nautical miles that the turbine is situated from the coastline, and by 1.7 months for every full meter's water-depth above 20 m.

In accordance with Section 31, paragraph 3 of the EEG, the wind farm operator can claim an initial payment of 19 cents per kWh for the duration of eight years from commissioning. Once expired, the distance and water depth-dependent extension of the initial payment continues to apply at 15 cents.

If turbines cannot feed in generated electricity for a period of more than seven consecutive days because the grid connection is either not ready or is interrupted, the initial payment or payment from the compression model, as the case may be, will be extended. This starts from the eighth day of interruption or delay. Interruptions of seven days or less do not merit extension.

At the end of the higher initial payment period, the feed-in payment will be reduced, in accordance with the EEG, to 3.5 cents per kWh. This tariff is guaranteed for 20 calendar years, plus the period from commissioning the respective turbines until the end of the year of commissioning.

Project contracts

Implementing an offshore wind farm is a project of highly complex design, technology and management, which is further reflected in the contractual detail.

Project stages

An offshore project is conducted over different phases, as set out in the BSH (Bundesamt für Schifffahrt und Hydrographie – Federal Maritime and Hydrographic Agency) standard "Design of Offshore Wind Turbines". From the licensing authority's perspective, the BSH distinguishes between the development phase, the design phase, the execution phase, the operational phase and the dismantling phase. From a contractual perspective, the design and execution phases are combined in an implementation phase.

The material aim of the development phase is to obtain an operating permit. Contractually, this does not tend to be problematic. Milestones are not typically part of a "critical path" as contracts are not linked to a timescale. Works and services to be contracted in order to obtain the permit include soil investigations, environmental assessment studies and analysis of risk of ship collisions. Meteorological studies, as well as energy yield projections, are required.

The implementation phase covers supplies and services for installation of an offshore wind farm through to commissioning. The four "main components" are the wind turbines, the turbine substructures, inner wind farm cabling and the transformer platform. The design, fabrication, onshore and offshore transportation, installation and commissioning are procured separately for these main components.

In addition, various ancillary service contracts have to be concluded. These include contracts with a marine warranty surveyor. This independent expert is usually engaged under an insurance policy to examine and approve all offshore transport operations. Charter agreements for the work coordination vessel and other transport vessels are drawn up and the certifying body and external service providers are appointed under contract. In additional, lease contracts are required in harbour areas and in certain areas of the transformer platform. Apart from construction-related agreements, contracts for insurance, debt financing and equity may be needed.

Contractual structuring

Prior to the tender, the full scope of works and supplies is specified by the project owner in a matrix of work packages, determined by the technical, commercial and legal specifics of the project. In a simplified model, the works for the four main components are awarded to four engineering, procurement, construction and installation (EPCI) contractors. There is no standard contract profile and, in project practice, multiple combinations of work packages may be arranged. Tailoring work packages largely depends on technical and commercial considerations, industry practice, banking requirements and the project owner's capacity to control contractors and manage interfaces.

The tender process is initiated once the technical and contractual requirements have been fully described. Typically, public employers are bound by European tender rules, including Sections 98 et seq. of the German Anti-Trust Act (Gesetz gegen Wettbewerbsbeschränkungen, GWB) and

the Procurement Ordinance (Vergabeverordnung, VgV) or the Sector Ordinance (Sektorenverordnung, SektVO), and are required to arrange a public tender process. These rules are not mandatory for private employers. However, where credit is provided by public financing entities, like the European Investment Bank (EIB) or Kreditanstalt für Wiederaufbau (KfW), it is a usual condition that fair and transparent procedures are used and that the contract is awarded to the most commercially economic bid.

General

Construction supplies are governed by either sales contracts or contracts for works under German civil law. The type of contract depends on the nature of the works and services assumed by the contractor.

Where the contractor is involved in the delivery of goods and transfer of ownership, but not in the manufacturing of products, the contract takes the form of a purchase contract. Where the seller manufactures the goods, this constitutes a contract for works whereas, under Section 651 of the German Civil Code (Bürgerliches Gesetzbuch, BGB), sales contract provisions apply where sold (and manufactured) goods are movable assets. If the seller also assembles and installs the goods, then the type of contract is determined by the principal type of activity.

The definition of activity varies by jurisdiction. For instance, the German Federal Court generally deems the delivery of machines to be a sales activity, even where design is part of the scope of works. Meanwhile, the Court of Appeal in Schleswig qualifies delivery of an onshore wind turbine as a sales contract activity, yet the district courts of Kiel and Hannover consider the laws for a contract for works to apply.

In most instances, the statutory qualification has no real significance since contract provisions tend to be individually agreed. However, commercial sales provisions will apply to sales contracts, obliging purchasers to immediately examine goods and to notify defects without delay or forfeit their rights under warranty. These regulations are not appropriate for most work packages and should be excluded.

Unfair trade terms

During contract negotiations, the influence of the provisions on unfair trade terms (Allgemeine Geschäftsbedingungen, AGB) must be considered. Contracts based on a standard template are subject to the provisions described in Section 305 et seq. of the BGB, meaning that unfair trade terms will be dealt with by the courts.

The same regulations can apply, in principle, to commercial parties. Any contractual terms may be considered as AGB if used in various contracts or if intended for re-use by the introducing party in subsequent contracts. In case law, the contractual partner who invokes the protection of the statutory AGB provisions must prove the similarity of the contractual term to AGB. Where the provisions are printed or otherwise reproduced, this is presumed prima facia evidence. Individual amendments, during intense negotiations, may lead to requalification. Nevertheless, the burden of proof for classification as an individual agreement lies with the party that uses the standard template.

International model contracts

In conducting a tender, the wind farm operator determines whether to use an individually prepared or standard contract.

International contract templates are available for use in offshore project work packages. They include the ICC (International Chamber of Commerce) Contract for the Turnkey Supply of an Industrial Plant, the LOGIC (Leading Oil & Gas Industry Competitiveness) Contract for Supply of Major Items of Plant and Equipment and FIDIC model contracts.

The advantage of these standard contracts is that the terms and conditions tend to be well known by suppliers, banks, insurance companies and consultants, which facilitate contract review and negotiations. The terms and conditions usually present a balanced risk profile and are accepted in the market. Very common are FIDIC contracts, which have been developed for international construction projects and are based on Anglo-Saxon contract templates.

FIDIC model contracts are geared to specific projects, e.g., the Red Book (for construction), Yellow Book (for plant and design-build), Silver Book (for EPCI/turnkey projects), the Green Book (for short form contracts for small or simple works) and the White Book (for client consultant model services agreements between employers and FIDIC engineers. Other FIDIC contract forms are available for other works.

FIDIC contracts

FIDIC contract documentation consists of:

- Contract agreement
- Contractor's "Letter of Tender", which is the binding offer made by the contractor, including an "Appendix to Tender"
- Employer's "Letter of Acceptance"
- "General Conditions"
- "Particular Conditions" as amendments to the General Conditions
- Employer's requirements/specification
- Drawings and schedules.

Amendments to the general conditions should be made with care and knowledge of the FIDIC structure and its cross references to avoid discrepancies and unintended legal consequences. The contract may be subject to German law and the rules of the German Civil Code. The provisions of Sections 305 et seq. of BGB, with regard to unfair trade terms, will apply in principle. In summary, some general conditions may be deemed invalid, depending on which party introduces the template.

An "engineer" is instituted for some FIDIC contracts. The engineer oversees the construction programme and time for the completion of the works, the detailed provisions on tests on completion, the take-over procedure, defects liability, change orders, as well as precisely regulated claim management and dispute adjudication procedures.

Under the Red Book, Yellow Book and Silver Book, the compensation scheme for completion delay differs widely from the statutory German concept. Under BGB rules, the contractor only pays damages for delays that exceed agreed deadlines if caused culpably. Under FIDIC contracts, the time for completion of works is defined as a fixed period. The contract provides a catalogue of reasons under which the contractor may claim a time extension. The International Society of Construction Lawyers has issued supplementary recommendations to refine the "extension-of-time" model and to deal with concurrent delays within programmes. The sole remedy to employers, under standard FIDIC con-

ditions, is financial compensation by way of liquidated damages, which is paid for each day of delay.

Tests on completion are described in detail in the General Conditions and include (a) "cold" pre-commissioning tests, (b) commissioning tests to demonstrate that the works can be operated safely as specified and (c) trial operation.

Having passed the tests on completion, the employer issues a take-over certificate for the works. Interference with the tests on completion, where risks are allocated to the employer, could result in a deemed take-over. Once the take-over certificate is issued, risk passes to the employer and the defects notification period starts.

This take-over process does not, however, correspond with acceptance as described in Section 640 of the German BGB, nor is the defects notification period deemed a warranty period (Gewährleistungsfrist). Instead, the defects notification period is considered a performance phase of the contract. Acceptance, under BGB, occurs only after expiry of the defects notification period (usually one year) and following issuance of the performance certificate. Once the performance period expires, the statutory warranty period begins. Amendments to the terms make it possible to replace the statutory warranty period with a prolonged defects notification period to bring defects liability into line with BGB rules.

Remedies under the defects notification period are dealt with in essentially the same manner as under BGB. They include the right to require the rectification of defects, the right for the wind turbine owner to rectify defects, the right to reduce the contract amount or – in severe cases – to terminate the contract and to recover monies paid and costs incurred in anticipation of performance of the contract.

The FIDIC engineer plays a significant role in the contract relationship. Though contracted by the employer, the engineer is understood to be an independent mediator with comprehensive competencies to administer the contract and reconcile the interests of the parties. This understanding, which derives from Anglo-Saxon law, offers several contractual provisions that are subject to the engineer's reasonable discretion.

The engineer controls the contractor's compliance with the programme and may reject the design or works prior to take-over. The engineer issues the take-over certificate, instructs the contractor to search for alleged defects, supervises variations to the contract and determines the contractor's claims with regard to the completion timeline extensions and compensation of costs. The engineer's remit may be restricted in the contract between the employer and the contractor.

FIDIC contracts provide a comprehensive and detailed regime for implementing variations that are binding on the contractor. This may be used to accelerate the programme and to catch up delays in the progress of the works.

Adaptations to contracts are inevitable. In this respect, FIDIC contracts offer detailed and practicable solutions to meet the differing demands of offshore projects. For instance, the FIDIC Yellow Book is suitable for EPCI contracts where a single contractor is responsible for delivering one main component, since it governs both design and equipment. The Red Book is relevant where the scope of supply under a work package is split into multiple parts, with design elements provided by another con-

tractor. The Green Book may be used for smaller work packages, such as scour protection for turbine substructures.

Project delay

Delays in completing single work packages present major project risks. This can be mitigated with well-organised project management and adequate contractual mechanisms. Since work packages are mutually dependent, completion timelines are calculated backwards, starting with the contractor whose activity is last on the timeline. It is a case of calculating when contractor A must complete work, so that contractor B can start, and so on.

In bigger offshore projects, it is possible to overlap some activities. For instance, not all substructures have to be installed by the time the cable or wind turbine supplier starts work offshore. Nonetheless, penalties for delay under different scenarios must be built into the contract.

Delays by one contractor could result in downtime for another, who may incur costs for having made vessels, personnel and other equipment available. If obliged to compensate for downtime costs, the employer may seek either full or partial reimbursement. Moreover, the employer may incur downtime or financing costs, as well as potential loss of liquidity where feed-in is delayed or take-over deemed to have occurred. This can prompt an early start to the warranty period.

The design process for turbine substructures can frustrate completion schedules. Typically, the turbine manufacturer is not responsible for the design or supply of substructures. However, because the loads of the turbine determine the design of the structure, there has to be some cross-over between the roles of the turbine manufacturers and designers.

Since turbines and substructures interact during normal operation, and the substructure modifies the loads of the turbine, the turbine manufacturer has to recalculate loads based on a more detailed substructure design. This process may take various iterations, leaving contractors dependent on the quality and pace of each other's work. The process is critical to the entire project because the steel for the substructures cannot be ordered before the design of the substructure is finalized and certified.

To hedge the time risks arising from this process, it is project practice to allocate specific response times to contractors within a design time schedule. This will include penalties for failure to comply with response times.

Adverse weather

Adverse weather can present serious risk to timely completion of offshore wind projects and may significantly limit time periods during which construction work can be carried out.

Contracts must allow time extensions for construction work impacted by bad weather. Under statutory provisions or standard terms for construction work, such as the "Verdingungsordnung für Bauleistungen", the contractor assumes the risk for delays attributed to predictable weather conditions which impact on the timely completion of work. If the contractor is prevented from completing work on time due to predictable weather conditions, a timetable extension for completion is not permitted.

For offshore projects, where the impact of adverse weather on timelines is evident, it is standard practice to make specific provisions with regard to risk allocation. The nature of the affected equipment (e.g., cranes, vessels, access systems, etc) and the weather conditions (e.g., wind speed, wave height, etc) affecting the operations must be specified. Expected downtime must be calculated, based on the statistical weather conditions at the site, and allocated to the parties.

Other relevant issues

The roles of special project parties, notably the marine warranty surveyor and the certifying institution, are integral to the completion of offshore contracts.

Progress depends on decisions made by these experts. For instance, if a marine warranty surveyor (MWS) does not permit a specific transport operation, then contravention of those instructions might incur loss of the employer's insurance protection if damage occurs. Similarly, if the certifying institution does not accept a specific technical rule used by a contractor and does not issue a statement of conformity, the project might be delayed. The consequences of delay due to decisions made by these special project parties must be reflected in the contract.

Where the future wind farm operator is a utility, the feasibility of integration into its internal identification system (Reference Designation System for Power Plants, RDS-PP) must be assessed.

A carefully prepared responsibility matrix must capture interfaces between contractors, detailing which party is responsible for work or services and which party is to provide specifications or additional information, calculations, etc.

Allowances must be made for interfaces not identified at the time of contract signing. If responsibility at an interface is disputed, comprehensive variation rights that allow the employer to assigne the controversial work and to proceed with the programme, help to keep the project on track.

Defects liability

In terms of defects liability, there are greater and trickier considerations for offshore projects than onshore contracts. The first issue is to determine which party bears the offshore risk and pays the sea transport costs in the event of a defect.

Under statutory provisions on the sales contract and contract for works, but also in standard international agreements such as LOGIC and FIDIC contracts, the contractor bears all costs to rectify a defect. However, in practice, it may be concluded that the employer assumes this risk as a result of commercial negotiations.

Where the employer provides offshore logistical support, it may be possible to carry out remedial work using regular rather than special service or transport vessels. However, if a jack-up or heavy-load vessel is needed to replace the main components, charter hire must be paid on the spot market. This is costly. Downtime for the wind turbines may increase if an appropriate vessel is not available immediately.

Serial defects heighten risk exposure. Transport costs may increase dramatically and it might prove difficult to get insurance cover. The contractor should, therefore, assume all or part of the logistics costs in the event of serial defects.

It is advisable to seek exact definitions of conditions that constitute serial defects and to demand that the contractor examines all other parts of the work where similar defects have occurred.

Given the high costs of remedial work over the warranty period, collateralisation of warranty obligations by guarantee is standard practice.

Power curve and technical availability

The power curve and technical availability guarantees are critical for wind turbines.

The power curve represents energy output at a given wind speed over the entire bandwidth of power capacity. The measurement method, tolerances and absolute limits of compensation for failure to meet the guaranteed power curve are important considerations. So far, however, no binding international technical rule for measuring the power curve has been released. Technical guideline IEC 61400-12-1:2005, which is applicable for onshore wind turbines and is based on a met mast anemometer, is not ideally suited to offshore power curve measurement and would require extensive modification.

A guarantee of technical availability is normally part of the service agreement and is described under "Operation and maintenance" in this publication.

Liability

Liability for damages caused by contractors in offshore contracts is strongly influenced by insurance practices. In most German projects, the employer is responsible for project construction insurance (Construction All Risk insurance, CAR). The policy usually covers physical damage to all works in connection with the project and the third-party liability of the employer and all contractors with regard to issues arising from activities related to the project. The third-party liability insurance typically protects against damage to property and bodily harm which means the party causing the damage only pays the self-insured deductible. The party's risk exposure is partly hedged, therefore, by the underlying insurance package.

Liability clauses in offshore contracts must address purely pecuniary damages as well as damage not covered under CAR insurance. As with most supply contracts for industrial plant, the parties exclude liability for consequential damages and loss of profit. However, cover should extend to some aspects of consequential damages such as delay damages, consequential damage of defects, liability for specific guarantees, such as the power curve guarantee, liability for intellectual property rights and for the consequences of termination of a contract, etc.

With regard to design defects in the turbine substructure, as described previously, liability will rest with both the manufacturer of the turbine and designer/manufacturer of the substructure. Specifically, defects may be attributed to wrong calculations or the provision of wrong load data, leading to damage of either the substructure or turbine.

Maritime logistic

Transporting the main components by either jack-up barge or other heavy-load vessels may be carried out by the contractor responsible for the specific work package or by a separately contracted party. The same applies for the transfer of additional crew.

If offshore transport is included in the scope of work, provision of a vessel is an ancillary obligation in the supply contract. If the employer is responsible for providing a crane vessel, this may be on the basis of a time charter agreement or a combined transport agreement.

The legal definition of time charter agreements has been widely debated in the legal press. Some lawyers regard it as the lease of a vessel in conjunction with provision of some services; others see it as purely a freight agreement or a mixed agreement, entailing charter, freight and service provision. The prevailing opinion is that a time charter agreement is a freight agreement, which has considerable bearing on the liability of the vessel owner.

The provisions of maritime law under the German Code of Commerce (Handelsgesetzbuch, HGB) have been substantially amended effective 25 April 2013. They now include express provisions relating to time charter agreements. However, according to Section 71 of the Introductory Act to the German Code of Commerce (Einführungsgesetz zum HGB, EGHGB), the new provisions do not apply to contracts concluded prior to 25 April 2013.

Crane vessels must be hired in good time for the construction phase of the offshore wind farm. Typically, a reservation agreement allows for cancellation without payment of the full charter hire costs. Flexibility needs to be built into the reservation agreement and the charter agreement, granting options to postpone the charter if the project is delayed.

A time charter is usually contracted under The Baltic and International Maritime Council (BIMCO) Supplytime 2005 template. However, this template includes several conditions that need to be adjusted to suit a construction project. If, for example, the vessel is delivered late or is defective, then the charterer may either cancel or withdraw early from the hire agreement. The vessel owner is not obliged to provide a substitute and further liability is excluded.

Another typical provision is mutual indemnification and a waiver of recourse with regard to damages to the party's property or personal injury to personnel ("knock-for-knock"). This clause is common in vessel contracts but is only partly valid under German civil law since it comprises liability for wilful misconduct.

In August 2013, BIMCO released a template for personnel transfer and support vessels for offshore wind farms. It makes adjustments to the BIMCO Supplytime standard contractual terms. It includes, for instance, an obligation by the vessel owner to pay liquidated damages in the event of late delivery of the vessel.

Statutory liability regulations for vessels mean that the vessel owner is only liable for damages caused by negligence or wilful misconduct. The owner is not responsible when the vessel's master can prove no negligence or misconduct occurred. Moreover, under the London Convention on Limitation of Liability for Maritime Claims (19 November 1976), claims for damages caused by ships are limited in liability. The limitation depends on the tonnage of the ship, which might result in a liability gap where damage is caused by a small vessel.

In cases where the crane vessel is provided by the project owner, complex contractual interfaces arise with regard to liability for lifting operations. Lifting plans must be jointly prepared by the vessel owner,

the crane operator and the supplier of the respective components. The project owner must take care that responsibility for the lifting plans is accurately allocated to each party and that one of its contractors is responsible for the lifting instructions and supervision of the lifting operations.

Certification

Similar conditions apply to the certification process. Offshore wind turbines to be constructed in the German Exclusive Economic Zone (EEZ) are subject to the Offshore Plants Ordinance, 23 January 1997, which was further amended on 15 January 2012 (Seeanlagenverordnung, SeeAnlV). In accordance with Section 4, paragraph 4 of SeeAnlV, the design, construction and operation of the wind farm must be "state-of-the-art". Compliance with this standard has to be demonstrated to and approved by the BSH at specific stages of the project (design basis, basic design, detailed design, start of operation).

The BSH published technical standards that describe more precisely the rules that apply to the design, construction and operation of the wind farm. They include standards for design and soil investigation at offshore wind farms. A further standard "Safety and Security Conception of Offshore Wind Farms" is currently being developed. These represent the current minimum technical requirements that have to be implemented during the construction of offshore wind farms.

As BSH does not have the expertise to assess the technical design of the wind farm, it regularly decrees, under the permit granted in accordance with Section 5, paragraph 2 of SeeAnlV, that the construction documents, execution plan and execution must be certified by an authorised classification company. BSH standards detail how and when technical reports and statements of conformity, on issues such as the suitability of the site, the design, construction, operation and dismantling of the wind farm, have to be submitted to the authority over the project's lifetime. Deviations from the technical rules, as detailed in the standards, may be approved in individual cases but must provide the same level of quality.

For the project owner, it is essential that the required statements of conformity are granted in good time. Technical plant designated to become part of the wind farm (turbines, support structures, inner wind farm cabling and the offshore transformer platform) will be designed and built by suppliers who are not licensed under the operating permit. It is necessary, therefore, that all suppliers are contractually obliged to comply with BSH standards, where applicable. Given interdependencies between the design, fabrication and installation of components, it is imperative that obligations are comprehensively documented, with an agreed time schedule, including milestones, for all involved suppliers.

Clear and binding obligations are paramount because multiple parties have to cooperate at this stage in project development. These include the BSH, the certifying body, impacted contractors and the project owner. Delays in obtaining statements of conformity or consent (Zustimmung im Einzelfall) may severely delay the entire project programme. Given the stand-by costs for the entire project, and even for single elements such as the charter of installation vessels, it is evident that timely agreement to contractual obligations can help to minimise the risk of delays.

Financing aspects

Project contracts must be bankable. They should satisfy standard debt financing requirements even if financing contracts have not been signed when the project contracts are concluded.

Direct agreements and assignment

Under credit agreements, it is usual for the project owner, main component contractor and lending banks to enter into a tripartite direct agreement. The project contracts should detail the respective obligations of the contractor. Moreover, the project owner must be allowed to assign its rights under all contracts to those financing entities.

Transfer of title

For the financing banks to obtain fiduciary ownership of the wind farm assets, rules regarding the transfer of legal title must be observed. Currently, however, there is no clear statutory provision that declares the rules of the BGB applicable in the EEZ. The consequences are subject to intense legal debate.

Though most juridical literature is in favour of BGB rules being applied in the EEZ, lack of court rulings on applicability and opposing opinions in the legal press mean uncertainty as to whether or not transfer of title may be effected in the EEZ. Though it is current practice that the transfer of title takes place onshore, this potentially creates a conflict of interest for the supplier, who relinquishes ownership of goods on payment of only the major part of the contract price.

Several alternatives to bring about the valid transfer of title are under discussion. On the basis that applicable law is determined at sea by the flag flown by a ship, one suggestion is that the transfer of full legal title should take place on board a ship flying the German flag. Moreover, according to international commercial maritime law, transported goods are governed by the law applicable to the ship that carries them . In theory, this may be a solution, but transferring title at sea rather than in harbour might bring few advantages for the contractor under the payment schedule. The other challenge, of course, is finding a vessel registered under the German flag.

Others suggest that it is possible to transfer the title on a contingent remainder. This would satisfy the interests of suppliers in that they would not be required to abandon ownership of assets before receiving the full contracted price.

Another option is to establish an asset company as a special purpose vehicle into which title to the goods is vested.

Given the unclear legal situation regarding the applicability of the BGB in the German Exclusive Economic Zone, the current recommendation is to stipulate transfer of title to the respective assets onshore, either directly to the project owner or to an asset company.

Technological risk

From a financing perspective, it is critical that contractors put in place provisions to ensure full responsibility for their technology. This includes an unlimited warranty, plus an adequate liability for consequential damages due to defects; low thresholds for serial defects and adequate performance tests as preconditions for acceptance.

Operation and maintenance

The technical, commercial and legal requirements for the operation and maintenance of an offshore wind farm are no less complex than for construction. Investment costs and operational profit have to be earned during the operational phase. The principal problems are the relative high-base costs and lack of established standard procedures for all aspects of operation. Maintenance contracts have to be both sufficiently detailed while allowing a degree of flexibility as service set-up and work processes are likely to change over the term.

Maintenance, including service, inspection, repair, improvement and analysis of weak spots, are defined under technical standard DIN 31051 or DIN EN 13306. This sets out ideal maintenance practices in order to decelerate wear and tear of technical units.

The turbine is the most critical element in the maintenance of an offshore wind farm. Manufacturers usually insist on carrying out the service of the turbines during the warranty period. Service during the term of the warranty requires a different scope of work, with repair of defects categorised under technical risk covered by the warranty. All manufacturers provide so-called full-service contracts, which include repair work after expiry of the warranty period. Damage to turbines due to "force majeure" events or circumstances beyond the control of the manufacturer, are normally considered the risk of the wind farm operator.

A full-service contract typically includes:

- scheduled service
- inspections
- remote monitoring
- correction of faults
- repair
- retrofits and re-engineering
- reporting
- pricing repair work not covered by the warranty and lead times for spare parts
- offshore logistics
- training
- availability guarantee.

The accessibility of turbines and the contractual allocation of related risks are critical issues in a service contract. Access to turbines may be restricted due to adverse weather conditions, ice, algae or technical defects at the boat landing. If such factors prevent the repair or service of the turbine, this impacts availability and may create costs. The maintenance contract must include, therefore, criteria for adverse weather as in the construction contract. Risks resulting from these circumstances must be allocated in terms of cost and availability.

Availability guarantee

Integral to the service contract is the availability guarantee. This describes the amount of time that the power plant should be technically able to produce electricity over a given period, under normal operating conditions.

A couple of years ago, an availability guarantee value for each turbine was included in service contracts. However, the market at present only offers a wind-arm related guarantee. The absolute percentage of availability is just one aspect of the commercial assessment of the guarantee. The real value is influenced by additional factors, such as the extent to which the manufacturer assumes the risk of adverse weather conditions and the period of reference.

All carve outs under the definition of the availability guarantee must be reviewed in order to precisely assess the commercial value. Limitations in terms of compensation also have a bearing on the bankability of the contract, as the availability guarantee is a key influence on the financing banks' decision-making.

Miscellaneous

Servicing the wind turbine has to be integrated into the operation and maintenance of the entire wind farm. Wind farm logistics can be improved where the service contract allows for transport of wind farm and sub-contracted personnel on the manufacturer's own service vessel.

For both specific and unscheduled service activities, as well as for work not covered by the repair warranty, responsibility for providing jack-up barges, crane operators and lifting supervisors must be determined upfront.

Logistics

There is a distinction between land-based and sea-based service set-ups. The daily transfer of service personnel by ship is only feasible if the wind farm is located near shore.

For wind farms at further distances, a hotel vessel at the offshore site or a service base on the offshore transformer platform is needed for service personnel. Hotel vessels are often equipped with self-stabilizing access systems, allowing direct transfer from the vessel to the turbines. Smaller crew transfer vessels are available for other journeys within the wind farm.

Alternatively, transport by helicopter is possible.

Training

In time, most offshore wind farms operators envisage taking over the service of the wind farms themselves.

To achieve this, wind farm personnel must be appropriately trained by the manufacturer. The number of employees and level of competency required must be defined. As wind farm staff will be integrated into the manufacturer's team, a permit under the German Act on Transfer of Personnel (Arbeitnehmerüberlassungsgesetz, AÜG) might be required. Setting up a joint service company, which may be acquired by the wind farm operator at the end of the service term, is another option.

Labour law

As of 1 August 2013, the legal framework regarding labour law in Germany has undergone change, with amendments to the Working Time Act (Arbeitszeitgesetz, ArbZG), the introduction of a Marine Labour Act (Seearbeitsgesetz, SeeArbG) and an Ordinance on Offshore Working Times (Offshore-Arbeitszeitverordnung, Offshore-ArbZV).

Due to uncertainties about the applicability of German rules on working hours in the German EEZ, the Working Time Act now defines "offshore works" for seafarers as crew members, which fall under the Marine Labour Act. The Ordinance on Offshore Working Times gives precise rules on working times offshore. The new regime allows a maximum 12 hours' work per day, which can be extended to 14 hours, including travel time. Depending on average daily working hours, an employee may stay offshore for a maximum 14 to 21 days. Work is permitted on Sundays and public holidays.

Rules on health and safety must be observed on wind farms. The German Labour Safety Act (Arbeitsschutzgesetz, ArbSchG), which is applicable in the EEZ, and the accident prevention rules of the employers' mutual insurance associations (Berufsgenossenschaften), are particularly important. Section 3 of the ArbSchG requires employers to guarantee the safety and the protection of the health of personnel with relevant organisational and technical measures. Some elements of health and safety procedures must be described in a health and safety plan (Schutz- und Sicherheitskonzept) which is prepared under the standard terms of the BSH permit.

Management contract

Management contracts are key to operations and maintenance activities. In offshore wind farms, technical and commercial management are generally assigned to one service provider. The management contract is not legally defined. Technically, it is understood to be a corporate contract, in accordance with Sections 291 et seq. of the German Stock Corporations Act (Aktiengesetz, AktG), and covers the conduct of a company in the name and on behalf of the owner. Conversely, most management contracts do not transfer authority to make entrepreneurial decisions, but are purely service contracts governing a range of technical and commercial management tasks.

Technical management covers organisation of the technical operation of the wind farm, including the appointment and supervision of other contractors, analysis of errors and optimisation of the operation. Other obligations include claims management with regard to suppliers, and comprehensive reporting.

Commercial management entails organisation of accounting, control, payment of transactions, negotiations with contracted parties, notification of insurance claims and reporting to lenders.

The scope of work under the management agreement must clearly identify those activities and obligations that must be carried out expressly by the manager and those where supervision of other service providers is permitted. Accordingly, liability provisions should reflect this set-up.

The obligations differ where warranties or other service contracts are in place. While the service operation vessel is typically provided by the turbine manufacturer during the term of the service contract, responsibility for logistics might fall to the manager once the term is ended.

Abbreviations

AGB	Allgemeine Geschäftsbedingungen; General Terms and Conditions
BGB	Bürgerliches Gesetzbuch; Civil Code
BIMCO	The Baltic and International Maritime Council
BSH	Bundesamt für Seeschifffahrt und Hydrographie; Federal Maritime and Hydrographic Agency
CAR	Construction All Risk insurance
EEG	Erneuerbare-Energien-Gesetz – Gesetz für den Vorrang Erneuerbarer Energien; Renewable Energy Sources Act – Act for the Prioritisation of Renewable Energies (German Renewable Energy Sources Act of 25 October 2008 as amended on 1 January 2012)
EEZ	Exclusive Economic Zone
EnWG	Energiewirtschaftsgesetz – Gesetz über die Elektrizitäts- und Gasversorgung; German Energy Act – Law on the Supply of Electricity and Gas (German Energy Act of 7 July 2005 as amended on 26 June 2013)
EPCI	Engineering, Procurement, Construction and Installation
FIDIC	Fédération Internationale des Ingénieurs Conseils; International Federation of Consulting Engineers
LOGIC	Leading Oil & Gas Industry Competitiveness
SeeAnlV	Seeanlagenverordnung – Verordnung über Anlagen seewärts der Begrenzung des deutschen Küstenmeeres; Sea Systems Ordinance – Ordinance on Plant on Offshore Installations Seawards of the German Territorial Waters (German Offshore Plants Ordinance of 23 January 1997 as amended on 15 January 2012)
TSO	Transmission System Operator

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